Complete Monograph

2025 GROUP B PROPOSED CHANGES TO THE I-CODES

April 27 – May 6, 2025
Doubletree by Hilton
Universal Orlando - Orlando, FL

ICC
INTERNATIONAL CODE COUNCIL®

First Printing

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(2025 Group B)

INTRODUCTION

As utilized during the previous Cycles, code change modifications will be submitted and presented for committee and public viewing at the Committee Action Hearing through the cdpACCESS system. Detailed instructions for modifications will be available at the cdpACCESS website. In addition, printed instructions will be supplied at the CAH hearings. See page v for details on the modification submittal process.

The proposed changes published herein have been submitted in accordance with established procedures [Council Policy 28 Code Development (CP 28)] (see page xiii) and are posted for review. The publication of these changes constitutes neither endorsement nor question of them but is in accordance with established procedures so that any interested individuals may make their views known to the relevant code committee and others similarly interested. In furtherance of this purpose, the committee will hold an open public hearing at the date and place shown below for the purpose of receiving comments and arguments for or against such proposed changes. Those who are interested in testifying on any of the published changes are expected to be represented at these hearings.

This compilation of code change proposals is available in electronic form only. ICC no longer prints and distributes this document. The compilation of code change proposals is posted on two locations on the ICC website: the customary posting which is the linked from the Code Development webpage and from the cdpACCESS webpage.

2025 GROUP B CODE GROUPINGS

Codes to be considered in Group B Cycle:

- Administrative Provisions
- IBC – General
- IBC – Structural
- IEBC
- IgCC (Chapter 1 & Appendix M)
- IRC – Building
- IPMC
- IZC

See page viii for the 2024 – 2026 ICC Code Development Schedule

2025 ICC COMMITTEE ACTION HEARINGS

These proposed changes will be discussed in public hearings to be held on April 27 – May 6, 2025, at the DoubleTree by Hilton at the entrance to Universal Orlando, Orlando, FL. The code committees will conduct their public hearings in accordance with the schedule shown on page liii.

MEMBERSHIP COUNCILS
PRIOR TO THE HEARINGS

Prior to the hearings, some of the Membership Councils will be holding meetings from 9-11am, Sunday, April 27th. This has been identified on the hearing schedule that was posted February.

ADVANCED REGISTRATION AND VOTING

ICC members in attendance will be allowed to vote on procedural “points of order” in accordance with Section 6.4.8. of CP 28 (see page xxii) For **identification purposes, all hearing participants must register. There is no cost to register or participate in the hearings.**

You are encouraged to advance register. Click here to register online.
The registration desk will be open in the lobby of the convention center according to the following schedule:

Saturday, April 26th	2:00 pm to 5:00 pm
Sunday, April 27th	8:00 am to 5:00 pm
Monday, April 28th through Saturday, May 3rd	7:30 am to 5:00 pm
Sunday, May 4th	9:30 am to 5:00 pm
Monday, May 5th through Tuesday, May 6th	7:30 am to 5:00 pm

In order to be eligible to vote at the Public Comment Hearings and the Online Governmental Consensus Vote, CP 28 requires that applications for new and reinstating Governmental Memberships must be received by the ICC at least 180 days prior to the Committee Action Hearing. This deadline is October 21, 2025. Application's (new or renewal) are due on March 20, 2026 for validation of Governmental Member Voting Representatives (GMVRs) to be eligible to vote at Group A and B PCH or OGCV in 2026. Recent revisions to CP 28 require voter validation only once during each code development cycle. (See Section 12.1 bold below).

Applicable

CP 28 sections noted below:

12.1 Eligible Final Action Voters: Eligible Final Action voters include ICC Governmental Member Voting Representatives and Honorary Members in good standing who have been confirmed by ICC in accordance with the Electronic Voter Validation System. Such confirmations are required to be revalidated once each code development cycle. After initial validation, changes to the list of GMVRs for the remainder of the code development cycle shall be made in accordance with Section 12.2. Eligible Final Action voters in attendance at the Public Comment Hearing and those participating in the Online Governmental Consensus Vote shall have one vote per eligible voter on all Codes. Individuals who represent more than one Governmental Member shall be limited to a single vote.

12.2 Applications: Applications, whether new or renewed, for Governmental Membership must be received by the ICC at least 180 days prior to the Group A and B Public Comment Hearing in order for its designated representatives to be eligible to vote at the Group A and B Public Comment Hearing or Online Governmental Consensus Vote. Applications, whether new or updated, for Governmental Member Voting Representative status (validation) must be received by the Code Council 30 days prior to the commencement of the first day of the Code Group A and B Public Comment Hearing in order for any designated representative to be eligible to vote. An individual designated as a Governmental Member Voting Representative shall provide sufficient information to establish eligibility as defined in the ICC Bylaws. The Executive Committee of the ICC Board, in its discretion, shall have the authority to address questions related to eligibility.

As such, new and reinstating Governmental Member membership applications must be received by ICC's Member Services Department by October 21, 2025 For information on application for new membership and membership renewal, click here or call ICC Member Services at 1-888-ICC SAFE (422-7233)

ANALYSIS STATEMENTS

Various proposed changes published herein contain an "analysis" that appears after the proponent's reason. These comments do not advocate action by the code committees or the voting membership for or against a proposal. The purpose of such comments is to identify pertinent information that is relevant to the consideration of the proposed change by all interested parties, including those testifying, the code committees and the voting membership. Staff analyses customarily identify such things as: conflicts and duplication within a proposed change and with other proposed changes and/or current code text; deficiencies in proposed text and/or substantiation; text problems such as wording defects and vagueness; background information on the development of current text; and staff's review of proposed reference standards for compliance with the Procedures. Lack of an analysis indicates neither support for, nor opposition to a proposal.

NEW REFERENCE STANDARDS

Proposed changes that include the addition of a reference to a new standard (a standard that is not currently referenced in the current edition of the I-Codes) will include in the proposal the number, title and edition of the proposed standard. This identifies to all interested parties the precise document that is being proposed and which would be included in the referenced standards chapter of the code if the proposed change is approved. Section 4.6.3.1.1 of CP 28 requires that a code change proposal will not be processed unless at least a consensus draft version of the standard has been provided. Proponents of code changes which propose a new standard have been requested to provide copies of the standard to the code development committee. An analysis statement will be posted on the ICC website providing information regarding standard content, such as enforceable language, references to proprietary products or services, and references to consensus procedure. The analysis statements for referenced standards will be posted on or before April 1, 2025. This information will also be published and made available at the hearings.

Proposed new reference standards must be completed and readily available prior to the 2026 Public Comment Hearing in accordance with Section 4.6.3.1.1 of CP28.

REFERENCED STANDARDS UPDATES

Updates to currently referenced standards in any of the 2024 Codes will be considered by the Administrative Code Development Committee in the 2025 Group B Cycle.

Note that according to Section 4.6.3.1 of CP28, updates to existing referenced standards that are part of a code change proposal that includes technical revisions to code text to coordinate with such proposed standard(s) update are to be processed as proposed new standards in accordance with Sections 4.4 and 4.6.3.1.2 of CP28. Accordingly, drafts of the revisions would have needed to be supplied at the time of the code change submittal and the standard update will be required to be completed and published on or before the Public Comment Hearing for this 2026 Cycle, April 19, 2026.

It should be noted that, in accordance with Section 5.6 and 5.6.1 of CP 28, standards promulgators will have until December 1, 2026 to finalize and publish any updates to standards in the administrative update. If the standard update is not finalized and published by December 1, 2026, the respective I-Codes will be revised to reference the previously listed year edition of the standard. (See Section 5.6.1 below)

> **5.6.1 Updating ICC Standards Referenced in the Codes.** All standards developed by ICC and referenced by the Codes which are undergoing an update shall be announced by ICC to allow stakeholders to participate in the update process. Where the updated standard is completed and available by December 1 of the third year of the code cycle, the published version of the new edition of the Code which references the standard shall refer to the updated edition of the standard. If the standard is not available by the December 1st deadline, the edition of the standard as referenced by the newly published Code shall revert back to the reference contained in the previous edition and an errata to the Code issued.

ICC WEBSITE

This document is posted on the ICC Website. While great care has been exercised in the publication of this document, errata to proposed changes may occur. Errata, if any, will be identified in updates posted prior to Committee Action Hearing #1. Users are encouraged to periodically review the ICC Website. Additionally, analysis statements for code changes which propose a new referenced standard will be updated and posted to reflect the staff review of the standard for compliance with select portions of Section 4.6 of the Procedures.

PROPONENT CONTACT INFORMATION

In accordance with procedures, proponents are under no obligation to provide an email address for their posted proposal. For most of the code change proposals, an email address for the proponent has been provided. In an effort to continue to provide for proponent's privacy and at the same time allow an initial contact between an interested party and the proponent, we will be utilizing cdpACCESS to allow an interested party to initiate contact with the proponent without identifying the proponent's email address. The process is follows:

- Interested party logs into cdpACCESS and searches for the subject code change.
- Interested party locates the button "Contact the Proponent" to request that cdpACCESS contact the proponent, providing the interested party's name and email address.
- cdpACCESS uses the proponent email address on file and sends a notification to the proponent indicating the name of the interested party and their email address and that the interested party would like to discuss the code change.
- The interested party receives an email noting that the cdpACCESS system has sent the request to the proponent.
- It is up to the proponent to determine if they would like to respond and contact the interested party.
- The proponent is under no obligation to respond to the cdpACCESS request for contact or to contact the interested party. The proponent's contact information is not revealed to the interested party as part of this initial contact.

HEARING ORDER CHANGES AND TABLING OF PROPOSALS

The Code Change Agenda that places the code change proposals in a logical order for each hearing committee is shown at the beginning of the respective committee's group of code change proposals. In accordance with Section 6.4.4 of CP28, any attendee at the hearing is allowed make a motion to revise the hearing order at any time during the hearings except while a code change is being discussed, but usually as the first order of business at the hearing. Preference is given to grouping like subjects together and moving items back to a later position on the agenda.

This motion is considered in order unless the proponent(s) of the moved code change proposals are in attendance and object to the move. If there is objection to the move, the motion is ruled out of order by the Moderator. This ruling is final and not debatable. If the motion is not ruled out of order, the motion is subject to a 2/3 vote of those present.

A motion to table a code change proposal is allowed in accordance with Section 6.4.5 of CP28. Just as with a motion to move a code change proposal in the hearing order, this motion is in order only if there is no objection from the proponent(s) in attendance at the hearing. When the proponent(s) object, the motion to table is ruled out of order by the Moderator. The ruling is final and not subject to debate.

The motion to table must identify the location to where the code change proposal consideration will be resumed by either identifying a specific date and time within the timeframe of the Code Change Agenda for the group of code change proposals under consideration or by designating a specific location in the Code Change Agenda. If the motion to table is not ruled out of order, the motion is subject to a $^2/_3$ vote of those present.

FLOOR MODIFICATIONS

With the implementation of the cdpACCESS online system, CP 28 requires that floor modifications be submitted electronically for the Committee Action Hearing #1 (CAH #1).

The proponent of the modification must be in attendance at the CAH to present the modification as part of his/her testimony**.**

Those who are submitting a modification for consideration by the respective Code Development Committee are required to sign a Copyright Release in order to have their modification(s) considered (Section 4.3.5.5 of CP 28). This feature is built into cdpACCESS similar to the way the release is executed for code changes, comments and public comment submittals.

The Chair rules the modification in or out of order. Note that this is a procedural ruling to determine if the modification is to be permitted to be considered at the hearing. It is not a technical ruling. The ruling is final, with no challenge allowed.

The modification proponent is required to identify the specific text of the code change proposal that is being revised and the revision itself. In this way, it is very similar to the public comment process and that is the way cdpACCESS was developed to process modifications.

Example:
Original code change proposal.
The original code change proposal requested the following change to Section 1506.2 of the IBC: (Note that the example is fictional.)

FS15-25
803.1.1

Proponent: John West representing self

Revise as follows:
803.1.1 Interior wall and ceiling finish materials tested in accordance with NFPA 286. Interior wall and ceiling finish materials shall be classified in accordance with NFPA 286 and comply with Section 803.1.1.1. Materials complying with Section 803.1.1.1 shall be considered to also comply with the requirements of Class A.

Exception: Interior wall and ceiling finish materials qualified in accordance with Section 104.2.3 and approved by the code official.

Proposed modification:

A modification to the code change proposal is proposed:

1. To change "Interior wall and ceiling finish materials" to "Interior wall and ceiling finish systems."
2. To change "conform to" to "comply with."
3. To remove "and approved by the code official" from the exception.

The cdpACCESS system will provide the text of the original code change proposal with the proposed change incorporated into the text. Using the cdpACCESS system, the proponent of the modification locates the original change in the system.

The proponent of the modification will need to manually install strikethrough (ex:" ~~delete~~) and underline (ex: add) formatting showing the additional revisions to the original proposal.

cdpACCESS will show the modification as follows:

FS15-25
803.1.1

Proponent: John West representing self

Revise as follows:

803.1.1 Interior wall and ceiling finish materials tested in accordance with NFPA 286. Interior wall and ceiling finish materials shall be classified in accordance with NFPA 286 and comply with Section 803.1.1.1. Materials complying with Section 803.1.1.1 shall be considered to also comply with the requirements of Class A.

Exception: Interior wall and ceiling finish ~~materials~~ systems qualified in accordance with Section 104.2.3 ~~and approved by the code official~~.

Modification proponents will be able to access the system in advance of the hearings to develop their modification (see "Detailed Steps of the Modification Submission Process via cdpACCESS" on the following pages).
Hard copies of the modification for distribution to the committee are not required. You can preview your modification at any time by downloading a pdf via cdpACCESS.

OVERVIEW OF THE MODIFICATION PROCESS (see CP28 Section 6.5.2 on page xxiii)

1. Modification submitted electronically via cdpACCESS. This submittal is required in advance of the code change proposal being brought to the floor.

2. The code change proposal is brought to the floor by the Moderator.

IMPORTANT NOTE: ONCE A CODE CHANGE PROPOSAL IS BROUGHT TO THE FLOOR, ALL MODIFICATIONS MUST BE IN THE cdpACCESS SYSTEM. SEE NOTE 1.

3. Modification proponent suggests the modification from the floor at the hearing.

4. Modification posted to cdpACCESS for public viewing (including the hearing room via WiFi) and committee viewing.

5. Chair rules the modification in or out of order.

6. Modification displayed on the screen in the hearing room.

7. If ruled in order, testimony on the modification is initiated. (One minute each for support and opposition, thirty seconds each for rebuttal.)

EDITORIAL CODE CHANGES - CODE CORRELATION COMMITTEE

In a typical code change cycle, there are code change proposals that are considered strictly editorial. Section 5.4 of CP 28 (see below) establishes a process by which the Code Correlation Committee (CCC) considers such proposals.

> **5.4 Editorial Code Change Proposals.** When a code change proposal is submitted that proposes an editorial or format change that, in the opinion of the Secretariat, does not affect the scope or application of the code, the proposal shall be submitted to the Code Correlation Committee who shall deem the code change proposal as editorial or send the proposal back to the Secretariat to be considered by the appropriate Committee. To be deemed editorial, such proposal shall require a majority vote of the Code Correlation Committee. Editorial proposals shall be published in the Code Change Agenda. Such proposals shall be added to the hearing agenda for consideration by the appropriate Committee upon written request to ICC by any individual. The deadline to submit such requests shall be 14 days prior to the first day of the First Committee Action Hearing (CAH #1). Code Correlation Committee proposals that are not added to a Committee hearing agenda shall be published in the next edition of the code with no further consideration.

There are 21 such proposals in the current 2024 Cycle. The proposals are located after the last code change in the CAH Agenda and are identified by a code change prefix of CCC.

As noted in Section 5.4, anyone may request that any of these proposals be added to the hearing agenda. The deadline to make such a request is 11: 59 pm Pacific on Sunday, April 13, 2025, via email. Be sure to identify the code change number noted above. Such requests must be sent to:

Beth Tubbs
Vice President of Codes
btubbs@iccsafe.org

CODE DEVELOPMENT PROCESS STARTED IN 2024

The ICC board approved a standing motion from the Board Committee on the Long-Term Code Development Process to revise the code development cycle to incorporate two committee action hearings for each code group. This change expands the current process from two independent one-year cycles to a single continuous three-year cycle. This revised process is reflected in the following 2024/2025/2026 ICC Code Development Schedule. Go to https://www.iccsafe.org/products-and-services/i-codes/code-development-changes/ for more information.

2024/2025/2026 ICC CODE DEVELOPMENT SCHEDULE

3/17/2 | Updated 3/5/24

STEP IN CODE DEVELOPMENT CYCLE	DATE		
	2024 – Group A Codes IBC – E, IBC – FS, IFC, IFGC, IMC, IPC, IPSDC, IRC – M, IRC – P, ISPSC, IWUIC	**2025 – Group B Codes Admin, IBC – G, IBC – S, IEBC, IgCC (Ch. 1 & App M), IPMC, IRC – B, IZC**	**2026 - Group A & B Codes Public Comments Posting, Public Comment Hearing, Online Governmental Consensus Vote**
DEADLINE FOR RECEIPT OF ONLINE APPLICATIONS FOR ALL CODE DEVELOPMENT COMMITTEES	June 1, 2023 (See Schedule Notes)		
cdpACCESS OPEN FOR CODE CHANGE SUBMITTALS	October 16, 2023 (Tentative)	October 15, 2024	
DEADLINE FOR cdpACCESS ONLINE RECEIPT OF CODE CHANGE PROPOSALS	January 8, 2024	January 10, 2025	
WEB POSTING OF "PROPOSED CHANGES TO THE I-CODES" (Monograph)	February 26, 2024	March 13, 2025	
COMMITTEE ACTION HEARING #1 (CAH #1)	April 7 – 16, 2024	April 27 – May 6, 2025	
cdpACCESS OPEN FOR COMMENT SUBMITTALS TO CAH #1 ACTION	May 16, 2024	June 3, 2025	
WEB POSTING OF "REPORT OF THE COMMITTEE ACTION HEARING #1"	May 16, 2024	June 3, 2025	
DEADLINE FOR cdpACCESS ONLINE RECEIPT OF COMMENTS ON CAH #1 ACTIONS	July 8, 2024	July 15, 2025	
WEB POSTING OF "COMMENTS TO CAH #1"	September 5, 2024	September 10, 2025	
COMMITTEE ACTION HEARING #2 (CAH #2)	October 23 – 31, 2024	October 22 - 30, 2025	
WEB POSTING OF "REPORT OF THE COMMITTEE ACTION HEARING #2"	December 2, 2024	November 25, 2025	
cdpACCESS OPEN FOR PUBLIC COMMENT SUBMITTALS FOR 2026 PCH	January 20, 2025 (Tentative)	November 25, 2025 (Tentative)	

STEP IN CODE DEVELOPMENT CYCLE	DATE		
	2024 – Group A Codes IBC – E, IBC – FS, IFC, IFGC, IMC, IPC, IPSDC, IRC – M, IRC – P, ISPSC, IWUIC	**2025 – Group B Codes Admin, IBC – G, IBC – S, IEBC, IgCC (Ch. 1 & App M), IPMC, IRC – B, IZC**	**2026 - Group A & B Codes Public Comments Posting, Public Comment Hearing, Online Governmental Consensus Vote**
DEADLINE FOR cdpACCESS ONLINE RECEIPT OF PUBLIC COMMENTS FOR 2026 PCH	March 14, 2025	January 5, 2026	
WEB POSTING OF "GROUP A & B PUBLIC COMMENT AGENDA"	See 2026	See 2026	March 4, 2026
COMBINED GROUP A & B PUBLIC COMMENT HEARING (PCH)	Combined Group A & B PCH in 2026	Combined Group A & B PCH in 2026	April 19 - 28, 2026
COMBINED GROUP A & B ONLINE GOVERNMENTAL CONSENSUS VOTING (OGCV) PERIOD	Combined Group A & B OGCV in 2026	Combined Group A & B OGCV in 2026	Starts approx. two - three weeks after the last day of PCH.
WEB POSTING OF GROUP A & B FINAL ACTION	See 2026	See 2026	Following Validation Committee certification and ICC Board confirmation.

Schedule Notes:

- This schedule introduces the restructured process starting in 2024 with two Committee Action Hearings (CAH #1 and CAH #2) for each Code Group in 2024 and 2025, followed by a combined Group A and B PCH and OGCV in 2026. Click here for more information.
- Code Development Committee applications: As noted above, the restructured process will include two CAH's for which the same committee members who presided at CAH#1 will also preside at CAH#2. Previous cycles required Code Development Committee members to preside at only a single CAH in the Spring of the given year. Please be sure to consider this when applying for a Code Development Committee position.
- The "cdpACCESS OPEN" steps noted as "(tentative)" reflect availability of the applicable codes in the cdpACCESS system.
- Web posting of the "Proposed Changes to the I-Codes", "Comments to CAH #1" and "Group A & B Public Comment Agenda" will be posted no later than scheduled. ICC will make every effort to post these documents earlier, subject to code change/comment/public comment volume and processing time.
- "Comment" vs "Public Comment": CP28 uses the term "comment" to indicate a submittal in response to CAH #1 action and "public comment" in response to a CAH #2 action to be considered at the PCH. See Sections 7.0 and 9.0 in CP28.

2024 Group A Codes/Code Development Committees:

- IBC-E: IBC Egress provisions. Chapters 10 and 11.
- IBC-FS: IBC Fire Safety provisions. Chapters 7, 8, 9 (partial), 14 and 26. Majority of IBC Chapter 9 is maintained by the IFC. See Code Group Notes.
- IFC: The majority of IFC Chapter 10 is maintained by IBC-E. See Code Group Notes.
- IFGC
- IMC
- IPC
- IPSDC: Code changes heard by the IPC committee (combined IPC & IPSDC committee)
- IRC-M: IRC Mechanical provisions. Chapters 12 – 23 (code changes heard by the IRC - MP committee)

- IRC-P: IRC Plumbing provisions. Chapters 25 – 33 (code changes heard by the IRC – MP committee)
- ISPSC
- IWUIC: Code changes heard by the IFC committee (combined IFC & IWUIC committee)

2025 Group B Codes/Code Development Committees:

- Admin: Chapter 1 of all the I-Codes except the IgCC and IRC. Also includes the update of currently referenced standards in all of the 2021 Codes, except the IgCC. See Code Group Notes below for the IECC and the ICC PC.
- IBC-G: IBC General provisions. Chapters 3 – 6, 12, 13, 27 – 33.
- IBC-S: IBC Structural provisions. IBC Chapters 15 – 25 and IEBC structural provisions. See Code Group Notes.
- IEBC: IEBC Non-structural provisions. See Code Group Notes.
- IgCC: The administration provisions of Chapter 1 of the IgCC in order to provide for coordination with the other administrative provisions in the I-Codes. Additionally, Appendix M included as it is not included in ASHRAE Standard 189.1. Remainder of the code is based on the provisions of ASHRAE Standard 189.1 *Standard for the Design of High-Performance Green Buildings, Except Low-Rise Residential Buildings*. The IgCC proposals will be heard by the Admin Code Development Committee
- IPMC: Code changes heard by the IPM/ZC (combined IPMC & IZC code committee)
- IRC-B: IRC Building provisions. Chapters 1 – 10
- IZC: Code changes heard by the IPM/ZC (combined IPMC & IZC code committee)

Code Group Notes:

- Be sure to review the document entitled "2024/2025/2026 Group A and B Code Development Committee Responsibilities Matrix" (matrix) which is posted on the ICC website. This identifies responsibilities which are different than Group A and B codes and committees which may impact the applicable code change cycle and resulting code change deadline. As an example, throughout Chapter 4 of the IBC (IBC- General), there are numerous sections which include the designation "[F]" which indicates that the provisions of the section are maintained by the IFC committee. Similarly, there are numerous sections in the IEBC which include the designation "[BS]". These are structural provisions which will be heard by the IBC – Structural committee. The designations in the code are identified in the matrix.
- I-Code Chapter 1: Proposed changes to the provisions in Chapter 1 of the majority of the I-Codes are heard in Group B (see Admin above for exceptions). Be sure to review the brackets ([ ]) of the applicable code.
- Definitions. Be sure to review the brackets ([ ]) in Chapter 2 of the applicable code and the matrix to determine which committee will consider proposed changes to the definitions.
- ICC Performance Code (ICC PC): The 2027 edition of the ICC PC is being updated utilizing the ICC standards process. Click link for more information.
- International Energy Conservation Code (IECC) and Chapter 11 of the International Residential Code (IRC): The 2027 edition of the IECC and Chapter 11 of the IRC will be updated utilizing the ICC standards process. Click link for more information.

2024/2025/2026 STAFF SECRETARIES

GROUP A (2024)

IBC – Egress Chapters 10, 11	IBC – Fire Safety Chapters 7, 8, 9, 14, 26	IFC	IFGC	IMC
Kim Paarlberg Indianapolis, IN Ext 4306 kpaarlberg@iccsafe.org	Samhar Hoz Chicago Regional Office Ext 4284 shoz@iccsafe.org	Scott Adams Salt Lake City, UT Ext 4341 sadams@iccsafe.org Keith Enstrom Chicago Regional Office Ext 4342 kenstrom@iccsafe.org	LaToya Carraway Chicago Regional Office Ext 4347 lcarraway@iccsafe.org	LaToya Carraway Chicago Regional Office Ext 4347 lcarraway@iccsafe.org
IPC/IPSDC	**IRC Mechanical**	**IRC Plumbing**	**ISPSC**	**IWUIC**
Fred Grable Chicago Regional Office Ext 4359 fgrable@iccsafe.org	LaToya Carraway Chicago Regional Office Ext 4347 lcarraway@iccsafe.org	Fred Grable Chicago Regional Office Ext 4359 fgrable@iccsafe.org	Fred Grable Chicago Regional Office Ext 4359 fgrable@iccsafe.org	Keith Enstrom Chicago Regional Office Ext 4342 kenstrom@iccsafe.org Beth Tubbs Northbridge, MA Ext 7708 btubbs@iccsafe.org

GROUP B (2025)

ADMINISTRATIVE Chapter 1 All Codes except the IECC, IgCC, and IRC	IBC – General Chapters -6, 12, 13, 27-34	IBC- Structural Chapters 15-25	IEBC	ICC Performance
Keith Enstrom Chicago Regional Office Ext 4342 kenstrom@iccsafe.org	Quinton Owens Sugar City, ID Ext 4319 qowens@iccsafe.org Kim Paarlberg Indianapolis, IN Ext 4306 kpaarlberg@iccsafe.org	Dane Rankin Chicago Regional Office Ext 4405 Drankin@iccsafe.org	Scott Adams Salt Lake City, UT Ext 4341 sadams@iccsafe.org Paul Sincaglia Salem, MA Chicago Regional Office Ext 4331 psincaglia@iccsafe.org	Scott Adams Salt Lake City, UT Ext 4341 sadams@iccsafe.org
IPMC	**IRC-Building**	**IZC**		
LaToya Carraway Chicago Regional Office Ext 4347 lcarraway@iccsafe.org	Kim Paarlberg Indianapolis, IN Ext 4306 kpearlberg@iccsafe.org Samhar Hoz Chicago Regional Office Ext 4284 shoz@iccsafe.org	LaToya Carraway Chicago Regional Office Ext 4347 lcarraway@iccsafe.org		

IgCC proposals to Chapter 1 and Appendix M to be heard by the Administrative Committee.

CP#28-05 – Code Development

Approved: 09/24/05 | **Revised:** 2/05/25

1.0 Introduction

1.1 Purpose of Council Policy: The purpose of this Council Policy is to prescribe the Rules of Procedure utilized in the continued development and maintenance of the International Codes (Codes).

1.2 Objectives: The ICC Code Development Process has the following objectives:

1.2.1 The timely evaluation and recognition of technological developments pertaining to construction regulations.
1.2.2 The open discussion of code change proposals by all parties desiring to participate.
1.2.3 The final determination of Code text by public officials actively engaged in the administration, formulation, implementation or enforcement of laws, ordinances, rules, or regulations relating to the public health, safety, and welfare and by honorary members.
1.2.4 The increased participation of all parties desiring to participate through an online submittal and voting process that includes opportunities for online collaboration.

1.3 Code Publication: The ICC Board of Directors (ICC Board) shall determine the title and the general purpose and scope of each Code published by the ICC.

1.3.1 Code Correlation: The provisions of all Codes shall be consistent with one another so that conflicts between the Codes do not occur. A Group A and Group B Code Development Committee Responsibilities Matrix identifies which Code shall be the primary document, and therefore which Code Development Committee shall be responsible for maintenance of the Code text where a given subject matter or Code text could appear in more than one Code. The Matrix shall be administered by the Code Correlation Committee as approved by the ICC Board and posted prior to the code change proposal deadline. Duplication of content or text between Codes shall be limited to the minimum extent necessary for practical usability of the Codes, as determined in accordance with Section 5.5.

1.4 Process Maintenance: The review and maintenance of the Code Development Process and these Rules of Procedure shall be by the ICC Board. The manner in which Codes are developed embodies core principles of the organization. One of those principles is that the final content of the Codes is determined by a vote of the governmental and honorary members in accordance with Sections 10.6 and 11. It is the policy of the ICC Board that there shall be no change to this principle without the affirmation of two-thirds of the governmental and honorary members responding.

1.5 Secretariat: The Chief Executive Officer shall assign a Secretariat for each of the Codes. All correspondence relating to code change proposals, comments to Committee action and public comments shall be addressed to the Secretariat. The Secretariat shall have the authority to facilitate unforeseen situations which arise in the implementation of this council policy. Staff shall maintain a record of such actions.

1.6 Code Development Committee: The members of the respective Code Development Committee presiding over the hearings are appointed by the ICC Board in accordance with Section 6.2. The term "Committee" is used throughout this Council Policy to refer to Code Development Committee members.

1.7 Recording: Individuals requesting permission to record any meeting or hearing, or portion thereof, shall be required to provide the ICC with a release of responsibility disclaimer and shall acknowledge that ICC shall retain sole ownership of the recording, and that they have insurance coverage for liability and misuse of recording materials. Equipment and the process used to record shall, in the judgment of the ICC Secretariat, be conducted in a manner that is not disruptive to the meeting. The ICC shall not be responsible for equipment, personnel or any other provision necessary to accomplish the recording. An unedited copy of the recording shall be forwarded to ICC within 30 days of the meeting. Recordings shall not otherwise be copied, reproduced or distributed in any manner. Recordings shall be returned to ICC or destroyed upon the request of ICC.

1.8 **Code of Ethics:** Each individual participating in the ICC Code Development Process shall comply with the posted *ICC Code of Ethics.*

2.0 Code Development Cycle

2.1 **Intent:** The code development cycle shall consist of the complete consideration of code change proposals in accordance with the procedures herein specified, commencing with the deadline for submission of code change proposals (see Section 4.5) and ending with publication of the Final Action on the code change proposals (see Section 13.4).

2.2 **New Editions:** The ICC Board shall determine the schedule for publishing new editions of the Codes. Each new edition shall incorporate the results of the code development activity since the previous edition.

2.3 **Interim Code Amendments:** All revisions to the International Codes shall be processed in accordance with other sections of this Council Policy except for Emergency Actions by the ICC Board complying with Section 2.3.1 and Interim Critical Amendments (ICA) complying with Section 2.3.2.

2.3.1 **Emergency Actions by the ICC Board:** Emergency actions by the ICC Board are limited to those issues representing an immediate threat to health and safety that warrant a more timely response than allowed by the Code Development Process schedule.

2.3.1.1 **Initial Request:** A request for an emergency action shall be based upon perceived immediate threats to health and safety and shall be reviewed by the Codes and Standards Council for referral to the ICC Board for action with their analysis and recommendation.

2.3.1.2 **Board and Member Action:** In the event that the ICC Board determines that an emergency amendment to any Code or supplement thereto is warranted, the same may be adopted by the ICC Board. Such action shall require an affirmative vote of at least two-thirds of the ICC Board.

The ICC membership shall be notified within ten days after the ICC Boards' official action of any emergency amendment. At the next Annual Business Meeting, any emergency amendment shall be presented to the members for ratification by a majority of the Governmental Member Voting Representatives and Honorary Members present and voting.

All code revisions pursuant to these emergency procedures and the reasons for such corrective action shall be published as soon as practicable after ICC Board action. Such revisions shall be identified as an emergency amendment.

Emergency amendments to any Code shall not be considered as a retro-active requirement to the Code. Incorporation of the emergency amendment into the adopted Code shall be subjected to the process established by the adopting authority.

2.3.2 **Interim Critical Amendments (ICA)**

2.3.2.1 **Submittal**. Anyone may propose an ICA by providing the following information:

a) Name of submitter
b) Contact information
c) Submitters representation
d) Date
e) Relevant section(s) and code edition(s) under consideration
f) Proposed modifications with text changes identified using underlines for new text and strikethroughs for deleted text
g) A statement that substantiates the need for proposed changes and why the proposed submission is of such a critical nature in accordance with Section 2.3.2.3 that it cannot be left to be addressed during the next code development cycle.

h) Written endorsement of the proposed ICA by not less than two members of the Committee(s) responsible for maintaining the affected code section(s)

2.3.2.2 Preliminary Review. An ICA will only be processed if the Codes and Standards Council determines that the proposed ICA appears to be of a critical nature requiring prompt action based on the criteria specified in Section 2.3.2.3. If processed, the question of critical nature shall be further considered by the responsible Committee(s) and the Codes and Standards Council. The text of a proposed ICA shall be processed as submitted or shall be changed with the approval of the submitter. The Codes and Standards Council shall process their preliminary "critical nature" determination within 45 days of the ICA submission.

2.3.2.3 Determination of Critical Nature. Qualification for critical nature shall be based on one or more of the following factors:

a) The proposed ICA corrects an error or an omission that was overlooked during a regular code development process.

b) The proposed ICA resolves a conflict within an individual code or a conflict involving two or more ICC codes.

c) The proposed ICA mitigates a previously unknown hazard.

2.3.2.4 Committee. A proposed ICA that meets the provisions in Sections 2.3.2.2 and 2.3.2.3 shall be submitted to the Committee(s) responsible for the affected section(s) for a ballot and comment period of 30 calendar days. The Committee(s) shall be separately balloted on both the technical merit of the ICA and whether the ICA satisfies the critical nature criteria. Negative votes in the initial ballot, if any, shall require a reason statement and shall be circulated to the full Committee(s) to allow initial ballot votes to be changed.

A Committee recommendation for approval shall require an affirmative vote of at least three-fourths of members who voted, on both technical merit and critical nature. The following shall be omitted from the three-fourths vote calculation:

a) Committee members who have abstained.

b) Committee members whose negative ballots do not include a statement conveying the reason for casting a negative vote.

c) Committee members who do not return their ballots prior to the announced ballot return deadline.

In addition to the three-fourths majority described above, the number of affirmative votes shall be not less than 50% of all Committee members who are eligible to vote. Committee members eligible to vote shall be the total number of individuals who are members of the Committee on the date of ballot distribution and shall not be adjusted based on abstentions or ballots that were not returned.

ICAs that achieve the required number of affirmative votes on both technical merit and critical nature are approved for further processing in accordance with Sections 2.3.2.5 through 2.3.2.9. ICAs that do not achieve the required number of affirmative votes on both technical merit and critical nature are rejected.

2.3.2.5 Publication of Proposed ICA for Comment. An ICA that is approved in accordance with Section 2.3.2.3 shall be published by ICC in appropriate media with a notice inviting the public to comment on the proposed ICA. The comment period shall be open for at least 30 calendar days from the date of posting of the notice. When a proposed ICA revises text that was changed in the most recent code development cycle, the ICA comment notice shall also be directly provided to submitters of proposals, comments to Committee action and public comments to the affected section in the most recent code development cycle.

2.3.2.6 Additional Committee Review. All comments shall be circulated to the responsible Committee(s) for a 30-calendar day ballot and comment period allowing an opportunity for Committee members to change votes taken prior to the comment period. If any votes are changed to negative, negative votes shall be circulated to the full Committee, followed by a final ballot following the voting procedures Section 2.3.2.4.

Approved ICAs shall be forwarded to the Codes and Standards Council with a staff report that includes all comments, ballots, Committee member comments on ballots and concurrence by staff on which code editions should be affected by the ICA.

2.3.2.7 Action of the Codes and Standards Council. The Codes and Standards Council shall review the material submitted in accordance with Section 2.3.2.6 at the next Codes and Standards Council meeting. Approval of an ICA shall require an affirmative vote of at least two-thirds of the Codes and Standards Council members who cast a vote at the meeting.

2.3.2.8 Effective Date and Publication. ICAs that are approved by the Codes and Standards

Council shall become effective 30 calendar days after approval, or in the case of an appeal in accordance with Section 2.3.2.9, 30 calendar days after a decision by the ICC Board upholding a Codes and Standards Council decision to issue an ICA.

An ICA shall apply to code editions specified by the ICC Codes and Standards Council, and ICC staff shall, by an appropriate method, publish approved ICAs and ensure that approved ICAs are distributed with future sales of affected codes. ICAs shall be distributed as a separate document and shall not be incorporated into the text of a published code until such time that the ICA has been approved by the full code development process, following submittal as a proposal in accordance with Section 2.3.2.11.

2.3.2.9 Appeals. A decision of the Codes and Standards Council to approve an ICA shall be appealable to the ICC Board in accordance with CP#1 – Appeals.

2.3.2.10 Applicability. ICAs shall not be considered retroactive requirements.

2.3.2.11 Subsequent Processing. An approved ICA shall automatically become a code change proposal from the Codes and Standards Council in the following code cycle.

2.4 Code Development Record. The code development record shall include the official documents and records developed in support of the given code development cycle. This includes the following:

1. Code Change Agenda (Section 5.8)
2. Audio and video recording of both Committee Action Hearings for each code group (Sections 6.1 and 8.1)
3. Report of both Committee Action Hearings for each code group (Sections 6.7 and 8.5)
4. Public Comment Agenda (Section 9.6)
5. Public Comment Hearing results (Section 10.5.9.10)
6. Audio and video recording of the Public Comment Hearing (Section 10.0)
7. The Online Governmental Consensus Ballot (Section 11.3)
8. Final Action results (Section 13.4)
9. Errata to the documents noted above

The information resulting from online collaboration between interested parties shall not be part of the code development record.

3.0 Restructured Process Starting in 2024 (NEW)

3.1 Process: The 2027 I-Codes, and future editions, shall be developed utilizing a restructured code development process starting in 2024. The process includes the following key process steps:

YEAR ONE

- Code Group A code change proposals due (see Section 4.0)
- Code Group A First Committee Action Hearing (CAH #1) (see Section 6.0)
- Code Group A comments due on the action taken at CAH #1 (see Section 7.0)
- Code Group A Second Committee Action Hearing (CAH #2) (see Section 8.0)

YEAR TWO

- Code Group B code change proposals due (see Section 4.0)
- Code Group A public comments due (see Section 9.0)
- Code Group B First Committee Action Hearing (CAH #1) (see Section 6.0)
- Code Group B comments due on the action taken at CAH #1 (see Section 7.0)
- Code Group B Second Committee Action Hearing (CAH # 2) (see Section 8.0)

YEAR THREE

- Code Group B public comments due (see Section 9.0)
- Combined Code Group A & B Public Comment Hearing (see Section 10.0)
- Combined Code Group A & B Online Governmental Consensus Vote (see Section 11.0)

3.2 Schedule: A schedule of Code Groups, dates, locations and process steps with deadlines shall be posted a minimum of 120 days prior to the code change submittal deadline for Code Group A codes.

4.0 Submittal of Code Change Proposals

4.1 Intent: Any interested person, persons or group may submit a code change proposal which will be duly considered when in conformance to these Rules of Procedure.

4.2 Withdrawal of Proposal: A code change proposal may be withdrawn by the proponent (WP) at any time prior to membership action on the consent agenda at the Public Comment Hearing or prior to testimony on the code change proposal on the individual consideration agenda at the Public Comment Hearing. All actions on the code change proposal shall cease immediately upon the withdrawal of the code change proposal.

4.3 Form and Content of Code Change Submittals: Each code change proposal shall be submitted separately and shall be complete in-itself. Each submittal shall contain the following information:

4.3.1 Proponent: Each code change proposal shall include the name, title and email address of the proponent. Email addresses shall be published with the code change proposals unless the proponent otherwise requests on the submittal form.

4.3.1.1 If a group, organization or Committee submits a code change proposal, an individual with prime responsibility shall be indicated.

4.3.1.2 If a proponent submits a code change proposal on behalf of a client, group, organization or Committee, the name and email address of the client, group, organization, or Committee shall be indicated.

4.3.2 Code Reference: Each code change proposal shall relate to the applicable code sections(s) in the latest edition of the Code.

4.3.2.1 If more than one section in the Code is affected by a code change proposal, appropriate proposals shall be included for all such affected sections.

4.3.2.2 If more than one Code is affected by a code change proposal, appropriate proposals shall be included for all such affected Codes and appropriate cross referencing shall be included in the supporting information.

4.3.3 Multiple Code Change Proposals to a Code Section. A proponent shall not submit multiple code change proposals to the same code section. Where a proponent submits multiple code change proposals to the same section, the proposals shall be considered as incomplete proposals and processed in accordance with Section 5.3. This restriction shall not apply to code change proposals that attempt to address differing subject matter within a code section.

4.3.4 Text Presentation: The text of the code change proposal shall be presented in the specific wording desired with deletions shown struck out with a single line and additions shown underlined with a single line.

4.3.4.1 A charging statement shall indicate the referenced code section(s) and whether the code change proposal is intended to be an addition, deletion, or a revision to existing Code text.

4.3.4.2 Whenever practical, the existing wording of the text shall be preserved with only such deletions and additions as necessary to accomplish the desired change.

4.3.4.3 Each code change proposal shall be in proper code format and terminology.

4.3.4.4 Each code change proposal shall be complete and specific in the text to eliminate unnecessary confusion or misinterpretation.

4.3.4.5 The proposed text shall be in mandatory terms.

4.3.5 Supporting Information: Each code change proposal shall include sufficient supporting information to indicate how the code change proposal is intended to affect the intent and application of the Code.

4.3.5.1 Purpose: The proponent shall clearly state the purpose of the code change proposal (e.g., clarify the Code; revise outdated material; substitute new or revised material for current provisions of the Code; add new requirements to the Code; delete current requirements, etc.).

4.3.5.2 Reasons: The proponent shall justify changing the current Code provisions, stating why the code change proposal is superior to the current provisions of the Code. Code change proposals which add or delete requirements shall be supported by a logical explanation which clearly shows why the current Code provisions are inadequate or overly restrictive, specifies the shortcomings of the current Code provisions and explains how such code change proposals will improve the Code.

4.3.5.3 **Substantiation:** The proponent shall substantiate the code change proposal based on technical information and substantiation. Substantiation provided which is reviewed in accordance with Section 5.2 and determined as not germane to the technical issues addressed in the code change proposal may be identified as such. The proponent shall be notified that the code change proposal is considered an incomplete proposal in accordance with Section 5.3 and the proposal shall be held until the deficiencies are corrected. The proponent shall have the right to appeal this action in accordance with CP#1 - Appeals. The burden of providing substantiating material lies with the proponent of the code change proposal. Supporting documentation may be provided via a link to a website provided by the proponent and included in the reason statement. The reason statement shall include the date the link was created. All substantiating material published by ICC is material that has been provided by the proponent and in so publishing ICC makes no representations or warranties about its quality or accuracy.

4.3.5.4 **Bibliography:** The proponent shall submit a bibliography of any substantiating material submitted with the code change proposal. The bibliography shall be published with the code change proposal and the proponent shall make the substantiating materials available for review at the appropriate ICC office and during the public hearing. Supporting documentation may be provided via a link to a website provided by the proponent and included in the bibliography. The reason statement shall include the date the link was created.

4.3.5.5 **Copyright Release:** The proponent of code change proposals, floor modifications, comments to Committee action and public comments shall sign a copyright release developed and posted by ICC.

4.3.5.6 **Cost Impact:** The proponent of the code change proposal, floor modification, and comments shall provide a cost impact statement in accordance with Section 17.0.

4.4 **Online Submittal:** Each code change proposal and all substantiating information shall be submitted online via cdpACCESS. One copy of each proposed new referenced standard in electronic form shall be submitted to staff. Additional electronic copies may be requested when determined necessary by the Secretariat to allow such information to be distributed to the Committee. Where such additional copies are requested, it shall be the responsibility of the proponent to secure permission to post the proposed new reference standard on a secure ICC website for Committee viewing. In lieu of electronic copies, hard copies are acceptable.

4.5 **Submittal Deadline:** ICC shall establish and post the submittal deadline for each cycle in accordance with Section 3.2. The posting of the deadline shall occur no later than 120 days prior to the code change deadline. Each code change proposal shall be submitted online via cdpACCESS by the posted deadline. The submitter of a code change proposal is responsible for the proper and timely receipt of all pertinent materials by the Secretariat.

4.6 **Referenced Standards:** In order for a standard to be considered for reference or to continue to be referenced by the Codes, a standard shall meet the following criteria:

4.6.1 **Code References:**

4.6.1.1 The standard, including title and date, and the manner in which it is to be utilized shall be specifically referenced in the Code text.

4.6.1.2 The need for the standard to be referenced shall be established.

4.6.2 **Standard Content:**

4.6.2.1 A standard or portions of a standard intended to be enforced shall be written in mandatory language.

4.6.2.2 The standard shall be appropriate for the subject covered.

4.6.2.3 All terms shall be defined when they deviate from an ordinarily accepted meaning or a dictionary definition.

4.6.2.4 The scope or application of a standard shall be clearly described.

4.6.2.5 The standard shall not have the effect of requiring proprietary materials.

4.6.2.6 The standard shall not prescribe a proprietary agency for quality control or testing.

4.6.2.7 The test standard shall describe, in detail, preparation of the test sample, sample selection or both.

4.6.2.8 The test standard shall prescribe the reporting format for the test results. The format shall identify the key performance criteria for the element(s) tested.

4.6.2.9 The measure of performance for which the test is conducted shall be clearly defined in either the test standard or in Code text.

4.6.2.10 The standard shall not state that its provisions shall govern whenever the referenced standard is in conflict with the requirements of the referencing Code.

4.6.2.11 The preface to the standard shall announce that the standard is promulgated according to a consensus procedure.

4.6.3 New and Updated Standards with Text Revisions:

4.6.3.1 Code change proposals with corresponding changes to the Code text which include a reference to a proposed new standard, or a proposed update of an existing referenced standard shall comply with this section.

4.6.3.1.1 Proposed New Standards. In order for a new standard to be considered for reference by the Code, such standard shall be submitted in at least a consensus draft form in accordance with Section 4.4. If the proposed new standard is not submitted in at least consensus draft form, the code change proposal shall be considered incomplete and shall not be processed. The code change proposal shall be considered at the First Committee Action Hearing (CAH #1) by the applicable Committee responsible for the corresponding proposed changes to the code text.

If the Committee action at the Second Committee Action Hearing (CAH #2) is either As Submitted or As Modified and the standard is not completed, the code change proposal shall automatically be placed on the Public Comment Agenda with the recommendation stating that in order for the public comment to be considered, the new standard shall be completed and readily available prior to the Public Comment Hearing. If the Committee action at the Second Committee Action Hearing (CAH #2) is Disapproval, further consideration on the Public Comment Agenda shall state that in order for the public comment to be considered, the new standard shall be completed and readily available prior to the Public Comment Hearing. See Section 10.5.6.1 for availability of new standards at the Public Comment Hearing.

4.6.3.1.2 Update of Existing Standards. Code change proposals which include technical revisions to the Code text to coordinate with a proposed update of an existing referenced standard shall include the submission of the proposed update to the standard in at least a consensus draft form in accordance with Section 4.4. If the proposed update of the existing standard is not submitted in at least consensus draft form, the code change proposal shall be considered incomplete and shall not be processed. The code change proposal, including the update of the existing referenced standard, shall be considered at the First Committee Action Hearing (CAH #1) by the applicable Committee responsible for the corresponding changes to the code text.

If the Committee action at the Second Committee Action Hearing (CAH #2) is either As Submitted or As Modified and the updated standard is not completed, the code change proposal shall automatically be placed on the Public Comment Agenda with the recommendation stating that in order for the public comment to be considered, the updated standard shall be completed and readily available prior to the Public Comment Hearing. If the Committee action at the Second Committee Action Hearing (CAH #2) is Disapproval, further consideration on the Public Comment Agenda shall state that in order for the public comment to be considered, the updated standard shall be completed and readily available prior to the Public Comment Hearing. See Section 10.5.6.1 for availability of updated standards at the Public Comment Hearing.

Updating of standards without corresponding code text changes shall be accomplished administratively in accordance with Section 5.6.

4.6.4 Standard Promulgation: The standard shall be developed and maintained through a consensus process such as ASTM or ANSI.

5.0 Processing of Code Change Proposals

5.1 Intent: The processing of code change proposals is intended to ensure that each proposal complies with these Rules of Procedure and that the resulting published code change proposal accurately reflects that proponent's intent.

5.2 Review: Upon receipt in the Secretariat's office, the code change proposals will be checked for compliance with these Rules of Procedure as to division, separation, form, language, terminology, supporting statements and substantiating data. Where a code change proposal consists of multiple parts which fall under the maintenance responsibilities of different Committees, the Secretariat shall determine the Committee responsible for determining the Committee action in accordance with Section 6.6 and the Group A and Group B Code Development Committee Responsibilities Matrix (see Section 1.3.1).

5.3 Incomplete Code Change Proposals: When a code change proposal is submitted with incorrect format, without the required information or judged as not in compliance with these Rules of Procedure, the Secretariat shall notify the proponent of the specific deficiencies and the proposal shall be held until the deficiencies are corrected, with a final date set for receipt of a corrected submittal. If the Secretariat receives the corrected code change proposal after the final date, the proposal shall be held over until the next code development cycle. Where there are otherwise no deficiencies addressed by this section, a code change proposal that incorporates a new referenced standard shall be processed with an analysis of the referenced standard's compliance with the criteria set forth in Section 4.6.

5.4 Editorial Code Change Proposals. When a code change proposal is submitted that proposes an editorial or format change that, in the opinion of the Secretariat, does not affect the scope or application of the code, the proposal shall be submitted to the Code Correlation Committee who shall deem the code change proposal as editorial or send the proposal back to the Secretariat to be considered by the appropriate Committee. To be deemed editorial, such proposal shall require a majority vote of the Code Correlation Committee. Editorial proposals shall be published in the Code Change Agenda. Such proposals shall be added to the hearing agenda for consideration by the appropriate Committee upon written request to ICC by any individual. The deadline to submit such requests shall be 14 days prior to the first day of the First Committee Action Hearing (CAH #1). Code Correlation Committee proposals that are not added to a Committee hearing agenda shall be published in the next edition of the code with no further consideration.

5.5 Copy Editing Code Text: The Chief Executive Officer shall have the authority at all times to make editorial style and format changes to the Code text, or any approved changes, consistent with the intent, provisions and style of the Code. Such editorial style or format changes shall not affect the scope or application of the Code requirements.

5.6 Updating Standards Referenced in the Codes: Standards referenced by the Codes that do not require coordination with a code change proposal to the Code text shall be identified administratively by staff and considered by the Administrative Committee in accordance with these full procedures except that the deadline for availability of the updated standard and receipt by the Secretariat shall be December 1 of the third year of each code cycle. The published version of the new edition of the Code which references the standard will refer to the updated edition of the standard. If the standard is not available by the December 1st deadline, the edition of the standard as referenced by the newly published Code shall revert back to the reference contained in the previous edition and an errata to the Code issued. Multiple standards to be updated may be included in a single proposal.

5.6.1 Updating ICC Standards Referenced in the Codes. All standards developed by ICC and referenced by the Codes which are undergoing an update shall be announced by ICC to allow stakeholders to participate in the update process. Where the updated standard is completed and available by December 1 of the third year of the code cycle, the published version of the new edition of the Code which references the standard shall refer to the updated edition of the standard. If the standard is not available by the December 1st deadline, the edition of the standard as referenced by the newly published Code shall revert back to the reference contained in the previous edition and an errata to the Code issued.

5.7 Preparation: All code change proposals in compliance with these procedures shall be prepared in a standard manner by the Secretariat and be assigned separate, distinct, and consecutive numbers. The Secretariat shall coordinate related proposals submitted in accordance with Section 4.3.2 to facilitate the hearing process.

5.8 Code Change Agenda: All code change proposals shall be posted on the ICC website at least 30 days prior to the First Committee Action Hearing (CAH #1) on those proposals and shall constitute the agenda for the hearing. Any errata to the Code Change Agenda shall be posted on the ICC website as soon as possible. Code change proposals which have not been published in the original posting or subsequent errata shall not be considered.

6.0 First Committee Action Hearing (CAH #1)

6.1 Intent: The intent of the First Committee Action Hearing (CAH #1) is to permit interested parties to present their views including the cost and benefits on the code change proposals on the published agenda. The Committee will consider such comments as may be presented in the development of their action on the disposition of such code change proposals.

6.2 Code Development Committee: The Codes and Standards Council shall review all applications and make Committee appointment recommendations to the ICC Board. The Committees shall be appointed by the ICC Board. (See Section 1.6 for terminology).

6.2.1 Chairperson/Moderator: The Chairperson and Vice-Chairperson shall be selected by the Codes and Standards Council from the appointed members of the Committee. The ICC President shall appoint one or more Moderators who shall act as presiding officer for the Committee Action Hearing.

6.2.2 Conflict of Interest: A Committee member shall withdraw from and take no part in those matters with which the Committee member has an undisclosed financial, business or property interest. The Committee member shall not participate in any Committee discussion, or any Committee vote on the matter in which they have an undisclosed interest. A Committee member who is a proponent of a code change proposal shall not participate in any Committee discussion on the matter or any Committee vote. Such Committee member shall be permitted to participate in the floor discussion in accordance with Section 6.5 and Section 8.4.1 by stepping down from the dais.

6.2.3 Representation of Interest: Committee members shall not represent themselves as official or unofficial representatives of the ICC except at regularly convened meetings of the Committee.

6.2.4 Committee Composition: The Committee may consist of representation from multiple interests. A minimum of thirty-three and one-third percent (33.3%) of the Committee members shall be Regulators (General Interest category in accordance with CP#7 – Committees and Members).

6.3 Date and Location: The date and location of the Committee Action Hearing shall be announced not less than 60 days prior to the date of the hearing.

6.4 General Procedures: *The Robert's Rules of Order* shall be the formal procedure for the conduct of the Committee Action Hearing except as a specific provision of these Rules of Procedure may otherwise dictate. A quorum shall consist of a majority of the voting members of the Committee.

6.4.1 Chair Voting: The Chairperson of the Committee shall vote only when the vote cast will break a tie vote of the Committee.

6.4.2 Open Hearing: The Committee Action Hearing is an open hearing. Any interested person may attend and participate in the floor discussion. Only Committee members may participate in the Committee action portion of the hearings (see Section 6.6). Participants shall not advocate a position on specific code change proposals with Committee members other than through the methods provided in this policy.

6.4.3 Presentation of Material at the Committee Action Hearing: Information to be provided at the hearing shall be limited to verbal presentations and modifications submitted in accordance with Section 6.5.2. Each individual presenting information at the hearing shall state their name and affiliation, and shall identify any entities or individuals they are representing in connection with their testimony. Audio-visual presentations are not permitted. Substantiating material submitted in accordance with Section 4.3.5.3 and other material submitted in response to a code change proposal shall be located in a designated area in the hearing room and shall not be distributed to the Committee at the public hearing.

6.4.4 Agenda Order: The Secretariat shall publish a Code Change Agenda for the Committee Action Hearing, placing individual code change proposals in a logical order to facilitate the hearing. Any public hearing attendee may move to revise the agenda order as the first order of business at the hearing, or at any time during the hearing except while another code change proposal is being discussed. Preference shall be given to grouping like subjects together, and for moving items back to a later position on the agenda as opposed to moving items forward to an earlier position.

6.4.4.1 **Proponent Approval:** A motion to revise the agenda order is considered in order unless the proponent(s) of the moved code change proposals are in attendance in the hearing room and object to the move. Where such objections are raised, the motion to revise the hearing order shall be ruled out of order by the Moderator. The ruling of the Moderator shall be final and not subject to a point of order in accordance with Section 6.4.8. The motion to change the hearing order is not debatable.

6.4.4.2 **Revised Agenda Order Approved:** A motion to revise the agenda order is subject to a 2/3 vote of those present.

6.4.5 **Tabling:** Tabling of code change proposals shall be permitted. The motion to table is considered in order unless the proponent(s) of the tabled code change proposals are in attendance at the hearing and object to the tabling. Where such objections are raised, the motion to table shall be ruled out of order by the Moderator. The ruling of the Moderator shall be final and not subject to a point of order in accordance with Section 6.4.8. The motion to table is not debatable.

The motion to table must identify one of the following as to the location in the agenda when or where the code change proposal(s) will be considered:

1. To a specific date and time within the timeframe of the Code Change Agenda for the code change proposals under consideration, or

2. To a specific location in the Code Change Agenda for the code change proposals under consideration.

6.4.5.1 **Tabling approved:** A motion to table is subject to a 2/3 vote of those present.

6.4.5.2 **Tabled code change proposals back to the floor:** The Moderator shall bring the tabled code change proposal(s) back to the floor at the applicable time/agenda location in accordance with Section 6.4.5 Items 1 or 2. The testimony on the code change proposal shall resume at the point in the process where the tabling occurred.

6.4.6 **Reconsideration:** There shall be no reconsideration of a code change proposal after it has been voted on by the Committee in accordance with Section 6.6.

6.4.7 **Time Limits:** Time limits shall be established as part of the agenda for testimony on all code change proposals at the beginning of each hearing session. Each person testifying on a code change proposal shall be given equal time. In the interest of time and fairness to all hearing participants, the Moderator shall identify the time limits on debate at the beginning of the hearing. The Moderator shall have the authority to adjust time limits as necessary in order to complete the hearing agenda.

6.4.7.1 **Time Keeping:** Keeping of time for testimony by an individual shall be by an automatic timing device. Remaining time shall be evident to the person testifying. Interruptions during testimony shall not be tolerated. The Moderator shall maintain appropriate decorum during all testimony.

6.4.7.2 **Proponent Testimony:** The Proponent is permitted to waive an initial statement. The Proponent shall be permitted to have the amount of time that would have been allocated during the initial testimony period plus the amount of time that would be allocated for rebuttal. Where the code change proposal is submitted by multiple proponents, this provision shall permit only one proponent of the joint submittal to be allotted additional time for rebuttal.

6.4.8 **Points of Order:** Any person participating in the hearing may challenge a procedural ruling of the Moderator or the Chairperson. A majority vote of ICC Members in attendance shall determine the decision.

6.5 Floor Discussion: The Moderator shall place each code change proposal before the hearing for discussion by identifying the proposal and by regulating discussion as follows:

6.5.1 Discussion Order:

1. Support. The Moderator shall begin by asking the proponent and then others in support of the code change proposal for their comments.
2. Opposition. After discussion by those in support of a code change proposal, those opposed hereto, if any, shall have the opportunity to present their views.
3. Rebuttal in support. Those in support shall then have the opportunity to rebut points raised by those in opposition.
4. Rebuttal in opposition. Those in opposition shall then have the opportunity to respond to the rebuttal in support.

6.5.2 Modifications: Modifications to code change proposals may be suggested from the floor by any person participating in the hearing. The person proposing the modification, or his/her designee, is deemed to be the proponent of the modification.

6.5.2.1 Submission. All modifications shall be submitted electronically to the ICC Secretariat in a format determined by ICC unless determined by the Chairperson to be either editorial or minor in nature. The modification will be forwarded electronically to the members of the Committee during the hearing and will be projected on the screen in the hearing room.

6.5.2.2 Criteria. The Chairperson shall rule proposed modifications in or out of order before they are discussed on the floor. A proposed modification shall be ruled out of order if it:

1. changes the scope of the original code change proposal; or

2. is not readily understood to allow a proper assessment of its impact on the original code change proposal or the Code.

The ruling of the Chairperson on whether or not the modification is in or out of order shall be final and is not subject to a point of order in accordance with Section 6.4.8.

6.5.2.3 Testimony. When a modification is offered from the floor and ruled in order by the Chairperson, a specific floor discussion on that modification is to commence in accordance with the procedures listed in Section 6.5.1.

6.5.2.3.1 Time Limits: Time limits on testimony on a modification shall be in accordance with the following:

1. Support: 1 minute
2. Opposition: 1 minute
3. Rebuttal in support: 30 seconds
4. Rebuttal in opposition: 30 seconds

6.6 Committee Action: Following the floor discussion of each code change proposal, one of the following motions shall be made and seconded by members of the Committee:

1. Approve the code change proposal As Submitted (AS) or
2. Approve the code change proposal As Modified with specific modifications (AM), or
3. Disapprove the code change proposal (D)

Discussion on this motion shall be limited to Committee members. If a Committee member proposes a modification which had not been proposed during floor discussion, the Chairperson shall rule on the modification in accordance with Section 6.5.2.2. If a Committee member raises a matter of issue, including a proposed modification, which has not been proposed or discussed during the floor discussion, the Moderator shall suspend the Committee discussion and shall reopen the floor discussion for comments on the specific matter or issue. Upon receipt of all comments from the floor, the Moderator shall resume Committee discussion.

The Committee shall vote on each motion with the majority dictating the Committee's action. Committee action on each code change proposal shall be completed when one of the motions noted above has been approved. Each Committee vote shall be supported by a reason.

The ICC shall maintain a record of the hearing proceedings including the action on each code change proposal.

6.7 **Report of the First Committee Action Hearing (CAH #1):** The results of the First Committee Action Hearing (CAH #1), including Committee action and reason, shall be posted on the ICC website not less than 60 days prior to the Second Committee Action Hearing (CAH #2) , except as approved by the ICC Board.

7.0 Submittal of Comments to the First Committee Action Hearing (CAH #1) (NEW)

7.1 **Intent:** Any interested person, persons or group may submit a comment noting disagreement with the action taken at the First Committee Action Hearing (CAH #1). The comment process gives attendees at the Second Committee Action Hearing (CAH #2) an opportunity to consider specific objections to the results of the First Committee Action Hearing (CAH #1) and more thoughtfully prepare for the discussion and comment consideration at the Second Committee Action Hearing (CAH #2).

7.1.1 **Public Comment Hearing consideration:** In order for a code change proposal to be considered for a further modification at the Public Comment Hearing, such proposal must have received a comment and been considered and acted upon at the Second Committee Action Hearing (CAH #2).

7.1.2 **Proposed New Reference Standards and Standards Updates:** Proposed new referenced standards and proposed updates of existing standards with coordinating text are limited to original code change submittals in accordance with Section 4.6.3. Comments proposing a new reference standard or a new proposed update of an existing standard with coordinating text shall not be permitted.

7.2 **Deadline:** The deadline for receipt of a comment to the results of the First Committee Action Hearing (CAH #1) shall be announced at the first hearing but shall not be less than 30 days subsequent to the availability of the Report of the First Committee Action Hearing (CAH #1) (see Section 6.7).

7.3 **Withdrawal of Comment:** A comment may be withdrawn by the commenter at any time prior to comment consideration of that comment at the Second Committee Action Hearing (CAH #2). A withdrawn comment shall not be subject to consideration at the second hearing. If the only comment to a code change proposal is withdrawn by the commenter prior to consideration at the Second Committee Action Hearing (CAH #2), such proposal will be considered as not acted upon at the second hearing and the proposal is not eligible for further modification consideration at the Public Comment Hearing in accordance with Section 7.1.1.

7.4 **Form and Content of Comments:** Any interested person, persons, or group may submit a public comment to the results of the First Committee Action Hearing (CAH #1) which will be considered when in conformance to these requirements. Each comment to a code change proposal shall be submitted separately and shall be complete in itself. Each comment shall contain the following information:

7.4.1 **Comment:** Each comment shall include the name, title, and email address of the commenter. Email addresses shall be published with the comments unless the commenter otherwise requests on the submittal form.

If a group, organization, or committee submits a comment, an individual with prime responsibility shall be indicated. If a comment is submitted on behalf a client, group, organization or committee, the name and email address of the client, group, organization or committee shall be indicated. The scope of the comment shall be consistent with the scope of the original code change proposal or the Committee action. Comments which are determined as not within the scope of the code change proposal or Committee action shall be identified as such. The commenter shall be notified that the comment is considered an incomplete comment in accordance with Section 7.5.1 and the comment shall be held until the deficiencies are corrected. A copyright release in accordance with Section

4.3.5.5 shall be provided with the comment.

7.4.2 Code Reference: Each comment shall include the code change proposal number.

7.4.3 Multiple comments to a code change proposal. A commentor shall not submit multiple comments to the same code change proposal. When a commentor submits multiple comments to the same code change proposal, the comments shall be considered as incomplete comments and processed in accordance with Section 7.5.1. This restriction shall not apply to comments that attempt to address differing subject matter within a Code section.

7.4.4 Desired Action at the Second Committee Action Hearing (CAH #2): In order for a comment to be considered, the comment shall indicate the desired action at the Second Committee Action Hearing (CAH #2) as one of the following:

1. Approve the code change proposal As Submitted (AS), or

2. Approve the code change proposal As Modified by the Committee modification published in the Report of the First Committee Action Hearing (AMC #1) or a comment published in the Second Committee Action Hearing Agenda (AMC #2), or

3. Disapprove the code change proposal (D)

7.4.5 Supporting Information: The comment shall include a statement containing a reason and justification for the desired action on the code change proposal. Reasons and justification which are reviewed in accordance with Section 7.5 and determined as not germane to the technical issues addressed in the code change proposal or first Committee action may be identified as such. The commenter shall be notified that the comment is considered an incomplete comment in accordance with Section 7.5.1 and the comment shall be held until the deficiencies are corrected. The commenter shall have the right to appeal this action in accordance with CP#1 – Appeals. A bibliography of any substantiating material submitted with a comment shall be published with the comment and the substantiating material shall be made available at the Second Committee Action Hearing (CAH #2). Supporting documentation may be provided via a link to a website provided by the commenter and included in the reason statement and bibliography. The reason statement shall include the date the link was created. All substantiating material published by ICC is material that has been provided by the proponent and in so publishing ICC makes no representations or warranties about its quality or accuracy.

7.4.6 Cost Impact: The comment shall include a cost impact statement in accordance with Section 17.0.

7.4.7 Online submittal: Each comment and substantiating information shall be submitted online via cdpACCESS. Additional electronic copies may be requested when determined necessary by the Secretariat.

7.4.8 Submittal Deadline: ICC shall establish and post the submittal deadline for each cycle in accordance with Section 3.2. The posting of the deadline shall occur no later than 120 days prior to the comment deadline. Each comment shall be submitted online via cdpACCESS by the posted deadline. The submitter of a public comment is responsible for the proper and timely receipt of all pertinent materials by the Secretariat.

7.5 Review: The Secretariat shall be responsible for reviewing all submitted comments from an editorial and technical viewpoint similar to the review of code change proposals (see Section 5.2).

7.5.1 Incomplete Comment: When a comment is submitted with incorrect format, without the required information or judged as not in compliance with these Rules of Procedure, the comment shall not be processed. The Secretariat shall notify the commenter of the specific deficiencies and the comment shall be held until the deficiencies are corrected, or the comment shall be returned to the commenter with instructions to correct the deficiencies with a final date set for receipt of the corrected comment.

7.5.2 Duplications: On receipt of duplicate or parallel comments, the Secretariat may consolidate such comments for Second Committee Action Hearing (CAH #2) comment consideration. Each commenter shall be notified of this action when it occurs.

7.5.3 Comments Received after Deadline: Comments received by the Secretariat after the deadline set for receipt shall not be published and shall not be considered as part of the Second Committee Action Hearing (CAH #2) consideration. This deadline shall not apply to comments submitted by the Code Correlation Committee. In order to correlate submitted comments with action taken at the First Committee Action Hearing (CAH #1) on code change proposals that did receive a comment, the Code Correlation Committee, in conjunction with staff processing of comments, shall review the submitted comments and submit the necessary comments in order to facilitate the coordination of code change proposals. Such review and submittal shall not delay the posting of the Second Committee Action Hearing (CAH #2) Agenda as required in Section 7.6.

7.6 Second Committee Action Hearing Agenda: The comments received to the First Committee Action Hearing (CAH #1) results on code change proposals shall constitute the Second Committee Action Hearing Agenda. The agenda shall be posted on the ICC website at least 30 days prior to the hearing. Any errata to the agenda shall be posted on the ICC website as soon as possible. Code change proposals and comments which have not been published in the original posting or subsequent errata shall not be considered.

8.0 Second Committee Action Hearing (CAH #2) (NEW)

8.1 Intent: The intent of the Second Committee Action Hearing (CAH #2) is to permit interested parties to present their views including cost and benefits on comments received to the action taken by the Committee at the First Committee Action Hearing (CAH #1). The Committee will consider such comments as may be presented in the development of their action on the disposition of such code change proposals prior to the public comment portion of the code development process in accordance with Section 9.0.

8.1.1 Code changes not receiving a comment: The Committee action on code changes that do not receive a comment shall be the action taken at the First Committee Action Hearing (CAH #1) and shall not be on the agenda for the Second Committee Action Hearing (CAH #2). Such code changes will not be eligible for further modification as part of public comment consideration (see Section 7.1.1)

8.2 Committee: The Committee shall be the same Committee that presided over the First Committee Action Hearing (CAH #1).

8.3 Date and Location: The date and location of the Second Committee Action Hearing (CAH #2) shall be announced not less than 60 days prior to the date of the hearing.

8.4 Hearing conduct: The Second Committee Action Hearing (CAH #2) shall be conducted in the same fashion as the First Committee Action Hearing (CAH #1) in accordance with Sections 6.2 through 6.4 and 6.6 and Section 8.4.1.

8.4.1 Floor discussion. Discussion on code change proposals being individually considered shall be in accordance with Sections 8.4.1.1 through 8.4.1.4:

8.4.1.1 Initial Discussion: The Committee action from the First Committee Action Hearing (CAH #1) shall be the basis of the initial discussion.

8.4.1.2 Introducing Comments: At any point during the initial floor discussion , a comment published in the CAH#2 Agenda may be called to the floor. Each subsequent comment called to the floor, if any, shall be individually discussed before returning to the initial floor discussion. Comments in the CAH#2 agenda must be called to the floor for consideration.

8.4.1.3 Proponent testimony: The Proponent of a comment is permitted to waive an initial statement. The Proponent of the comment shall be permitted to have the amount of time that would have been allocated during the initial testimony period plus the amount of time that would be allocated for rebuttal. Where a comment is submitted by multiple proponents, this provision shall permit only one proponent of the joint submittal to waive an initial statement.

8.4.1.4 Modifications: Modifications to individual comments may be suggested from the floor by any person participating in the hearing, at any time during the floor discussion of the respective comment. The person proposing the modification, or his/her designee, is deemed to be the proponent of the modification. Modifications submission, criteria, testimony, and time limits shall comply with Sections 6.5.2.1 through 6.5.2.3.1

8.5 Report of the Second Committee Action Hearing (CAH #2): The results of the Second Committee Action Hearing (CAH #2), including Committee action and reason, shall be posted on the ICC website not less than 60 days prior to the Public Comment Hearing, except as approved by the ICC Board.

9.0 Submittal of Public Comments to the Second Committee Action Hearing (CAH #2)

9.1 Intent: The public comment process gives attendees at the Public Comment Hearing an opportunity to consider specific objections to the results of the Second Committee Action Hearing (CAH #2) for each code group and more thoughtfully prepare for the discussion for public comment consideration. The public comment process expedites the Public Comment Hearing by limiting the items discussed to consideration of items for which a public comment has been submitted. The Public Comment Hearing will be a combined hearing of both Code Group A and Code Group B code change proposals and public comments in accordance with Sections 3.0 and 10.0.

9.2 Deadline: The deadline for receipt of a public comment to the results of the Second Committee Action Hearing (CAH #2) shall be announced at the hearing but shall not be less than 30 days subsequent to the availability of the Report of the Second Committee Action Hearing (CAH #2) for the respective code group (see Section 8.5). The public comment deadline for Code Group A codes shall be early in the second year of the cycle and the public comment deadline for Code Group B codes shall be early in the third year of the cycle with specific dates posted in accordance with Section 3.2.

9.3 Withdrawal of Public Comment: A public comment may be withdrawn by the public commenter at any time prior to public comment consideration of that comment. A withdrawn public comment shall not be subject to public comment consideration. If the only public comment to a code change proposal is withdrawn by the public commenter prior to the vote on the consent agenda in accordance with Section 10.5.5, the proposal shall be considered as part of the consent agenda. If the only public comment to a code change proposal is withdrawn by the public commenter after the vote on the consent agenda in accordance with Section 10.5.5, the proposal shall continue as part of the individual consideration agenda in accordance with Section 10.5.6, however the public comment shall not be subject to public comment consideration.

9.4 Form and Content of Public Comments: Any interested person, persons, or group may submit a public comment to the results of the Second Committee Action Hearing (CAH #2) which will be considered when in conformance to these requirements. Each public comment to a code change proposal shall be submitted separately and shall be complete in itself. Each public comment shall contain the following information:

9.4.1 Public comment: Each public comment shall include the name, title, and email address of the public commenter. Email addresses shall be published with the public comments unless the commenter otherwise requests on the submittal form.

If a group, organization, or Committee submits a public comment, an individual with prime responsibility shall be indicated. If a public comment is submitted on behalf a client, group, organization or Committee, the name and email address of the client, group, organization or Committee shall be indicated. The scope of the public comment shall be consistent with the scope of the original code change proposal or Committee action from the Second Committee Action Hearing (CAH #2). Public comments which are determined as not within the scope of the code change proposal or Committee action shall be identified as such. The public commenter shall be notified that the public comment is considered an incomplete public comment in accordance with Section 9.5.1 and the public comment shall be held until the deficiencies are corrected. A copyright release in accordance with Section 4.3.5.5 shall be provided with the public comment.

9.4.2 Code Reference: Each public comment shall include the code change proposal number.

9.4.3 Multiple public comments to a code change proposal. A proponent shall not submit multiple public comments to the same code change proposal. When a proponent submits multiple public comments to the same code change proposal, the public comments shall be considered as incomplete public comments and processed in accordance with Section 9.5.1. This restriction shall not apply to public comments that attempt to address differing subject matter within a code section.

9.4.4 Desired Final Action: In order for a public comment to be considered, the public comment shall indicate the desired Final Action as one of the following:

1. Approve the code change proposal As Submitted (AS), or
2. Approve the code change proposal As Modified by the Committee modification published in the Report of the First or Second Committee Action Hearing (AMC) or published in a public comment in the Public Comment Agenda (AMPC), or
3. Disapprove the code change proposal (D)

9.4.5 Supporting Information: The public comment shall include a statement containing a reason and justification for the desired Final Action on the code change proposal. Reasons and justification which are reviewed in accordance with Section 9.5 and determined as not germane to the technical issues addressed in the code change proposal or Committee action may be identified as such. The public commenter shall be notified that the public comment is considered an incomplete public comment in accordance with Section 9.5.1 and the public comment shall be held until the deficiencies are corrected. The public commenter shall have the right to appeal this action in accordance with CP#1 – Appeals. A bibliography of any substantiating material submitted with a public comment shall be published with the public comment and the substantiating material shall be made available at the Public Comment Hearing. Supporting documentation may be provided via a link to a website provided by the public commenter and included in the reason statement and bibliography. The reason statement shall include the date the link was created. All substantiating material published by ICC is material that has been provided by the proponent and in so publishing ICC makes no representations or warranties about its quality or accuracy.

9.4.6 Cost Impact: The public comment shall include a cost impact statement in accordance with section 17.0.

9.4.7 Online submittal: Each public comment and substantiating information shall be submitted online via cdpACCESS. Additional electronic copies may be requested when determined necessary by the Secretariat.

9.4.8 Submittal Deadline: ICC shall establish and post the submittal deadlines for Code Groups A and B in accordance with Section 3.2. The posting of the deadline shall occur no later than 120 days prior to the public comment deadlines. Each public comment shall be submitted online via cdpACCESS by the posted deadline. The submitter of a public comment is responsible for the proper and timely receipt of all pertinent materials by the Secretariat.

9.5 Review: The Secretariat shall be responsible for reviewing all submitted public comments from an editorial and technical viewpoint similar to the review of code change proposals (see Section 5.2).

9.5.1 Incomplete Public Comment: When a public comment is submitted with incorrect format, without the required information or judged as not in compliance with these Rules of Procedure, the public comment shall not be processed. The Secretariat shall notify the public commenter of the specific deficiencies and the public comment shall be held until the deficiencies are corrected, or the public comment shall be returned to the public commenter with instructions to correct the deficiencies with a final date set for receipt of the corrected public comment.

9.5.2 Duplications: On receipt of duplicate or parallel public comments, the Secretariat may consolidate such public comments for public comment consideration. Each public commenter shall be notified of this action when it occurs.

9.5.3 Public Comments Received after Deadline: Public comments received by the Secretariat after the deadline set for receipt shall not be published and shall not be considered as part of the public comment consideration. This deadline shall not apply to public comments submitted by the Code Correlation Committee. In order to correlate submitted public comments with action taken at the Second Committee Action Hearing (CAH #2) on code change proposals that did receive a public comment, the Code Correlation Committee, in conjunction with staff processing of public comments, shall review the submitted public comments and submit the necessary public comments in order to facilitate the coordination of code change proposals. Such review and submittal shall not delay the posting of the Public Comment Agenda as required in Section 9.6.

9.6 Public Comment Agenda: The First and Second Committee Action Hearing results on code change proposals that have not received a public comment and code change proposals from the Second Committee Action Hearing (CAH #2) which received public comments shall constitute the Public Comment Agenda. The Public Comment Agenda shall be posted on the ICC website at least 30 days prior the Public Comment Hearing. Any errata to the Public Comment Agenda shall be posted on the ICC website as soon as possible. Code change proposals and public comments which have not been published in the original posting or subsequent errata shall not be considered.

10.0 Public Comment Hearing

10.1 Intent: The Public Comment Hearing is the first of two steps to make a final determination on all code change proposals which have been considered in a code development cycle by a vote cast by eligible voters (see Section 12.0). The second step, which follows the Public Comment Hearing, is the Online Governmental Consensus Vote that is conducted in accordance with Section 11.0. Code change proposals from Code Groups A and B considered at the Second Committee Action Hearing (CAH #2) in accordance with Section 8.1 are eligible for public comment consideration at the Public Comment Hearing and the Online Governmental Consensus Vote.

10.2 Date and Location: The date and location of the Public Comment Hearing shall be announced not less than 60 days prior to the date of the hearing.

10.3 Moderator: The ICC President shall appoint one or more Moderators who shall act as presiding officer for the Public Comment Hearing.

10.4 Public Comment Agenda: The Public Comment Consent Agenda shall be comprised of code change proposals which have not received a public comment. The agenda for public testimony and individual consideration shall be comprised of proposals which have a public comment (see Section 9.1).

10.5 Procedure: *The Robert's Rules of Order* shall be the formal procedure for the conduct of the Public Comment Hearing except as these Rules of Procedure may otherwise dictate.

10.5.1 Open Hearing: The Public Comment Hearing is an open hearing. Any interested person may attend and participate in the floor discussion.

10.5.2 Agenda Order: The Secretariat shall publish a Public Comment Agenda for the Public Comment Hearing, placing individual code change proposals and public comments in a logical order to facilitate the hearing. The proponents or opponents of any code change proposal or public comment may move to revise the agenda order as the first order of business at the public hearing, or at any time during the hearing except while another proposal is being discussed. Preference shall be given to grouping like subjects together and for moving items back to a later position on the agenda as opposed to moving items forward to an earlier position.

10.5.2.1 Proponent Approval: A motion to revise the agenda order is considered in order unless the proponent(s) of the moved code change proposals are in attendance at the hearing and object to the move. Where such objections are raised, the motion to revise the hearing order shall be ruled out of order by the Moderator. The ruling of the Moderator shall be final and not subject to a point of order in accordance with Section 6.4.8. The motion to change the hearing order is not debatable.

10.5.2.2 Revised Agenda Order Approved: A motion to revise the agenda order is subject to a 2/3 vote of those present.

10.5.3 Tabling: Tabling of code change proposals shall be permitted. The motion to table is considered in order unless the proponent(s) of the tabled code change proposals are in attendance at the hearing and object to the tabling. Where such objections are raised, the motion to table shall be ruled out of order by the Moderator. The ruling of the Moderator shall be final and not subject to a point of order in accordance with Section 6.4.8. The motion to table is not debatable.

The motion to table must identify one of the following as to the location in the agenda when or where the code change proposal(s) will be considered:

1. To a specific date and time within the timeframe of the Public Comment Agenda for the code change proposals under consideration, or

2. To a specific location in the Public Comment Agenda for the code change proposals under consideration.

10.5.3.1 Tabling approved: A motion to table is subject to a 2/3 vote of those present.

10.5.3.2 Tabled code change proposals back to the floor: The Moderator shall bring the tabled code change proposal(s) back to the floor at the applicable time/agenda location in accordance with Section 10.5.3 Items 1 or 2. The testimony on the code change proposal shall resume at the point in the process where the tabling occurred.

10.5.4 Presentation of Material at the Public Comment Hearing: Information to be provided at the hearing shall be limited to verbal presentations. Each individual presenting information at the hearing shall state their name and affiliation and shall identify any entities or individuals they are representing in connection with their testimony. Audio-visual presentations are not permitted. Substantiating material submitted in accordance with Section 9.4.5 and other material submitted in response to a code change proposal or public comment shall be located in a designated area in the hearing room.

10.5.5 Public Comment Consent Agenda: The Public Comment Consent Agenda (see Section 10.4) shall be placed before the assembly with a single motion for Final Action in accordance with the results of the First and Second Committee Action Hearings. When the motion has been seconded, the vote shall be taken with no testimony being allowed. A simple majority (50% plus one) based on the number of votes cast by eligible voters shall decide the motion. This action shall not be subject to the Online Governmental Consensus Vote following the Public Comment Hearing (see Section 11.0).

10.5.6 Public Comment Individual Consideration Agenda: Upon completion of the Public Comment Consent Agenda vote, all code change proposals not on the Public Comment Consent Agenda shall constitute the Public Comment Individual Consideration Agenda and be placed before the assembly for individual consideration of each item (see Section 10.4).

10.5.6.1 New Proposed Standard or Updated Standard Not Available. It is the responsibility of the proponent of the code change proposal to identify whether a new standard or updated standard (where the proposal includes coordinating text revisions) is available. Where the proposed new standard or the updated standard is not available in accordance with Section 4.6.3, the code change will not be considered on the Individual Consideration Agenda and the Final Action shall be Disapproval.

10.5.7 Reconsideration: There shall be no reconsideration of a code change proposal after it has been voted on in accordance with Section 10.5.9.

10.5.8 Time Limits: Time limits shall be established as part of the agenda for testimony on all code change proposals at the beginning of each hearing session. Each person testifying on a code change proposal shall be given equal time. In the interest of time and fairness to all hearing participants, the Moderator shall identify the time limits on debate at the beginning of the Public Comment Hearing. The Moderator shall have the authority to adjust time limits as necessary in order to complete the hearing agenda.

10.5.8.1 Time Keeping: Keeping of time for testimony by an individual shall be by an automatic timing device. Remaining time shall be evident to the person testifying. Interruptions during testimony shall not be tolerated. The Moderator shall maintain appropriate decorum during all testimony.

10.5.9 Discussion and Voting: Discussion and voting on code change proposals being individually considered shall be in accordance with the following procedures and the voting majorities in Section 10.6:

10.5.9.1 Proponent testimony: The Proponent of a public comment is permitted to waive an initial statement. The Proponent of the public comment shall be permitted to have the amount of time that would have been allocated during the initial testimony period plus the amount of time that would be allocated for rebuttal. Where a public comment is submitted by multiple proponents, this provision shall permit only one proponent of the joint submittal to waive an initial statement.

10.5.9.2 **Points of Order:** Any person participating in hearing may challenge a procedural ruling of the Moderator. A majority vote of ICC Members in attendance shall determine the decision.

10.5.9.3 **Eligible voters:** Voting shall be limited to eligible voters in accordance with Section 12.0.

10.5.9.4 **Allowable Final Action Motions:** The only allowable motions for Final Action are Approval as Submitted (AS), Approval as Modified by the Committee from the First or Second Committee Action Hearing (AMC) or by one or more modifications published in the Public Comment Agenda (AMPC), and Disapproval (D).

10.5.9.5 **Initial Motion:** The Committee action from the Second Committee Action Hearing (CAH #2) shall be the initial motion considered.

10.5.9.6 **Motions for Modifications:** Whenever a motion under consideration is for Approval as Submitted or Approval as Modified, a subsequent motion and second for a modification published in the Public Comment Agenda may be made (see Section 9.4.4). Each subsequent motion for modification, if any, shall be individually discussed and voted before returning to the main motion. A two-thirds majority based on the number of votes cast by eligible voters shall be required for a successful motion on all modifications.

10.5.9.7 **Voting:** After dispensing with all motions for modifications, if any, and upon completion of discussion on the main motion, the Moderator shall then ask for the vote on the main motion. The vote on the main motion shall be taken electronically with the vote recorded and each vote assigned to the eligible voting member. In the event the electronic voting system is determined not to be used by ICC, a hand/standing count will be taken by the Moderator. If the motion fails to receive the majority required in Section 10.6, the Moderator shall ask for a new motion.

10.5.9.8 **Subsequent Motion:** If the initial motion is unsuccessful, a motion for either Approval as Submitted or Approval as Modified by one or more published modifications is in order. A motion for Disapproval is not in order. The vote on the main motion shall be taken electronically with the vote recorded and each vote assigned to the eligible voting member. In the event the electronic voting system is determined not to be used by ICC, a hand/standing count will be taken by the Moderator. If a successful vote is not achieved, Section 10.5.9.9 shall apply.

10.5.9.9 **Failure to Achieve Majority Vote at the Public Comment Hearing.** In the event that a code change proposal does not receive any of the required majorities in Section 10.6, the results of the Public Comment Hearing for the code change proposal in question shall be Disapproval. The vote count that will be reported as the Public Comment Hearing result will be the vote count on the main motion in accordance with Section 10.5.9.7.

10.5.9.10 **Public Comment Hearing Results:** The result and vote count on each code change proposal considered at the Public Comment Hearing shall be announced at the hearing. In the event the electronic voting system is not utilized and a hand/standing count is taken in accordance with Sections 10.5.9.7 and 10.5.9.8, the vote count will not be announced if an individual standing vote count is not taken. The results shall be posted and included in the Online Governmental Consensus Vote ballot (see Section 11.3).

10.5.9.10.1 **Online Governmental Consensus Ballot Exceptions:** Where Disapproval is the action at all three hearings in the code group cycle (First Committee Action Hearing (CAH #1), Second Committee Action Hearing (CAH #2) and the Public Comment Hearing), the Final Action on the code change proposal shall be Disapproval and the proposal shall not be placed on the Online Governmental Consensus Vote ballot.

10.6 Majorities for Public Comment Hearing Voting: The required voting majority for code change proposals individually considered shall be based on the number of votes cast by eligible voters at the Public Comment Hearing shall be in accordance with the following table.

Second Committee Action Hearing (CAH #2)	**Desired Final Action**		
	AS	**AMC/AMPC**	**D**
AS	Simple Majority	2/3 Majority	Simple Majority
AMC	2/3 Majority	Simple Majority to sustain the Committee Action (AMC) or; 2/3 Majority on each additional modification and 2/3 Majority on entire code change proposal for AMPC	Simple Majority
D	2/3 Majority	2/3 Majority	Simple Majority

11.0 Online Governmental Consensus Vote

11.1 Public Comment Hearing Results: The results from the Individual Consideration Agenda at the combined Code Group A and Code Group B Public Comment Hearing (see Sections 10.5.6 and 10.5.9.10) shall be the basis for the Online Governmental Consensus Vote. The ballot shall include the voting options in accordance with the following table (see Section 11.1.1 for exceptions):

Second Committee Action Hearing (CAH #2)	**Public Comment Hearing result and Voting Majority**	**Online Governmental Consensus Ballot and Voting Majority**	
AS	**AS:** Simple Majority	**AS:** Simple Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AS:** Simple Majority	**D:** Simple Majority
AMC	**AS:** 2/3 Majority	**AS:** 2/3 Majority	**D:** Simple Majority
	AMC: Simple Majority	**AMC:** Simple Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AM:** Simple Majority	**D:** Simple Majority
D	**AS:** 2/3 Majority	**AS:** 2/3 Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AS:** 2/3 Majority	**D:** Simple Majority

11.1.1 Online Governmental Consensus Ballot Exceptions: Where Disapproval is the action at all three hearings in the code group cycle (First Committee Action Hearing (CAH #1), Second Committee Action Hearing (CAH #2) and the Public Comment Hearing), the Final Action on the code change proposal shall be Disapproval and the proposal shall not be placed on the Online Governmental Consensus Vote ballot.

11.2 Online Governmental Consensus Vote Voter Statement: In order to vote on the Online Governmental Consensus Vote, the eligible voter is required to acknowledge the following in order to proceed to the ballot:

1. I am currently an employee or public official actively engaged either full or part time in the administration, formulation, implementation or enforcement of laws, ordinances, rules or regulations relating to the public health, safety and welfare, or have Honorary Member status.
2. I am participating in this ICC activity in compliance with the ICC Code of Ethics (see Section 1.8), and I will avoid any circumstance that could create the appearance of a conflict of interest or otherwise compromise professional integrity.
3. As an eligible voting member, I have done my due diligence to become an informed voter on the matters that I am voting on, or as a representative of an ICC Governmental Member, my vote is being directed by the Governmental Member.
4. I am aware that advocacy guides that seek to influence or recommend voter positions are not endorsed by

the International Code Council, and I understand that I am under no obligation to vote in accordance with any such voter guides.
5. I will not vote on any code change that would provide me with a direct personal financial benefit.
6. I will not vote on any code change that would provide a direct financial benefit to any individual or company with which I have a business interest or relationship.

11.3 Online Governmental Consensus Vote Ballot: The ballot for each code change proposal considered at the Public Comment Hearing will include:

1. The Public Comment Hearing result and vote count.
2. The allowable Online Governmental Consensus Vote actions in accordance with Section 11.1.
3. Where the Public Comment Hearing result is As Submitted (AS) or Disapproval (D), the original code change proposal will be presented.
4. Where the Public Comment Hearing result is As Modified by the Committee (AMC) or As Modified by one or more Public Comments (AMPC), the original code change and approved modification(s) will be presented.
5. The Committee action taken at the First and Second Committee Action Hearings.
6. ICC staff identification of correlation issues.
7. For those who voted at the Public Comment Hearing, the ballot will indicate how they voted, unless an electronic vote count is not taken in accordance with Section 10.5.9.10.
8. An optional comment box to provide comments.
9. Access to the Public Comment Agenda which includes: the original code change, the report of the Committee action and the submitted public comments.
10. Access to the audio and video of the First and Second Committee Action and Public Comment Hearing proceedings.
11. Identification of the ballot period for which the online balloting will be open.

11.4 Voting process: Voting shall be limited to eligible voters in accordance with Section 12.0. Eligible voters are authorized to vote during the Public Comment Hearing and during the Online Governmental Consensus Vote; however, only the last vote cast will be included in the final vote tabulation. The ballot period will not be extended beyond the published period except as approved by the ICC Board.

11.4.1 Participation requirement: A minimum number of participants to conduct the Online Governmental Consensus Vote shall not be required unless the code change proposal(s) were not voted upon utilizing the electronic voting devices at the Public Comment Hearing and the resulting vote was not assigned to each eligible voting member in accordance with Sections 10.5.9.7 and 10.5.9.8. If this occurs, a minimum number of participants as determined by the ICC Board shall be required for those code change proposal(s) based on an assessment of the minimum number of votes cast during the entire Public Comment Hearing. The Online Governmental Consensus Vote shall determine the Final Action on the code change proposal(s) in accordance with Section 13.1.

12.0 Eligible Final Action Voters

12.1 Eligible Final Action Voters: Eligible Final Action voters include ICC Governmental Member Voting Representatives and Honorary Members in good standing who have been confirmed by ICC in accordance with the Electronic Voter Validation System. Such confirmations are required to be revalidated once each code development cycle. After initial validation, changes to the list of GMVRs for the remainder of the code development cycle shall be made in accordance with Section 12.2. Eligible Final Action voters in attendance at the Public Comment Hearing and those participating in the Online Governmental Consensus Vote shall have one vote per eligible voter on all Codes. Individuals who represent more than one Governmental Member shall be limited to a single vote.

12.2 Applications: Applications, whether new or renewed, for Governmental Membership must be received by the ICC at least 180 days prior to the Group A and B Public Comment Hearing in order for its designated representatives to be eligible to vote at the Group A and B Public Comment Hearing or Online Governmental Consensus Vote. Applications, whether new or updated, for Governmental Member Voting Representative status (validation) must be received by the Code Council 30 days prior to the commencement of the first day of the Code Group A and B Public Comment Hearing in order for any designated representative to be eligible to vote. An individual designated as a Governmental Member Voting Representative shall provide sufficient information to establish eligibility as defined in the ICC Bylaws. The Executive Committee of the ICC Board, in its discretion, shall have the authority to address questions related to eligibility.

13.0 Tabulation, Certification and Posting of Results

13.1 Tabulation and Validation: Following the closing of the online ballot period, the votes received will be combined with the vote tally at the Code Group A and B Public Comment Hearing to determine the final vote on the code change proposal. If a hand/standing count is utilized per Subsection 10.5.9.7 or 10.5.9.8, those votes of the Public Comment Hearing will not be combined with the online ballot. ICC shall retain a record of the votes cast and the results shall be certified by a validation Committee appointed by the ICC Board. The validation Committee shall report the results to the ICC Board, either confirming a valid voting process and result or citing irregularities in accordance with Section 13.2.

13.2 Voting Irregularities: Where voting irregularities or other concerns with the Online Governmental Consensus Voting process which are material to the outcome or the disposition of a code change proposal(s) are identified by the Validation Committee, such irregularities or concerns shall be immediately brought to the attention of the ICC Board. The ICC Board shall take whatever action necessary to ensure a fair and impartial Final Action vote on all code change proposals, including but not limited to:

1. Set aside the results of the Online Governmental Consensus Vote and have the vote taken again.
2. Set aside the results of the Online Governmental Consensus Vote and declare the Final Action on all code change proposals to be in accordance with the results of the Public Comment Hearing.
3. Other actions as determined by the ICC Board.

13.3 Failure to Achieve Majority Vote: In the event a code change proposal does not receive any of the required majorities for Final Action in Section 11.1, the Final Action on the code change proposal in question shall be Disapproval.

13.4 Final Action Results: The Final Action on all code change proposals shall be published as soon as practicable after certification of the results. The results shall include the Final Action taken, including the vote tallies from both the Public Comment Hearing and Online Governmental Consensus Vote, as well as the required majority in accordance with Section 11.1. ICC shall maintain a record of individual votes for auditing purposes; however, the record shall not be made public. The exact wording of any resulting text modifications shall be made available to any interested party.

14.0 Code Publication

14.1 Next Edition of the Codes: The Final Action results on code change proposals shall be the basis for the subsequent edition of the respective Code.

14.2 Code Correlation: The Code Correlation Committee is authorized to resolve technical or editorial inconsistencies resulting from actions taken during the Code Development Process by making appropriate changes to the text of the affected code. The process to resolve technical or editorial inconsistencies shall be conducted in accordance with CP#44 – Code Correlation Committee.

15.0 Appeals

15.1 Right to Appeal: Any person may appeal an action or inaction in accordance with CP#1 – Appeals. Any appeal made regarding voter eligibility, voter fraud, voter misrepresentation or breach of ethical conduct must be supported by credible evidence and must be material to the outcome of the final disposition of a code change proposal(s).

The following actions are not appealable:

1. Variations of the results of the Code Group A and B Public Comment Hearing compared to the Final Action result in accordance with Section 13.4.
2. Denied requests to extend the voter balloting period in accordance with Section 11.4.
3. Lack of access to cdpACCESS to submit a code change proposal, to submit a comment to a Committee action, to submit a public comment or to vote.
4. Code Correlation Committee changes made in accordance with Section 14.2.

15.2 Scope and Intent Issues: If an individual has a question about whether a proposed provision falls within the scope and/or intent statements published by the ICC Board, that individual may send the question to the Committee Chair through the ICC Staff Secretariat, who will submit the question to the ICC Board of

Directors through the ICC CEO, along with any relevant background information.

1. The ICC Board shall have full discretion to determine how it conducts its consideration of the question.
2. The ICC Board shall provide a written response to the committee chair within 30 business days of its receipt of the question.
3. ICC will post the question and the ICC Board's response on the committee page on the ICC website.
4. The ICC Board's response to any submitted Scope and Intent inquiry shall be final and the Committee Chair shall ensure the Board's interpretation is applied throughout the code's development process.

16.0 Violations

16.1 ICC Board Action on Violations: Violations of the policies and procedures contained in this Council Policy shall be brought to the immediate attention of the ICC Board for response and resolution. Additionally, the ICC Board may take any actions it deems necessary to maintain the integrity of the code development process.

17.0 Cost Impacts.

17.1 Cost Impact Statement Requirements. The proponent shall indicate one of the following regarding the cost impact of the code change proposal or the net cost impact of the code change proposal and comment submitted:

1. The code change proposal's estimated immediate cost impacts; or
2. The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction.

The proponent shall submit information which substantiates such assertion. This information will be considered by the Committee and will be included in the published code change proposal. Supporting documentation may be provided via a link to a website provided by the proponent and included in the cost substantiation statement. The cost substantiation statement shall include the date the link was created.

Any proposal submitted which does not include the requisite cost impact information shall be considered incomplete and shall not be processed.

1. The cost estimates provided shall be straightforward, allowing the Code Development Committee (CDC) members and eligible voting members, to rapidly assess their relative validity.
2. The cost estimates shall (a) have succinct information to allow the average person to understand how it was calculated (methodology), and (b) may provide reference for the publicly available data used (basis for variables).
3. The ICC may develop a cost impact guidance document to assist code change and comment submitters in complying effectively with the cost impact requirements.

Section added in February 5, 2025 revision to CP#28:

Sections revised in July 12, 2024 revision to CP#28:
8.4.1.1
8.4.1.2

Section revised in April 6, 2024 revision to CP#28:
Section 12.2

Sections revised in December 8, 2023 revision to CP#28:
Section 1.4
Section 4.3.5.3
Section 6.2.2
Section 7.4.5
Section 8.4.
Section 17.1

Section added in October 7, 2023 revision to CP#28
Section 17 cost impacts and consolidates the language for reference throughout CP#28.

Sections revised in October 7, 2023 revision to CP#28:
Section 4.3.5.6
Section 7.4.6
Section 9.4.6

Sections added in December 7, 2022 revision to CP#28:
Sections 3.0, 7.0 and 8.0 added for the new process effective with the 2024/2026 Cycle, and coordination of process requirements throughout based on these new sections
Added Section 6.5.2.3.1
Added Sections 10.5.9.10.1 and 11.1.1

Sections revised in July 16, 2021 revision to CP#28:
8.2

Sections revised in December 3, 2020 revision to CP#28:
3.3.5.4
3.3.5.4.1
5.4.3
5.4.3.1
5.4.4.1
5.4.4.2
5.4.4.3
5.4.4.4
5.4.5
5.4.5.1
5.4.5.2
5.4.5.3
5.4.5.4
5.4.8
5.4.8.1

Sections revised in November 2, 2020 revisions to CP#28:
5.7 (removal of entire section)
2.5
5.1
5.4.2
5.8
6.1
6.4.1
6.6
7.4

Section revised in January 1, 2019 revision to CP#28:
9.1

Sections revised in October 20, 2018 revision to CP#28:
2.3
2.3.1
2.3.1.1
2.3.1.2
2.3.2
2.3.2.1
2.3.2.2
2.3.2.3
2.3.2.3
2.3.2.5
2.3.2.6
2.3.2.7
2.3.2.8
2.3.2.9
2.3.2.10
2.3.2.11

Sections revised in July 27, 2018 revision to CP#28:
4.6.1

Sections revised in December 8, 2017 revision to CP#28:
3.3.5.5
8.3.1

Sections revised in September 9, 2017 revision to CP#28:
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3.3.5.6
3.6.3.1.1
3.6.3.1.2
4.6
5.4.4
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7.5.3.2
7.5.9.10
8.2 – Number 7
11.2

2025 GROUP B ICC CODE DEVELOPMENT CYCLE
CROSS INDEX OF PROPOSED CODE CHANGES

Some of the proposed code changes include sections that are outside of the scope of the chapters, or the code listed in the table of 2024-2026 Staff Secretaries on page xiii. This is done to facilitate coordination among the International Codes which is one of the fundamental principles of the International Codes.

Listed in this cross index are proposed code changes that include sections of codes or codes other than those listed on page viii. For example, IBC Section 412.7 is proposed for revision in code change F180-24 which is to be heard by the IFC Committee. Chapter 4 of the IBC is typically the responsibility of the IBC-General Code Committee as listed in the table of Staff Secretaries. It is therefore identified in this cross index. Another example is Section 401.1.1 of the International Mechanical Code. The International Mechanical Code is normally maintained by the IMC Committee, but Section 306.1 will be considered for revision in proposed code change G1-24 Part VII which will be placed on the IMC Committee agenda.

This information is provided to assist users in locating all of the proposed code changes that would affect a certain section or chapter. For example, to find all of the proposed code changes that would affect Chapter 2 of the IBC, locate IBC Chapter 2 in the Cross Index of proposed codes changes, then go to the proposed code changes in the portion of the monograph for the respective proposed change group. For example, the Cross Index indicates that the definition of CONTROL AREA is contained within proposed code change F17-24. The IFC portion of the monograph will contain proposed code change F17-24 for your review. While care has been taken to be accurate, there may be some omissions in this list.

Letter prefix: Each proposed change number has a letter prefix that will identify where the proposal is published. The letter designations for proposed changes and the corresponding publications are as follows:

PREFIX	**PROPOSED CHANGE GROUP (see monograph table of contents for location)**
ADM	Administrative Provisions
FS	International Building Code - Fire Safety
G	International Building Code – General
S	International Building Code – Structural
EB	International Existing Building Code
IgCC	International Green Construction Code
P	International Plumbing Code
PM	International Property Maintenance Code
RB	International Residential Code – Building
SP	International Swimming Pool and Spa Code
IZC	International Zoning Code

INTERNATIONAL BUILDING CODE	
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[A]101.3	G88-25
[A] 104.2.4.1	S97-25 Part II
[A] 105.2	G29-25, G183-25 PT1
[A] 106.1	S49-25 Part II
[A] 107.2.6, [A] 107.2.6.1	S97-25 Part II
[A] 107.3.4, [A] 107.3.4.1	G7-25 Part I
[A] 108.1	G173-25, G177-25
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3D PRINTING WALLS (New)	G194-25
3D PRINTING MATERIALS (New)	G194-25
500-YEAR FLOODPLAIN (New)	S97-25 Part I
[BG] AGRICULTURAL BUILDING	G2-25
ANIMAL HOUSING FACILITIES (New)	G2-25
[BG] AMBULATORY CARE FACILITIES	G3-25, G4-25
[BS] APPROVED FABRICATOR	ADM32-25 Part I
[A] APPROVED SOURCE	ADM32-25 Part I, G5-25 PT1
[BS] BASE FLOOD ELEVATION	S97-25 Part I
[BS] BRICK	G6-25
BUILDING DESIGNER (New)	G7-25 Part I
[A] BUILDING OFFICIAL	ADM58-25
[BS] CAST STONE	G6-25
[BG] CELL (GROUP I-3 OCCUPANCY)	G8-25
[BS] CEMENT PLASTER	G6-25
CLINICAL LABORATORY (New)	G87-25
[BS] COASTAL A ZONE	S97-25 Part I
[BS] CONCRETE	G6-25
[BS] DESIGN FLOOD	G9-25, S97-25 Part I
[BS] DESIGN FLOOD ELEVATION	S97-25 Part I
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ELECTRIC VEHICLE POWER EXPORT EQUIPMENT (EVPE) (New)	G57-25, G64-25
[BG] ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE)	G13-25
[A] EXISTING BUILDING	G14-25 Part I
[A] EXISTING STRUCTURE	G14-25 Part I
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[F] FIRE CODE OFFICIAL (New)	ADM58-25, G16-25
[BS] FLOOD HAZARD AREA	S97-25 Part I
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[BG] HOSPITALS, PSYCHIATRIC HOSPITALS	G17-25 Part I
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INFORMATION TECHNOLOGY EQUIPMENT (ITE) AISLE CONTAINMENT ENCLOSURE (New)	G90-25
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INFORMATION TECHNOLOGY EQUIPMENT (ITE) HOT AIR ENCLOSURE (New)	G90-25
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[A] OWNER	ADM32-25 Part I
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[BS] PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT (PITMR)	S155-22
[A] PERSON	ADM32-25 Part I
[BG] PLATFORM	G76-25
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POSITIVE CONNECTION (New)	G19-25 Part I
[BS] POSITIVE ROOF DRAINAGE	G20-25 Part I
[BG] PRIVATE GARAGE	G60-25
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[BS] PUBLIC-OCCUPANCY TEMPORARY STRUCTURE	G21-25, G22-25
[BG] PSYCHIATRIC HOSPITALS (Deleted)	G17-25 Part I
[A] REGISTERED DESIGN PROFESSIONAL	G7-25 Part I
[A] REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE	G7-25 Part I
[A] REPAIR	G24-25 Part II
[BG] RESIDENTIAL AIRCRAFT HANGAR	G25-25
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[BS] SPECIAL FLOOD HAZARD AREA	S97-25 Part I
[BS] STRUCTURAL GLUED-LAMINATED TIMBER (New)	CCCIBC1-25
[BG] STAGE	G27-25
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[BS] TEMPORARY STRUCTURE	G22-25, G30-25
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[BS] WIND DESIGN GEODATABASE	S48-25
[BS] WINDBORNE DEBRIS REGION	G33-25 Part I, S48-25

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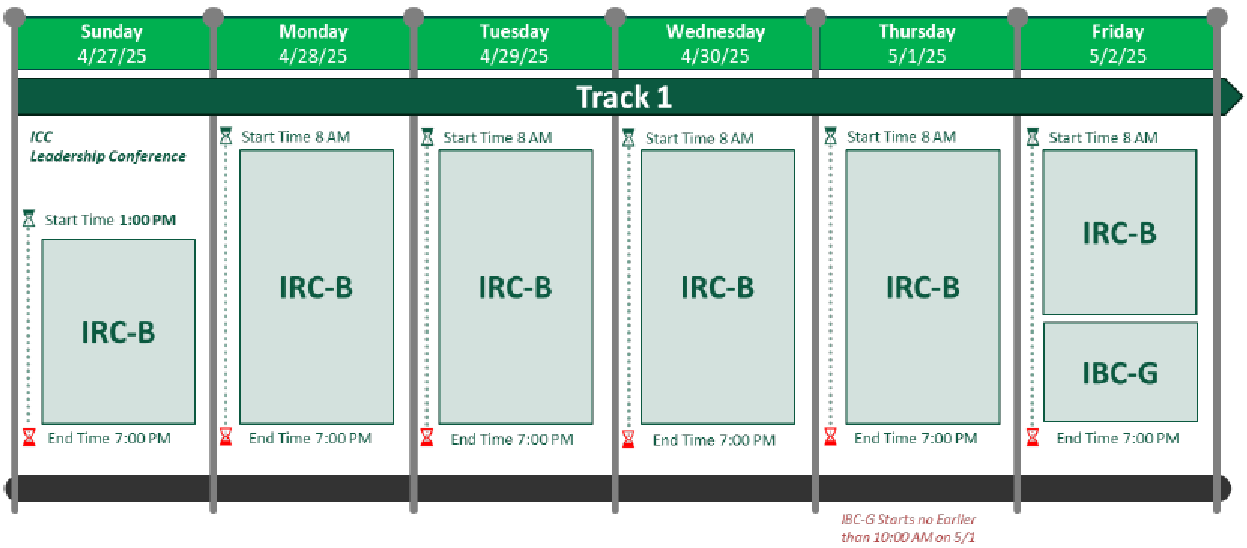
2025 GROUP B COMMITTEE ACTION HEARING SCHEDULE
April 27 – May 6, 2025
DoubleTree by Hilton
at the Entrance to Universal Orlando, Orlando Fl

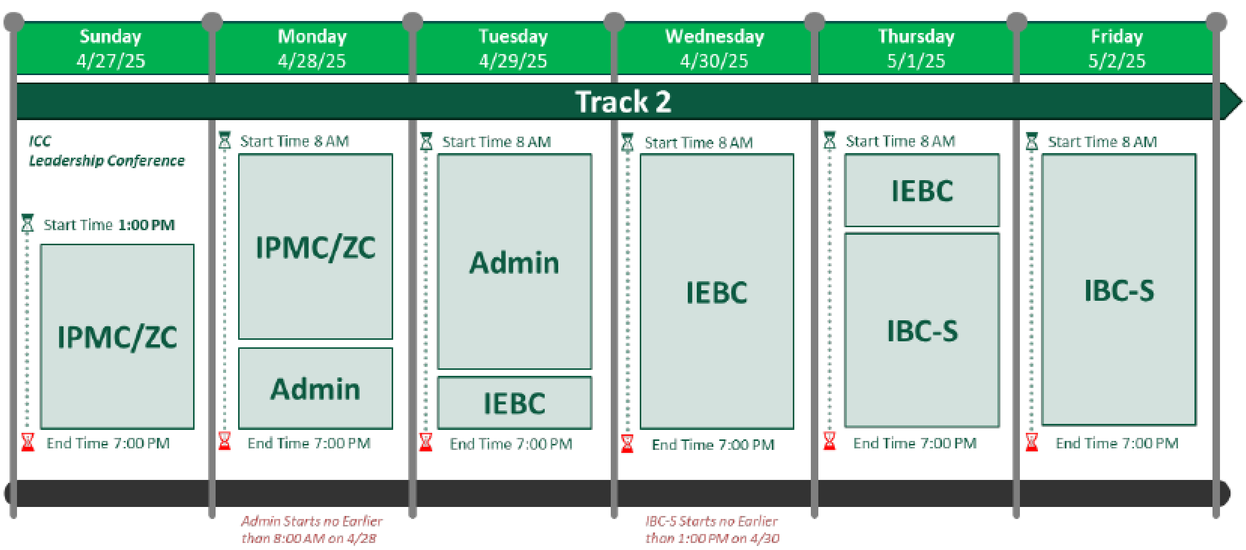
2025 Group B | Committee Action Hearing #1 (CAH #1)

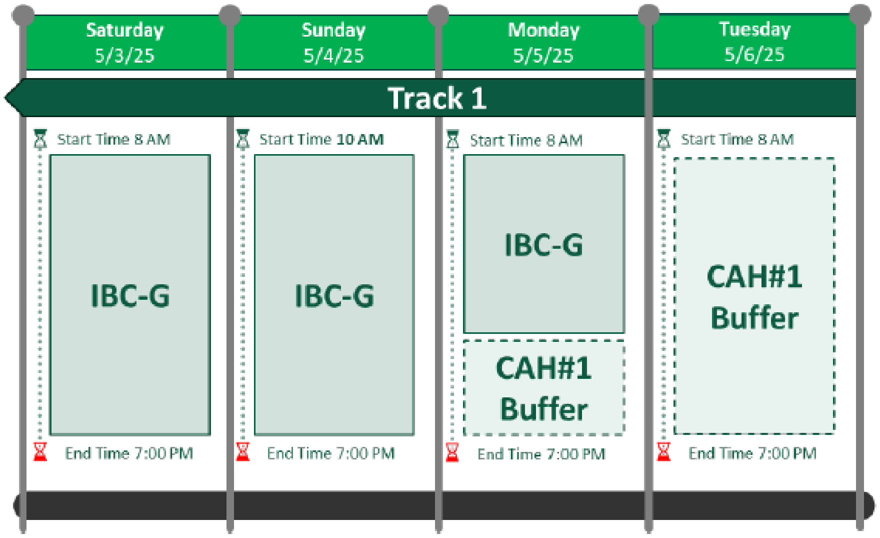
This year the code action hearings will start with a panel discussion and lunch at 12:00 PM on Sunday April 7, 2025. This will allow for Membership Council meetings to be held prior to the start of the hearings and CAH attendees to participate in the panel discussion event where lunch will be provided for attendees.

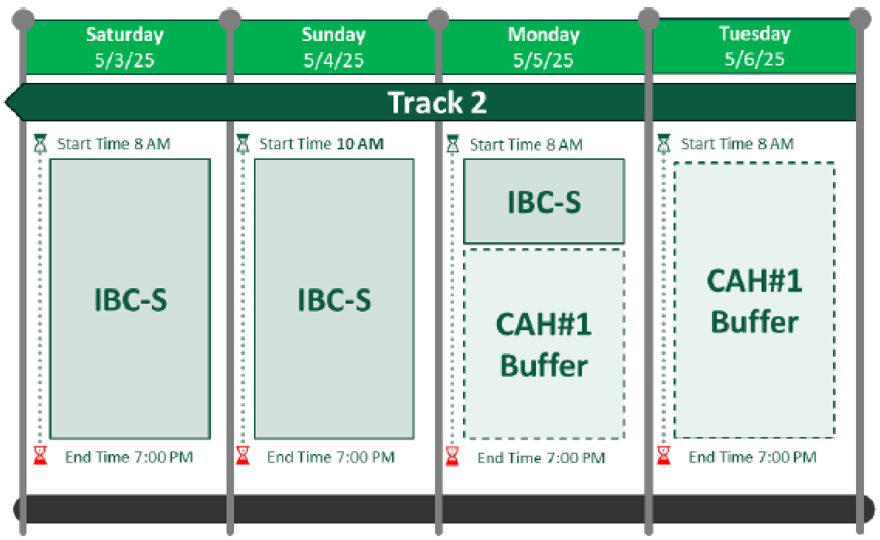
The hearings will be conducted **in-person only**. The hearings will be streamed live for individuals wishing to watch them online (note this is a watch only option).

Unless noted by “Start no earlier than 8 am” each Code Committee will begin immediately upon completion of the hearings for the prior Committee. This includes moving a Committee forward or back from the day indicated based on hearing progress. The actual start times for the various Committees are not stipulated because of uncertainties in hearing progress. The schedule anticipates that the hearings will finish on the date indicated in the schedule provided below. This may require going beyond the scheduled finish time.









Important Notes

1. Code change agenda to be posted on or before March 13, 2025.
2. Hearing times may be modified at the discretion of the Chair based on hearing progress.
3. Morning and afternoon breaks will be announced. A lunch break is planned. A dinner break is not planned. The hearings are scheduled to adjourn for dinner and resume the next day, unless otherwise necessary to complete the agenda.
4. Because of uncertainties in hearing progress, the start time indicated as “Start No Earlier than [8 AM or 12:00 PM]” is conservatively estimated and is not intended to be a hearing progress target.
5. Consult the hearing order in the posted code change agenda for:
    a. Code changes to be heard by a Committee other than the Committee under which the code change is designated.
    b. Code changes comprised of multiple parts where each part is heard by a different Committee.
    c. Code changes to the definitions to determine the applicable Committee who will hear the change to the definition for the respective code.

Code Development Committees (CDC) [Governed by ICC CP 28]

Details related to the sections of the code that each committee covers can be found in the Committee Responsibility Matrix. The 2024 CAH's will include the **Group A** committees.

Acronym	*Cycle Group*	*Description*
ADMIN	B	Provisions (Chapter 1 for all I-Codes except the IECC, IgCC and IRC) and referenced standards updates (multi-discipline committee)
IBC-E	**A**	Building Code – Means of Egress Committee
IBC-FS	**A**	Building Code – Fire Safety Committee
IBC-G	B	International Building Code – General Committee
IBC-S	B	International Building Code – Structural Committee (Includes structural provisions of IEBC)
IEBC	B	International Existing Building Code Committee (Excludes structural provisions)
IFC	**A**	International Fire Code Committee (includes International Wildland – Urban Interface Code)
IFGC	**A**	International Fuel Gas Code Committee
IgCC	B	International Green Construction Code – Chapter 1 only (remaining provisions per ASHRAE 189.1)
IMC	**A**	International Mechanical Code Committee
IPC	**A**	International Plumbing Code Committee (includes International Private Sewage Disposal Code)
IPM/ZC	B	International Property Maintenance and Zoning Code Committee
IRC-B	B	Residential Code –Building Committee
IRC-MP	**A**	International Residential Code – Mechanical-Plumbing Committee
ISPSC	**A**	International Swimming Pool and Spa Code Committee

2025 PROPOSED CHANGES TO THE INTERNATIONAL CODES

2025 GROUP B – PROPOSED CHANGES TO THE ADMINISTRATIVE PROVISIONS CODE

ADMINISTRATIVE PROVISIONS COMMITTEE

Robert (Bob) J. Frances, PE, *Chair*
Director/Building Official
Howard Co. (MD) Dept. of Insp., Lic., & Permits
Ellicott City, MD

Marc Nard, CBO, *Vice Chair*
Building Commissioner
Village of Lake in the Hills
Lake in the Hills, IL

Ken Callahan
Rep: National Association of Home Builders
Industrial Services Manager
Montana-Dakota Utilities
Billings, MT

James Gartside
Deputy Fire Marshal
International Association of Fire Fighters
Henderson, NV

Robert "Rob" Geislinger, AAS, BS, MA
Field Service Coordinator
National Fire Sprinkler Association
Elizabeth, CO

Arsalan Gharaveis, AIA, Ph.D. NCARB, EDAC
Senior Healthcare Architect/Planner
Arcadis (former CRTKL)
Pasadena, CA

William Gould, PE
Director, Building and Product Regulations
MiTek Inc.
Chesterfield, MO

Regina Hanshaw, JD
Executive Secretary
Ohio Board of Building Standards
Reynoldsburg, OH

Scott Moore
Retired Fire Chief
Battlefield, MO

Bonnie Muhigirwa, CBO
Chief Building Official
City of Aspen
Aspen, CO

Merria Norris
Code Development Analyst
SDCI - Department of Construction and Inspections
Port Orange, FL

Michael (Mike) Nugent, CBO
Retired Building Official
Charlotte, NC

Steve Orlowski
CEO, Founder
Sundowne Building Code Consultants, llc
Middletown, MD

Daniel (Dan) Wilkerson, MCP, PA BCO
ICC Combination Commercial Plans Examiner/Inspector
National Code Inspection Agency LLC
Greenville, PA

Staff Secretariat:
Keith Enstrom, PE
Senior Staff Engineer
International Code Council
Central Regional Office

TENTATIVE ORDER OF DISCUSSION 2025 PROPOSED CHANGES TO THE ADMINISTRATIVE PROVISIONS

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some ADM code change proposals may not be included on this list, as they are being heard by another committee.

ADM1-25 Part I
ADM2-25
ADM3-25 Part I
ADM4-25
ADM5-25
ADM6-25 Part I
ADM7-25
ADM8-25
ADM9-25 Part I
    G45-25 Part II
ADM10-25
ADM11-25 Part I
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ADM14-25 Part I
ADM15-25 Part I
ADM16-25 Part I
ADM17-25 Part I
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ADM19-25 Part I
ADM20-25
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ADM26-25 Part I
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ADM33-25
ADM34-25 Part I
ADM35-25 Part I
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ADM38-25
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ADM40-25
    S49-25 Part II
ADM41-25 Part I
ADM42-25 Part I
ADM43-25 Part I
    PM3-25 Part II
ADM44-25
ADM45-25 Part I
    G7-25 Part I
ADM46-25
ADM47-25 Part I
ADM48-25 Part I
    EB27-25 Part II
ADM49-25
ADM50-25 Part I
ADM51-25 Part I
ADM52-25
ADM53-25
ADM54-25
ADM55-25
ADM56-25 Part I
ADM57-25
    G5-25 Part I
ADM58-25
    G14-25 Part I
    G24-25 Part II
    G32-25 Part I
ADM59-25
ADM60-25
    GG1-25
    GG1-25
    GG3-25
ADM61-25

ADM1-25 Part I

IEBC: [A] 101.2

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Existing Building Code

Revise as follows:

[A] 101.2 Scope. The provisions of this code shall apply to the *repair*, *alteration*, *change of occupancy*, *addition* to and relocation of *existing buildings*.

> **Exception:** ~~Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plane in height,~~ Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code.*

ADM1-25 Part I

ADM1-25 Part II

IRC: R101.2

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, relocation, enlargement, addition to, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904, and shall be permitted for the repair, alteration, changes of occupancy, addition to and relocation of the following:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .

Reason: This proposal clarifies and confirms the common understanding and application of this IEBC Exception, which is to allow buildings within the scope of the IRC to use the IRC for existing building projects. The proposal makes no substantive changes. Rather, it resolves an inconsistency in the scope wording between the IEBC and the IRC.

The question: The current IEBC exception addresses only the dwellings, townhouses, and accessory buildings covered by IRC Section R101.2. It does not address the five types of buildings listed in the exception to R101.2: certain live/work units, lodging houses, and three types of care facilities. Assuming they meet the size, use, and other limits of R101.2, as currently worded, are these five building types eligible to use the IRC?

The answer: We posed this question to ICC staff in August 2024. On September 14, 2024, we received an opinion from Christopher Reeves of ICC, stating, in relevant part, "[T]he IRC ... may be used for additions, alterations and repairs to all existing buildings, including the five listed occupancy conditions [unless they] result in a use, occupancy, height or means of egress outside the scope of the IRC."

This proposal implements this ICC response, which is consistent with how we understand the exception as typically applied, and with the general expectation when the exception was added to the IEBC for the 2018 edition with proposal ADM31-16 (approved as submitted).

When the IEBC exception was added in 2016, IRC R101.2 did not list the five types the way it does today. IRC R101.2 was revised and expanded with proposals to the 2018 IRC to include these five types. As such, the original ADM31-16 could not have addressed three of the five types if it wanted to – either to explicitly include or exclude them – because they did not yet exist. In general, however, the reason statement for ADM31-16 implies that this IEBC exception should address any and all buildings within the scope of the IRC, to "keep intact the status of the IRC as a stand-alone code" and to avoid "provisions for IRC-regulated structures ... in another I-code." In other words, ADM31-16 argued, if you can build it new with the IRC, you should be able to regulate it as an existing building with the IRC.

What about similar wording in other I-codes? The IEBC exception also occurs verbatim in other I-codes, such as the IMC, IPC, and IFGC. (It does not appear, however, in other I-codes, such as the IPMC, IWUIC, and IFC.) Where the same exception does exist, should the wording of those other codes also be revised? Perhaps yes, if the users of those codes want to clarify that the IRC is an allowed alternative for the five types listed in IRC R101.2. But the clarification proposed here is probably less important for other codes that are primarily for new construction. A code primarily for new construction, such as the IMC, IPC, or IFGC, already works hand in glove with the

IBC, which has its own pointers to the IRC in Chapter 3 (for example, see IBC Sections 308.5, 310.4.1, or 310.4.2). Thus, users of the IMC, IPC, IFGC, etc. already have a path to get to the IRC for the five types listed in IRC R101.2.

By contrast, the IEBC, similar to the IPMC, applies exclusively to existing buildings. To require users to detour through the IBC just to find a vague rationalization for using the IRC is practically a guarantee of inconsistent use. Therefore, this proposal has value even if it means using wording that differs from similar exceptions in other I-codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

First, the proposal merely clarifies what we believe is the current common understanding of the exception to IEBC 101.2, consistent with the intent of the 2016 proposal that created it. Second, the exception merely provides an option to the user. Since there is no new requirement, there is no cost impact.

Staff Analysis: EB53-25 contains related proposed revisions to other IEBC sections that will be heard by the IBC-S committee. Similar exceptions are included in IBC Section 101.2, IFC Section 1001.1, IPC Section 101.2, IMC Section 101.2, and IFGC Section 101.2.

ADM1-25 Part II

ADM2-25

IBC: [A] 101.2

Proponents: John Grenier, National Council of Structural Engineers' Associations (NCSEA), representing NCSEA (jgrenier@greniereng.com)

2024 International Building Code

Revise as follows:

[A] 101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, relocation, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every *building* or *structure* or any appurtenances connected or attached to such *buildings* or *structures*. <u>Walls, fences, and retaining walls located on the same site as a building but not located within the *public way*, shall be considered structures and are governed by this code.</u>

Exception: Detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate *means of egress*, and their accessory *structures* not more than three *stories above grade plane* in height, shall comply with this code or the *International Residential Code* .

Reason: 1. At the Committee Action Hearings in 2022 for Code Change Proposal S157-22 (Adding the requirement for Guards at Retaining Walls), the Committee Reason Statement was as follows: "Approved as modified as this proposal is an important update from a safety aspect. The committee expressed concerns relative to this being a 'site' item vs. a building component. The modification provides needed restructure, clarification and alignment with current code language. (Vote: 11-2)". This highlights some confusion within the Engineering Community on what the Code governs and what it does not (with the emphasized "Site Items" being brought up by the Committee and considered or thought as not governed by the IBC).

2. The 2021 IBC Commentary states, "While such activity may not be as significant as a new building, <u>a fence is considered a structure and, therefore, its erection is within the scope of the code</u>". This clarifies the issue, but having the text in the code will eliminate any confusion or disputes.

3. If the IBC does not govern walls, fences and retaining walls, then what code would? Work within the Public Right of Way would be governed by AASHTO or other locally adopted Codes, but the work on specific sites do not typically fall under those requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The cost of construction will not increase by this change.

ADM2-25

ADM3-25 Part I

IBC: [A] 101.3

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); David Arkin, AIA, representing Arkin Tilt Architects (david@arkintilt.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 101.3 Purpose. The purpose of this code is to establish the minimum requirements to provide a reasonable level of safety, health and general welfare through structural strength, *means of egress*, stability, sanitation, light and *ventilation*, energy conservation, and for providing a reasonable level of life safety and property protection from the hazards of fire, *explosion* or *dangerous* conditions, <u>and from other hazards attributable to the built environment,</u> and to provide a reasonable level of safety to fire fighters and emergency responders during emergency operations.

Attached Files

- **BuildingStandards_JanFeb2000DE-BobFowler.pdf**
  https://www.cdpaccess.com/proposal/11691/35967/files/download/9801/
- **BSJ_BldgCodesforaSmallPlanet_all.pdf**
  https://www.cdpaccess.com/proposal/11691/35967/files/download/9798/

Reason: From the 2000 IBC to the 2018 IBC (and similarly from the 2003 IRC to the 2018 IRC), the Intent section of the code included the phrase "and other hazards attributed to the built environment". That phrase is foundational to the understanding that, in plain English, the built environment creates hazards that extend beyond those impacting the occupants of buildings, beyond the scale of individual buildings, and beyond the specific regulatory categories listed in the purpose statement. This proposal reestablishes that phrase as well as replacing the word “attributed” with “attributable” because it implies not only hazards known from past experience, but those emerging in the present and into the future. (See links to attachments at the end of this Reason statement providing fuller background and context.)

There was considerably greater clarity in the IRC's original Purpose section:

From the 2000 IBC:
101.3 Intent. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment.

From the 2024 IBC:

[A] 101.3 Purpose.

The purpose of this code is to establish the minimum requirements to provide a reasonable level of safety, health and general welfare through structural strength, *means of egress*, stability, sanitation, light and *ventilation*, energy conservation, and for providing a reasonable level of life safety and property protection from the hazards of fire, *explosion* or *dangerous* conditions, and to provide a reasonable level of safety to fire fighters and emergency responders during emergency operations.

The importance of that deleted phrase lies in its acknowledgement that the built environment creates many hazards, and some not obvious. Though not stated explicitly, hazards attributable to the built environment are not limited to those directly impacting the occupants of a specific building or structure, but can come in other forms and occur in other places or timeframes.

The IBC and IRC requirements do an excellent job protecting building occupants from the categories of hazards specifically included in the codes, while failing to recognize or address many other hazards which can be partly or entirely traced to the built environment. These include hazards related to the lifecycle impacts of building materials, their potential toxicity and much more. The complexity of addressing the upstream and downstream impacts of buildings, and the built environment more broadly, while challenging, does not eliminate the responsibility of trying to understand and minimize the hazards created, and to balance the risks they represent at different levels and scales, from individual products, materials and systems to the aggregated and cumulative impacts they create.

What is missing overall in the codes and in code development is a formal process aimed at recognizing and balancing risks and hazards across the full spectrum of potential harm created by the built environment. If we don't acknowledge the existence of these other hazards, it becomes extremely difficult to introduce alternatives that may produce equivalent levels of safety and performance for buildings and their occupants while also addressing these other hazards.

We recognize that this view creates discomfort for many, and that the lack of a definitive line of regulatory authority and responsibility creates problems that are difficult to resolve. On the other hand, what of the blurring of definitive lines with the acceptance of the words "reasonable levels of health, safety and general welfare" into the purpose statements - clearly permissive language not allowed anywhere else in the codes. In fact, it is an illusion that there was ever a definitive line for which hazards should and should not be addressed in the codes.

The codes have continuously responded to emergent and previously unknown or unrecognized hazards and their impacts. That is why lead and asbestos are no longer allowed in building materials, and why we require insulation and have energy conservation requirements, and why we now have a wildland-urban interface code, and of course, why we have three-year code development cycles and appendices to the codes. Among these changing realities is that the climate is changing. Extreme weather events that were once rare are now common occurrences, and we need to be considering both how a changing climate impacts buildings and how the cumulative impacts of the built environment impact the climate.

These two quotes by ICC founding Board Chairman Bob Fowler from a 2000 interview of Bob and David Eisenberg in ICBO's Building Standards magazine are relevant to the intent of this proposal (see link to full interview below):

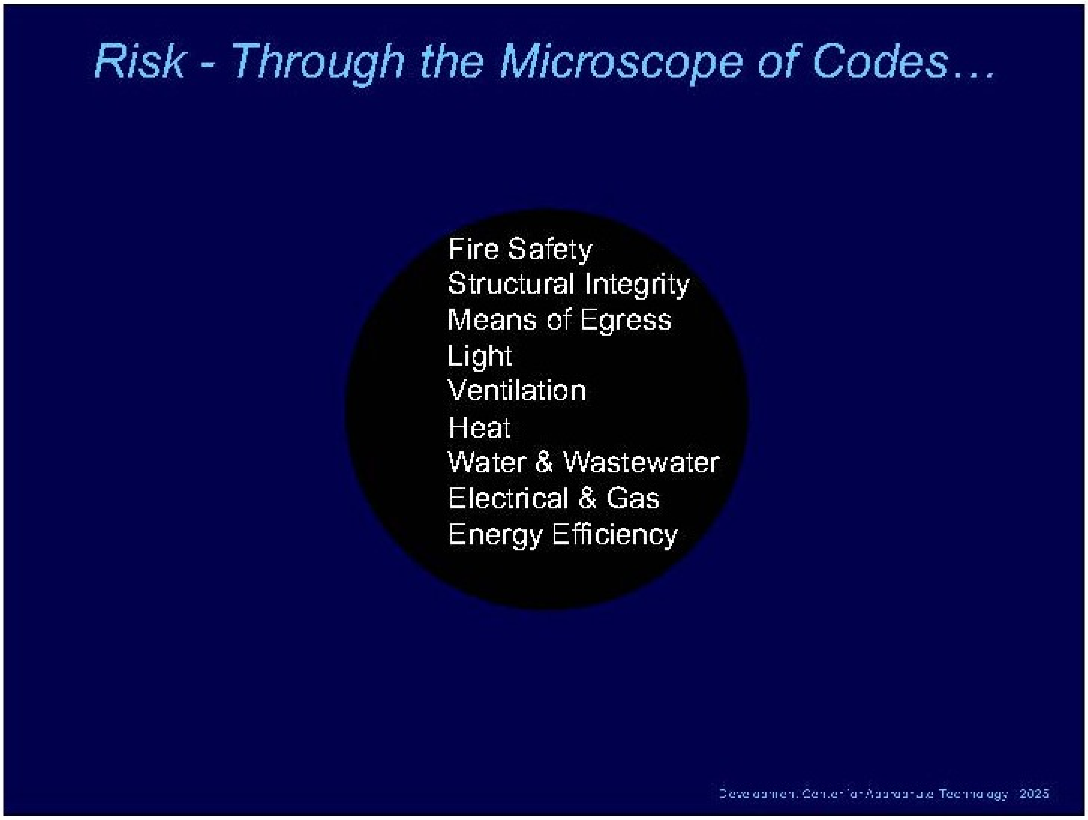
"Safety is very important, but we need to think about the responsibilities for our collective safety; especially the welfare of future generations who, it's worth noting, are unable to represent their interests."

"At some point, we will have to develop criteria for the environmental performance of buildings, similar to energy efficiency requirements. Alternative materials and methods will become much more than just allowable options once that happens. You can tell that I've come a long way personally from the building official I was when I got up and spoke against the first proposed code change to require insulation in buildings. I thought that was the dumbest idea I'd ever heard and that it had no place in the codes. Looking back, I see that the energy efficiency requirements set a very important precedent for our learning to take responsibility for the full range of the consequences of our buildings. We now need to continue that learning process and open our eyes and our minds to the work of creating sustainable buildings. Our great-grandchildren will thank us."

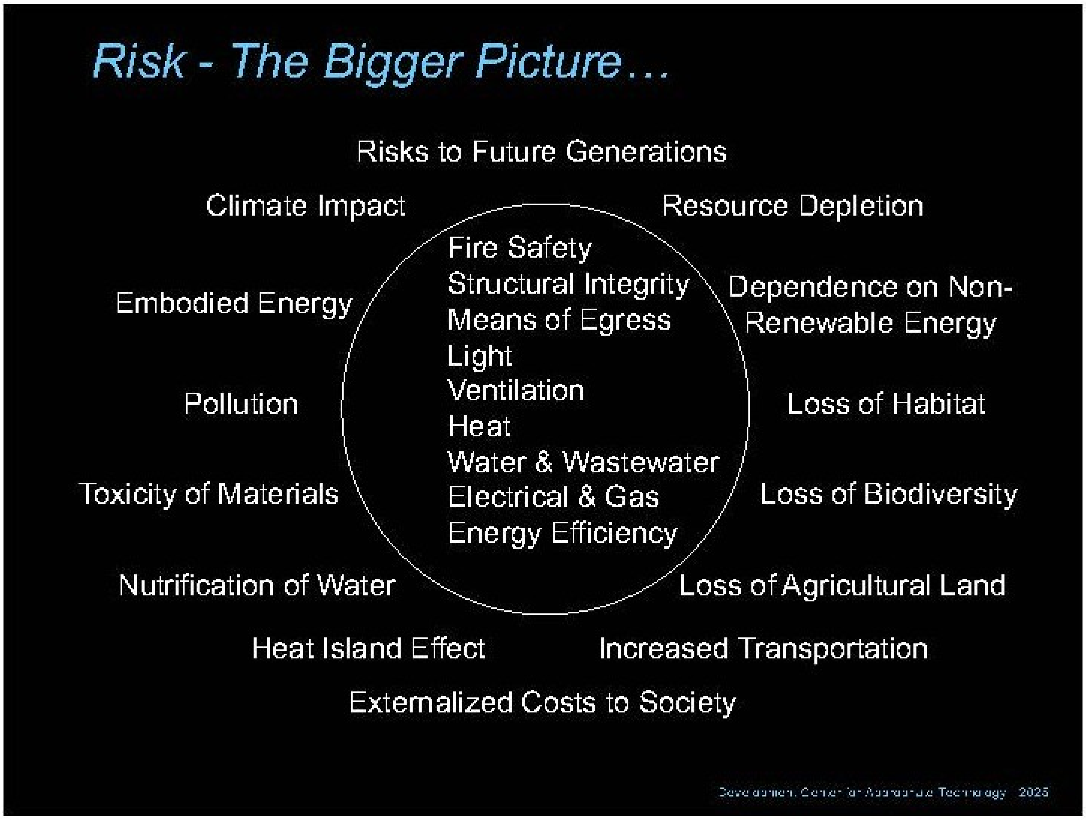
At a minimum, we hope this proposed change to the IBC's Purpose statement brings the issue back to the forefront and opens a conversation to allow honest and responsible exploration of how we can and should balance the full spectrum of hazards attributable to the built environment in our codes.

The following is a set of three slides that David Eisenberg of the Development Center for Appropriate Technology has been presenting to building officials for the past two decades. They graphically represent the way that not all hazards attributable to the built environment are addressed or even recognized in our building codes, revealing the need for a comprehensive process to balance and address them in the codes.

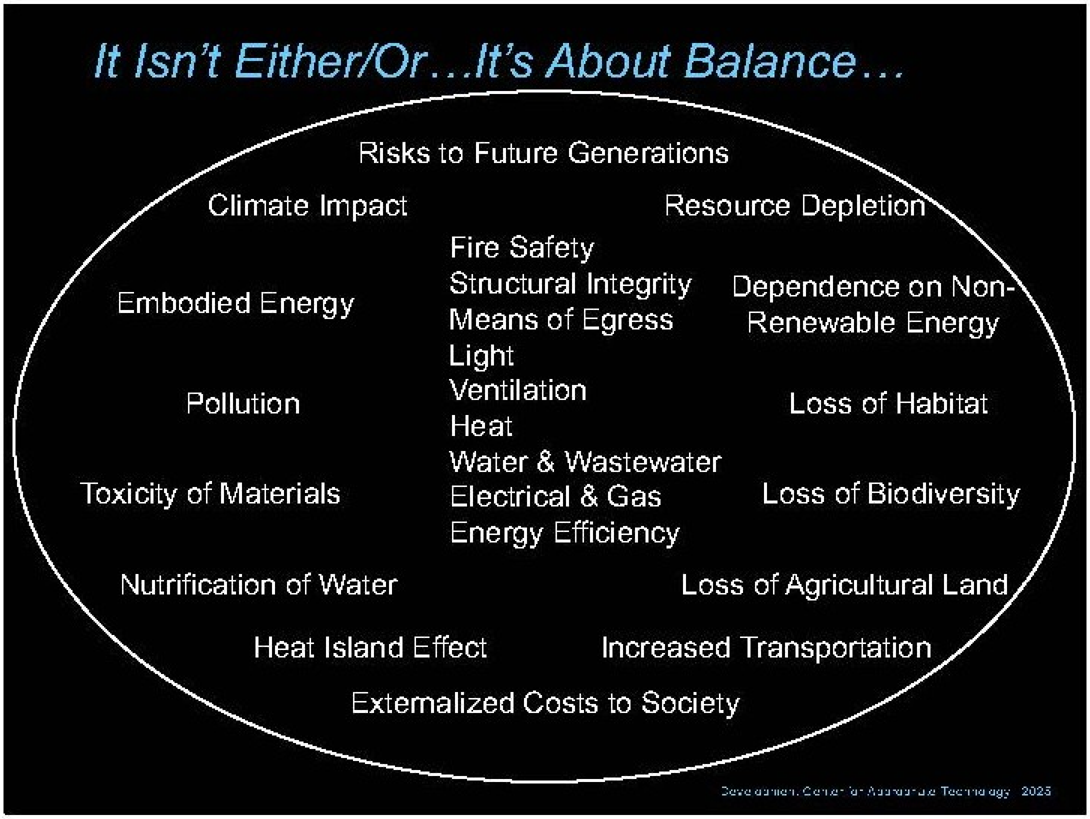
Development Center for Appropriate Technology - 2025



Looking at buildings through codes is like looking through a microscope. These are the main categories of hazards attributable to the built environment that are addressed in building codes. Though what you can see through that lens is very important, there are many other important hazards you can't see while looking through that lens.



Here are some of the other hazards which are attributable or partly attributable to the built environment, yet are not addressed by the codes.



What is critical to recognize is that this should not be an either/or matter – the full scope of hazards attributable to the built environment should be acknowledged and there should be a process to balance these hazards and risks – many of which are cumulative and distributed and occur over time – with the widely recognized hazards that are already addressed in codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposed text addition has no direct construction cost impact.

Staff Analysis: Similar text is also in IFC Section 101.3.

ADM3-25 Part I

ADM3-25 Part II

IRC: R101.3

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); David Arkin, AIA, representing Arkin Tilt Architects (david@arkintilt.com)

2024 International Residential Code

Revise as follows:

R101.3 Purpose. The purpose of this code is to establish minimum requirements to provide a reasonable level of safety, health and general welfare through affordability, structural strength, means of egress, stability, sanitation, light and *ventilation*, energy conservation and safety to life and property from fire and other hazards <u>attributable to the built environment</u> and to provide a reasonable level of safety to firefighters and emergency responders during emergency operations.

Attached Files

- **BuildingStandards_JanFeb2000DE-BobFowler.pdf**
  https://www.cdpaccess.com/proposal/11617/35966/files/download/9804/
- **BSJ_BldgCodesforaSmallPlanet_all.pdf**
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Reason: From the 2003 IRC to the 2018 IRC (and similarly from the 2000 IBC to the 2018 IBC), the Purpose section of the code included the phrase "and other hazards attributed to the built environment". That phrase is foundational to the understanding that, in plain English, the built environment creates hazards that extend beyond those impacting the occupants of buildings, beyond the scale of individual buildings, and beyond the specific regulatory categories listed in the purpose statement. This proposal reestablishes that phrase as well as replacing the word “attributed” with “attributable” because it implies not only hazards known from past experience, but those emerging in the present and into the future. (See links to attachments at the end of this Reason statement providing fuller background and context.)

There was considerably greater clarity in the IRC's original Purpose section:

From the 2003 IRC:

R101.3 Purpose. The purpose of this code is to provide minimum requirements to safeguard the public health, safety and general welfare, through affordability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment.

From the 2024 IRC:

R101.3 Purpose. The purpose of this code is to establish minimum requirements to provide a reasonable level of safety, health and general welfare through affordability, structural strength, means of egress, stability, sanitation, light and *ventilation*, energy conservation and safety to life and property from fire and to provide a reasonable level of safety to firefighters and emergency responders during emergency operations.

The importance of that deleted phrase lies in its acknowledgement that the built environment creates hazards. Though not stated explicitly, hazards attributable to the built environment are not limited to those directly impacting the occupants of a specific building or structure, but can come in other forms and occur in other places or timeframes.

The IRC and IBC requirements do an excellent job protecting buildings and their occupants from the categories of hazards included in the codes, while failing to recognize or address many other hazards which can be partly or entirely traced to the built environment. These include hazards related to the lifecycle impacts of building materials, their potential toxicity and much more. The complexity of addressing the upstream and downstream impacts of buildings, and the built environment more broadly, while challenging, does not eliminate the responsibility of trying to understand and minimize the hazards created, and to balance the risks they represent at different levels and scales, from individual products, materials and systems to the aggregated and cumulative impacts they create.

What is missing overall in the codes and in code development is a formal process aimed at recognizing and attempting to balance risks and hazards across the full spectrum of potential harm created by the built environment. If we don’t acknowledge the existence of these other hazards, it becomes extremely difficult to introduce alternatives that may produce equivalent levels of safety and performance for buildings and their occupants while addressing these other hazards.

We recognize that this view creates discomfort for many, and that the lack of a definitive line of regulatory authority and responsibility creates problems that are difficult to resolve. On the other hand, what of the blurring of definitive lines with the acceptance of the words “reasonable levels of health, safety and general welfare” into the purpose statements - clearly permissive language not allowed anywhere else in the codes. In fact, it is an illusion that there was ever a clear line for which hazards should and should not be addressed in the codes.

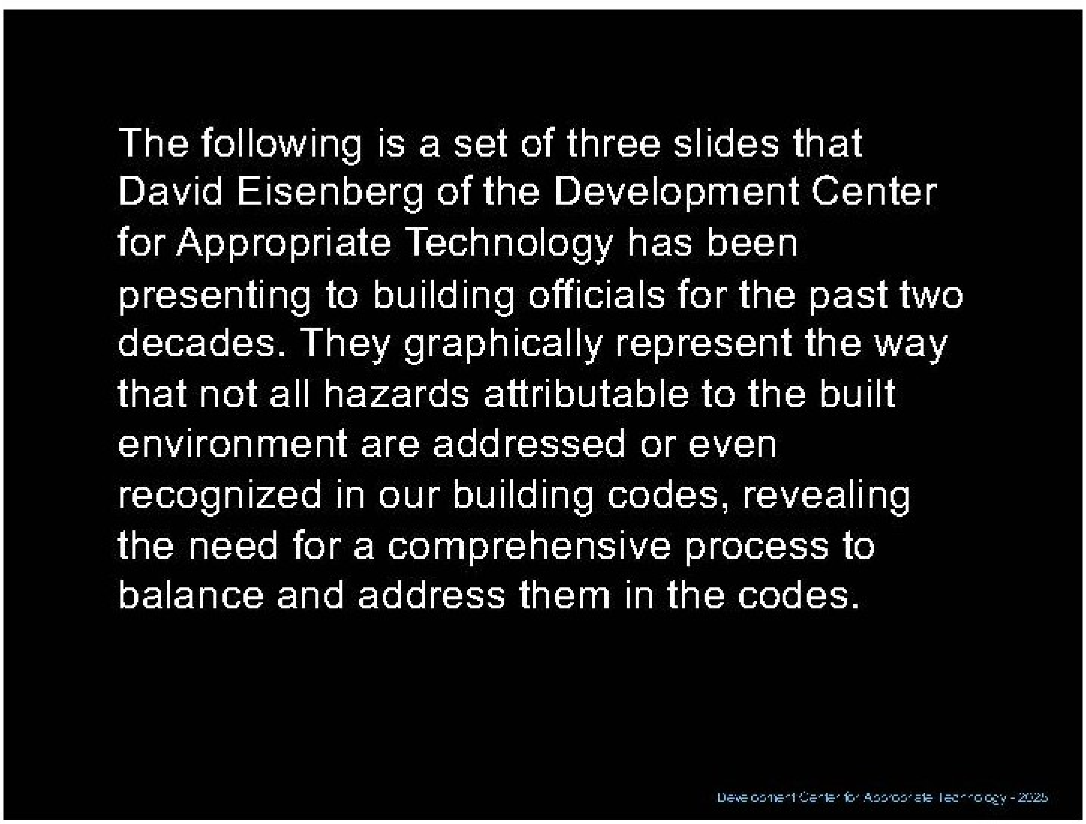
The codes have continuously responded to emergent and previously unknown or unrecognized hazards and their impacts. That is why lead and asbestos are no longer allowed in building materials, and why we require insulation and have energy conservation requirements, and why we now have a wildland-urban interface code, and of course, why we have three-year code development cycles and appendices to the codes. Among these changing realities is that the global climate is changing. Extreme weather events that were once rare are now common, and we need to be considering both how a changing climate impacts buildings and how the cumulative impacts of the built environment impact the climate.

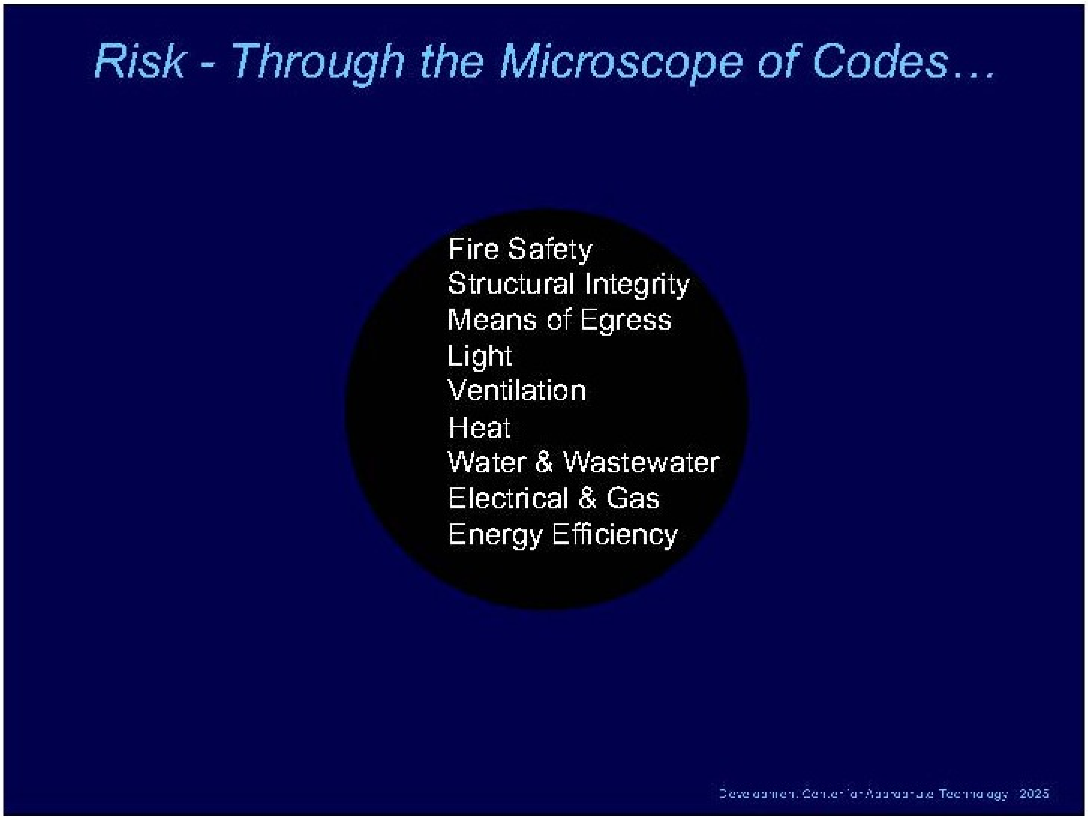
These two quotes by ICC found Board Chairman Bob Fowler from a 2000 interview with Bob and David Eisenberg in ICBO's Building Standards magazine are relevant to the intent of this proposal (see link to full interview below):

“Safety is very important, but we need to think about the responsibilities for our collective safety; especially the welfare of future generations who, it's worth noting, are unable to represent their interests.”

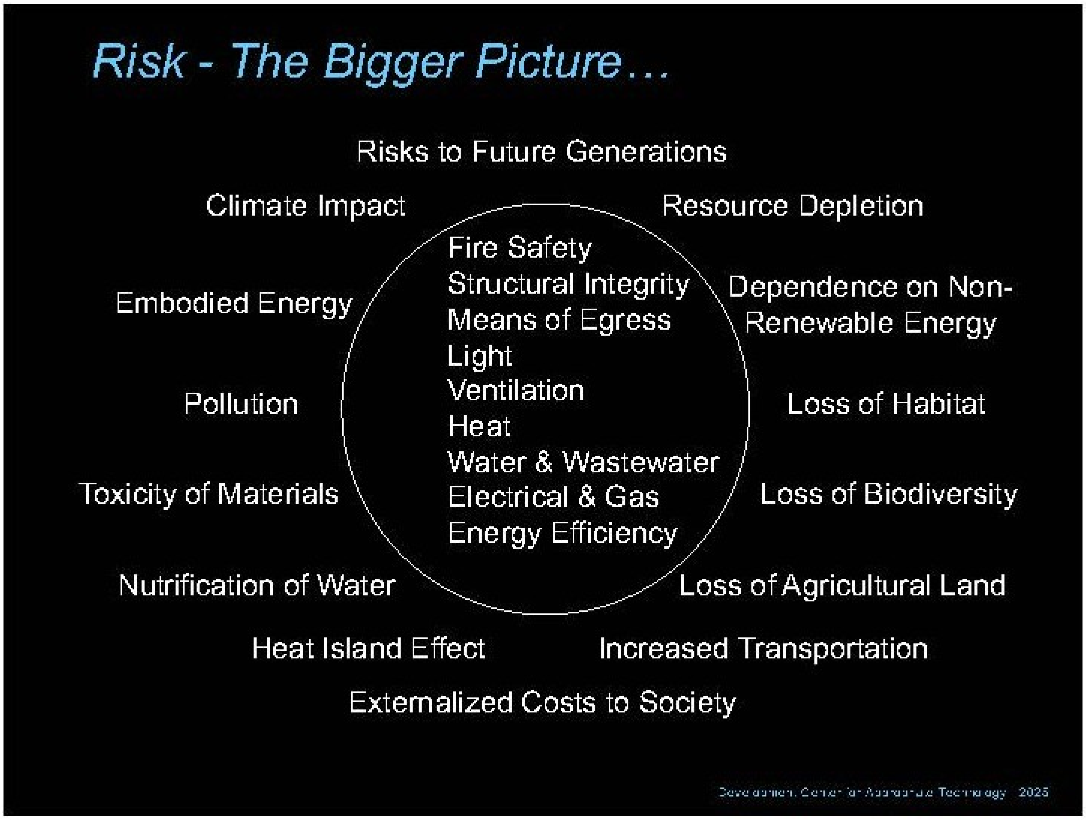
“At some point, we will have to develop criteria for the environmental performance of buildings, similar to energy efficiency requirements. Alternative materials and methods will become much more than just allowable options once that happens. You can tell that I've come a long way personally from the building official I was when I got up and spoke against the first proposed code change to require insulation in buildings. I thought that was the dumbest idea I'd ever heard and that it had no place in the codes. Looking back, I see that the energy efficiency requirements set a very important precedent for our learning to take responsibility for the full range of the consequences of our buildings. We now need to continue that learning process and open our eyes and our minds to the work of creating sustainable buildings. Our great-grandchildren will thank us.”

At a minimum, we hope this proposed change to the IRC’s Purpose statement brings the issue back to the forefront and opens a conversation to allow honest and responsible exploration of how we can and should balance the full spectrum of hazards attributable to the built environment in our codes.

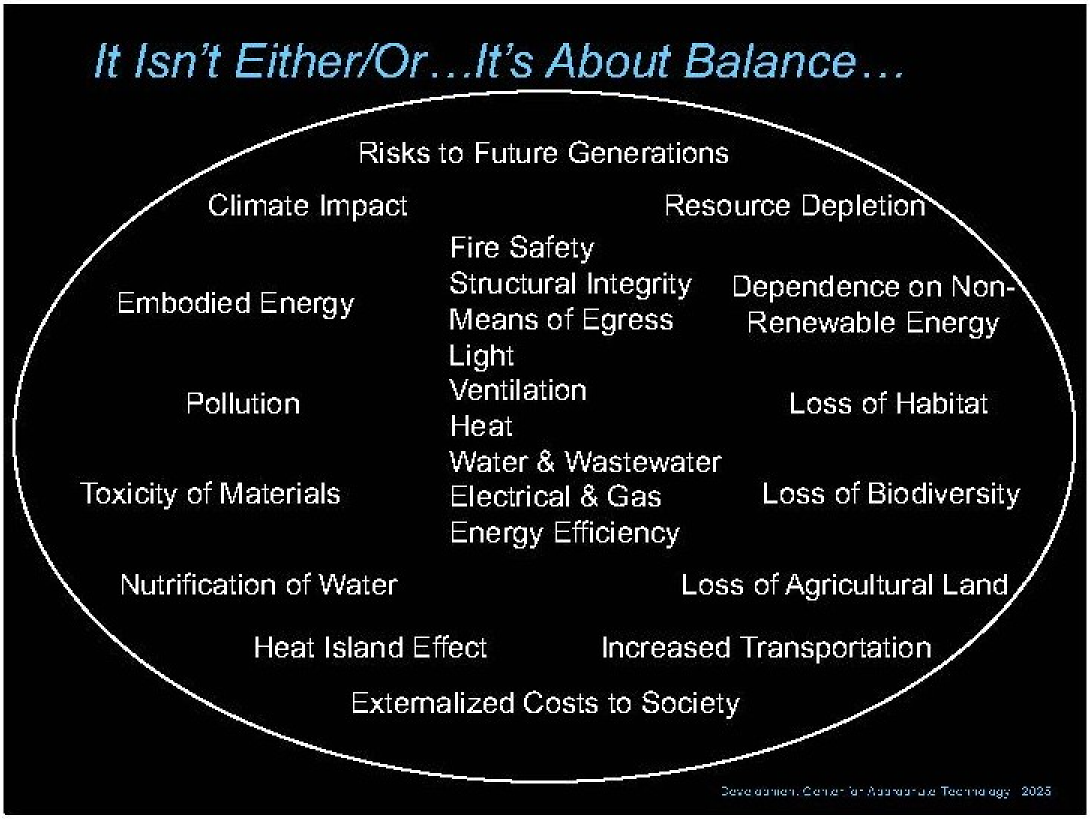




Looking at buildings through codes is like looking through a microscope. These are the main categories of hazards attributable to the built environment that are addressed in building codes. Though what you can see through that lens is very important, there are many other important hazards you can't see while looking through that lens.



Here are some of the other hazards which are attributable or partly attributable to the built environment, yet are not addressed by the codes.



What is critical to recognize is that this should not be an either/or matter – the full scope of hazards attributable to the built environment should be acknowledged and there should be a process to balance these hazards and risks – many of which are cumulative and distributed and occur over time – with the widely recognized hazards that are already addressed in codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposed text addition has no direct construction cost impact.

ADM3-25 Part II

ADM4-25

IEBC: [A] 101.4

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Existing Building Code

Revise as follows:

[A] 101.4 Applicability. This code shall apply to the *repair*, *alteration*, *change of occupancy*, *addition* and relocation of *existing buildings*, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2.

> **Exception:** The provisions of Chapter 5 of the *International Energy Conservation Code* shall apply to all matters governing of the energy efficiency of *existing buildings*.

Reason: The IEBC does not address energy efficiency. Chapter 5 of the IECC provides the relevant requirements for energy efficiency for existing building repairs, alternations, change of occupancy, and additions. It also uses important differences in terminology unique to addressing energy efficiency for existing buildings. This scope clarification is necessary to ensure the IEBC and the IECC are properly coordinated.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clarification of scope of the IEBC and does not change requirements in the IEBC or in the IECC related to existing buildings.

ADM4-25

ADM5-25

IWUIC: [A] 101.6

Proponents: Robert Marshall, representing FCAC (fcac@iccsafe.org)

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 101.6 Maintenance. Buildings, structures, ~~landscape materials, vegetation, *defensible space* or~~ and other devices or safeguards required by this code shall be maintained in conformance to the code edition under which they were constructed or required to be installed.
Landscape materials, vegetation, and *defensible space* shall be maintained in conformance with this code, an *approved fire protection plan* and any other applicable hazard mitigation requirements imposed by the *code official* at the time of site approval.
The owner or the owner's authorized agent shall be responsible for the maintenance of buildings, structures, landscape materials and vegetation.

Reason: This proposal accomplishes 3 things:

1. It creates a new Chapter for all maintenance requirements applicable to fire hazard mitigation of structures and premises regulated by the IWUIC. New construction requirements remain in Chapters 4, 5 and 6.

2. It relocates all existing requirements that are maintenance related from Chapter 6 into the appropriate sections of this new Chapter for clarity and easier use of this code.

3. It adds reasonable new requirements for maintenance or repair or replacement of features that were identified by F-CAC as gaps that needed to be addressed.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the **FCAC Website**

Cost Impact: Increase

Staff Analysis: This was submitted as a part of WUIC70-24 and was determined to be within the scope of the IADMIN committee.

ADM5-25

ADM6-25 Part I

IBC: [A] 102.2; IEBC: [A] 102.2; IFC: [A] 102.11; IFGC: [A] 102.10; IGCC: 102.2; IMC®: [A] 102.10; IPC: [A] 102.10; IPSDC: [A] 102.2; IPMC: [A] 102.11; ISPSC: [A] 102.9; IWUIC: [A] 102.2

Proponents: Scott Brody, representing Self (sbrody96@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Existing Building Code

Revise as follows:

[A] 102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Fire Code

Revise as follows:

[A] 102.11 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Fuel Gas Code

Revise as follows:

[A] 102.10 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Green Construction Code

Revise as follows:

102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Mechanical Code

Revise as follows:

[A] 102.10 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Plumbing Code

Revise as follows:

[A] 102.10 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Property Maintenance Code

Revise as follows:

[A] 102.11 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 102.9 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

2024 International Wildland Urban Interface Code

[A] 102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

ADM6-25 Part I

ADM6-25 Part II

IRC: R102.2

Proponents: Scott Brody, representing Self (sbrody96@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Residential Code

Revise as follows:

R102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law, <u>or international legal instruments which the nation is a party to.</u>

Reason: This edit adds international law to I-code's law list that is currently shown (local, state, and federal). It makes the code more consistent with Code Council Policy CP 49-21, "CP#49-21 – Conforming Codes and Standards to United States Federal Law and International Law." Because international law is a broad term with numerous potential interpretations, I made the scope more specific than the other authorities mentioned in this clause. This makes it clear that the I-codes only impacted by international legal instruments which the nation is a party to.

Specific mention of international law is justified here because it is distinct from federal, state, and local law. Sometimes, international law is enforceable in domestic courts. Other times, the US will ratify an international treaty, giving the document international legal validity, without passing a corresponding federal law enforcing the treaty or agreement on the states. This can create issues, for example when the federal government took action to diminish sale of more carbon-emitting refrigerants, consistent with international obligations, yet some state codes were not updated to reflect the new situations. In cases of legally recognized but non-self-executing treaties, this code change would meaningfully impact how the I-codes are interpreted, to be consistent with treaty obligations.

As mentioned, ICC Code Council Policy (CP) 49-21 recognizes "International Law." Further, this policy makes it the goal of having the I-codes be globally applicable. With many nations outside the US placing a high degree of importance on international law, this code change will make the I-codes more suitable for global use.
The American National Standards Institute has also adopted policy to align standards activity with international obligations, consistent with the organization's status as the national standards coordinator. This proposal will therefore make the I-codes more aligned with ANSI objectives.

On the day-to-day enforcement side, this reference will queue inspectors to be more aware of possible preemptions. For example, many aspects of marine vessels are regulated in accordance with the United Nations Safety of Life at Sea convention (SOLAS). Clause 107.1 of the IFC authorizes the fire official to enter any "marine vessel" for the purposes of enforcing the IFC. By adding a reference that the IFC does not preempt international legal instruments which the nation is a party to, the fire official's scope of authority is clarified.

Bibliography: CP 49-21 - Conforming Codes and Standards to United States Federal Law and International La. Approved by the ICC Board of Directors 9/18/2021.
https://cdn-www-v2.iccsafe.org/wp-content/uploads/edbcbd8c-0470-475c-9717-c0083424fe2d-upload_any_related_documentation_-CP-49-Conforming-Codes-and-Stan.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Theoretically, any change which clarifies the code has the potential to reduce costs by eliminating wasted time from confusion. However, corrections to issues of improper code enforcement are not really something which is done in the interest of saving money, and the option to select no impact due to the change being editorial seems most appropriate.

ADM6-25 Part II

ADM7-25

IMC®: [A] 102.3, ACCA Chapter 15 (New)

Proponents: David Crawford Bixby, Air Conditioning Contractors of America (ACCA), representing ACCA (david.bixby@acca.org)

2024 International Mechanical Code

Revise as follows:

[A] 102.3 Maintenance. Mechanical systems, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe and sanitary condition. Devices or safeguards that are required by this code shall be maintained in compliance with the edition of the code under which they were installed. The owner or the owner's authorized agent shall be responsible for maintenance of mechanical systems. To determine compliance with this provision, the code official shall have the authority to require a mechanical system to be reinspected.The inspection for maintenance of HVAC systems <u>not within the scope of ACCA 4 QM</u> shall be performed in accordance with ASHRAE/ACCA/ANSI Standard 180.<u>The inspection for maintenance of HVAC systems in one and two family dwellings and multifamily dwellings of three stories or fewer above grade shall be performed in accordance with ACCA 4 QM.</u>

Add new standard(s) as follows:

ACCA

Air Conditioning Contractors of America
2800 Shirlington Road, Suite 300
Arlington, VA 22206

<u>ACCA 4 QM – 2019 (R2024)</u> <u>Quality Maintenance of Residential HVAC Systems</u>

Reason: The proposal is to (1) clarify that the current requirement showing Standard 180 specifically covers inspection for maintenance of commercial HVAC systems, and (2) add a reference to ACCA 4 QM which covers inspection for maintenance of residential HVAC systems for one and two-family dwellings of three stories or less. ACCA 4 QM is a consensus-based ANSI standard. A proposal to add ACCA 4 QM to the IMC Referenced Standards chapter will be submitted.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impacts since this is a clarification of the current maintenance requirements.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ACCA 4 QM – 2019 (R2024) Quality Maintenance of Residential HVAC Systems

ADM7-25

ADM8-25

IPMC: [A] 102.3

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Property Maintenance Code

[A] 102.3 Application of other codes. Repairs, additions or alterations to a *structure*, or changes of *occupancy*, shall be done in accordance with the procedures and provisions of the *International Building Code*, *International Existing Building Code*, *International Energy Conservation Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *International Residential Code*, *International Plumbing Code*, *International Swimming Pool and Spa Code* and NFPA 70. Nothing in this code shall be construed to cancel, modify or set aside any provision of the *International Zoning Code*.

Reason: Any alteration, repair, addition or change of occupancy related to swimming pools and spas should be done in accordance with the International Swimming Pool and Spa Code (ISPSC). There are unique hazards associated with pools and spas that are specifically addressed by the provisions of the ISPSC.PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage. BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Jurisdictions will be already be enforcing the minimum requirements for pools and spas. This clarifies that they would be using the ISPSC as the basis for enforcement.

ADM8-25

ADM9-25 Part I

IBC: 102.5 (New), [A] 102.5; IEBC: 102.5 (New), [A] 102.5; IFC: [A] 101.5, 102.5.1 (New), [A] 102.5; IFGC: 102.5 (New), 102.5.1 (New), [A] 102.5, [A] 105.5.2; IGCC: 102.5 (New), 102.5; IMC®: 102.5 (New), 102.5.1 (New), [A] 102.5, [A] 105.4.2; IPC: 102.5 (New), 102.5.1 (New), [A] 102.5, [A] 105.5.2; IPSDC: 102.5 (New), 102.5.1 (New), [A] 105.3.2; IPMC: 102.5 (New), 102.5.1 (New), [A] 102.5; ISPSC: 102.5 (New), 102.5.1 (New), [A] 102.5, [A] 105.4.2; IWUIC: 102.7 (New), [A] 102.7

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

Revise as follows:

[A] ~~102.5~~ 102.5.1 Partial invalidity. In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

2024 International Existing Building Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

Revise as follows:

[A] ~~102.5~~102.5.1 Partial invalidity. In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

2024 International Fire Code

Revise as follows:

[A] 102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

Add new text as follows:

102.5.1 Partial invalidity. In the event that any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

Revise as follows:

[A] ~~102.5~~ 102.13 Application of residential code. Where structures are designed and constructed in accordance with the *International Residential Code*, the provisions of this code shall apply as follows:

1. Construction and design provisions of this code pertaining to the exterior of the structure shall apply including, but not limited to, premises identification, fire apparatus access and water supplies. Where interior or exterior systems or devices are installed, construction permits required by Section 105.6 shall apply.
2. Administrative, operational and maintenance provisions of this code shall apply.

2024 International Fuel Gas Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

102.5.1 Partial invalidity. In the event that any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

[A] ~~102.5~~ 102.12 Change in occupancy. It shall be unlawful to make a change in the *occupancy* of a structure that will subject the structure to the special provisions of this code applicable to the new *occupancy* without approval. The *code official* shall certify that such structure meets the intent of the provisions of law governing building construction for the proposed new *occupancy* and that such change of *occupancy* does not result in any hazard to the public health, safety or welfare.

[A] 105.5.2 Validity of licenses, permits and approvals. The issuance of a permit or approval of *construction documents* shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of other ordinances of the jurisdiction. A permit presuming to give authority to violate or cancel the provisions of this code shall be invalid.

The issuance of a permit based on *construction documents* and other data shall not prevent the *code official* from thereafter requiring the correction of errors in said *construction documents* and other data or from preventing building operations from being carried on thereunder where in violation of this code or of other ordinances of this jurisdiction.

2024 International Green Construction Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

Revise as follows:

~~102.5~~ 102.5.1 Partial invalidity. In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

2024 International Mechanical Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

102.5.1 Partial invalidity. In the event that any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

Revise as follows:

[A] ~~102.5~~ 102.12 Change in occupancy. It shall be unlawful to make a change in the *occupancy* of any structure that will subject the structure to any special provision of this code applicable to the new *occupancy* without approval. The code official shall certify that such structure meets the intent of the provisions of law governing *building* construction for the proposed new *occupancy* and that such change of *occupancy* does not result in any hazard to the public health, safety or welfare.

[A] 105.4.2 Validity of licenses, permits and approvals. The issuance of a permit or approval of *construction documents* shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of other ordinances of the jurisdiction. A permit presuming to give authority to violate or cancel the provisions of this code shall be invalid.

The issuance of a permit based on *construction documents* and other data shall not prevent the code official from thereafter requiring the correction of errors in said *construction documents* and other data or from preventing building operations from being carried on thereunder where in violation of this code or of other ordinances of this jurisdiction.

2024 International Plumbing Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

102.5.1 Partial invalidity. In the event that any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

Revise as follows:

[A] ~~102.5~~ 102.12 Change in occupancy. It shall be unlawful to make any change in the *occupancy* of any structure that will subject the structure to any special provision of this code applicable to the new *occupancy* without approval of the *code official*. The *code official* shall certify that such structure meets the intent of the provisions of law governing building construction for the proposed new *occupancy* and that such change of *occupancy* does not result in any hazard to the public health, safety or welfare.

[A] 105.5.2 Validity of licenses, permits and approvals. The issuance of a permit or approval of construction documents shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or any other ordinance of the jurisdiction. A permit presuming to give authority to violate or cancel the provisions of this code shall not be valid.

The issuance of a permit based on construction documents and other data shall not prevent the code official from thereafter requiring the correction of errors in said construction documents and other data or from preventing building operations being carried on thereunder where in violation of this code or of other ordinances of this jurisdiction.

2024 International Private Sewage Disposal Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

102.5.1 Partial invalidity. In the event that any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

Revise as follows:

[A] 105.3.2 Validity of licenses, permits and approvals. The issuance of a permit or approval of *construction documents* shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of other ordinances of the jurisdiction. No permit presuming to give authority to violate or cancel the provisions of this code shall be valid.

The issuance of a permit based on *construction documents* and other data shall not prevent the *code official* from thereafter requiring the correction of errors in said *construction documents* and other data or from preventing building operations being carried on thereunder when in violation of this code or of other ordinances of the jurisdiction.

2024 International Property Maintenance Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

102.5.1 Partial invalidity. In the event that any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

Revise as follows:

[A] ~~102.5~~ 102.12 Workmanship. Repairs, maintenance work, alterations or installations that are caused directly or indirectly by the enforcement of this code shall be executed and installed in a *workmanlike* manner and installed in accordance with the manufacturer's instructions.

2024 International Swimming Pool and Spa Code

Add new text as follows:

102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

102.5.1 Partial invalidity. In the event that any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

Revise as follows:

[A] ~~102.5~~ 102.11 Historic buildings. The provisions of this code relating to the construction, *alteration*, repair, enlargement, restoration, relocation or moving of pools, spas or systems shall not be mandatory for existing pools, spas or systems identified and classified by the state or local jurisdiction as part of a historic structure where such pools, spas or systems are judged by the *code official* to be safe and in the public interest of health, safety and welfare regarding any proposed construction, *alteration*, repair, enlargement, restoration, relocation or moving of such pool or spa.

[A] 105.4.2 Validity of licenses, permits and approvals. The issuance of a permit or approval of construction documents shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or any other ordinance of the jurisdiction.

Any permit presuming to give authority to violate or cancel the provisions of this code shall not be valid.

The issuance of a permit based on construction documents and other data shall not prevent the *code official* from thereafter requiring the correction of errors in said construction documents and other data or from preventing building operations being carried on thereunder where in violation of this code or of other ordinances of this jurisdiction.

2024 International Wildland Urban Interface Code

Add new text as follows:

<u>102.7</u> <u>Validity</u>. <u>In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.</u>

Revise as follows:

[A] ~~102.7~~ <u>102.7.1</u> Partial invalidity. In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

ADM9-25 Part I

ADM9-25 Part II

IRC: R102.5 (New), R102.5

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov)

2024 International Residential Code

Add new text as follows:

R102.5 Validity. In the event any part or provision of this code is held by a court of competent jurisdiction to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

Revise as follows:

~~R102.5~~ R102.5.1 Partial invalidity. In the event any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

Reason: Almost all of the code books have language regarding "Validity of license, permits and approvals," but use inconsistent section titles. This code proposals suggests making them all match. Some books also have provisions for "Validity" and "Partial invalidity," but not always both, and sometimes missing both. This code proposals suggests including all of them in each book, as well as using consistent numbering.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code proposal has no cost impact, as it is only editing section numbers and titles. It also include clarifying language that does not change the intent of the code, therefore having no impact on cost.

ADM9-25 Part II

ADM10-25

IFC: [A] 102.8

Proponents: Scott Brody, representing Self (sbrody96@gmail.com)

2024 International Fire Code

[A] 102.8 Subjects not regulated by this code. Where applicable standards or requirements are not set forth in this code, or are contained within other laws, codes, regulations, ordinances or bylaws adopted by the jurisdiction, compliance with applicable standards of the National Fire Protection Association or other nationally or internationally recognized fire safety standards, as *approved*, shall be deemed as prima facie evidence of compliance with the intent of this code. Nothing herein shall derogate from the authority of the *fire code official* to determine compliance with codes or standards for those activities or installations within the *fire code official's* jurisdiction or responsibility.

Reason: The exclusive reference to nationally recognized standards is inconsistent with the World Trade Organization Technical Barriers to Trade Agreement, which the US is a party to.

TBT Agreement Clause 2.4: "Where technical regulations are required and relevant international standards exist or their completion is imminent, Members shall use them, or the relevant parts of them, as a basis for their technical regulations except when such international standards or relevant parts would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued, for instance because of fundamental climatic or geographical factors or fundamental technological problems."

Through WTO dispute settlement body case law, it has also been clarified that the term "relevant" in international standard is impacted by the number of nations using the standard. It is not simply satisfied by calling a code or standard "international". So there are times where the I-codes should be accepting other international/foreign standards to comply with trade agreements.

Rejection of counterarguments:

Some might be concerned this change will diminish safety. But what is being proposed would not allow foreign standards by default, just where approved. So code officials will retain the power to disallow an international standard where such provides inappropriate protection. Further, many international standards do not provide worse protection, as evidenced by the countless nations using non-US standards and have achieved much higher levels of fire safety. It is therefore unnecessary and contrary to the TBT agreement to only allow domestic standards in this section of code.

International Code Council has adopted CP 49-21 -Conforming Codes and Standards to United States Federal Law and International Law. In accordance with that policy, the code committees should be making upmost effort to ensure their codes are consistent with international legal instruments. A further concern under CP49-21 is the code is supposed to be adoptable across nations. But not every nation maintains technical standards for every subject, especially small island countries, so forcing only domestic standards makes this code passage not globally adoptable.

Bibliography: Technical Barriers to Trade Agreement. World Trade Organization. Adopted 1/1/1995. https://www.wto.org/english/docs_e/legal_e/tbt_e.htm

International Code Council Inc Code Council Policy 49-21 - Conforming Codes and Standards to United States Federal Law and International Law. Adopted 9/18/21. https://cdn-www-v2.iccsafe.org/wp-content/uploads/edbcbd8c-0470-475c-9717-c0083424fe2d-upload_any_related_documentation_-CP-49-Conforming-Codes-and-Stan.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

While clarifying the IFC to be consistent with trade agreement obligations could save money from preventing erroneous code enforcement actions, the same argument can be made with all primarily editorial edits. Accordingly, I think it is inappropriate to put a dollar amount on this change.

ADM10-25

ADM11-25 Part I

IBC: SECTION 103, [A] 103.1, [A] 103.2, [A] 103.3, APPENDIX A, SECTION A101, [A] A101.1, [A] A101.2, [A] A101.3, [A] A101.4; IEBC: [A] 103.3; IFC: [A] 103.3; IFGC: [A] 103.3; IGCC: 103.3; IMC®: [A] 103.3; IPC: [A] 103.3; IPSDC: [A] 103.3; IPMC: [A] 103.3; ISPSC: [A] 103.3; IWUIC: [A] 103.3; IZC: [A] 104.2

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 103
CODE COMPLIANCE AGENCY

[A] 103.1 Creation of enforcement agency. The **[INSERT NAME OF DEPARTMENT]** is hereby created and the official in charge thereof shall be known as the *building official*. The function of the agency shall be the implementation, administration and enforcement of the provisions of this code.

[A] 103.2 Appointment. The *building official* shall be appointed by the chief appointing authority of the *jurisdiction*.

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *building official* shall have the authority to appoint ~~a~~ deputy building officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *building official*.

APPENDIX A
EMPLOYEE QUALIFICATIONS

SECTION A101
BUILDING OFFICIAL QUALIFICATIONS

[A] A101.1 Building official. The *building official* shall have not fewer than 10 years' experience or equivalent as an architect, engineer, inspector, permit technician, plans examiner, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been supervisory experience. The *building official* should be certified as a *building official* through a recognized certification program. The *building official* shall be appointed or hired by the applicable governing authority.

[A] A101.2 Chief inspector. The *building official* can designate supervisors to administer the provisions of this code and the *International Mechanical Code*, *International Plumbing Code* and International Fuel Gas Code. Each supervisor shall have not fewer than 10 years' experience or equivalent as an architect, engineer, inspector, permit technician, plans examiner, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been in a supervisory capacity. They shall be certified through a recognized certification program for the appropriate trade.

[A] A101.3 Inspector and plans examiner. The *building official* shall appoint or hire such number of officers, inspectors, permit technicians, plans examiners, assistants and other employees as shall be authorized by the *jurisdiction*. A *person* who has fewer than 5 years of experience as a contractor, engineer, architect, or permit technician or as a superintendent, foreman or competent mechanic in charge of construction shall not be appointed or hired as inspector of construction or plans examiner. The inspector or plans examiner shall be certified through a recognized certification program for the appropriate trade.

[A] A101.4 Termination of employment. Employees in the position of *building official*, chief inspector, inspector, permit technician, or plans examiner ~~or inspector~~ shall not be removed from office except for cause after full opportunity has been given to be heard on specific charges before such applicable governing authority.

2024 International Existing Building Code

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint ~~a~~ deputy code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

2024 International Fire Code

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *fire code official* shall have the authority to appoint ~~a~~ deputy fire code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *fire code official*.

2024 International Fuel Gas Code

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint ~~a~~ deputy code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

2024 International Green Construction Code

Revise as follows:

103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the authority having jurisdiction shall have the authority to appoint ~~a~~ deputy authority having jurisdictions, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees ~~as shall be necessary~~. Such employees shall have powers as delegated by the authority having jurisdiction.

2024 International Mechanical Code

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint ~~a~~ deputy code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

2024 International Plumbing Code

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint ~~a~~ deputy code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint ~~a~~ deputy code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

2024 International Property Maintenance Code

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint ~~a~~ deputy code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

2024 International Swimming Pool and Spa Code

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint ~~a~~ deputy code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint ~~a~~ deputy code officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

2024 International Zoning Code

Delete and substitute as follows:

~~**[A] 104.2 Deputies.** The code official may appoint such number of technical officers and other employees as shall be authorized from time to time. The code official shall be permitted to deputize such employees as may be necessary to carry out the functions of this code.~~

[A] 104.2 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint deputy code officials, inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *code official*.

ADM11-25 Part I

ADM11-25 Part II

IRC: R103.3

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

R103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *building official* shall have the authority to appoint ~~a~~ deputy building officials, ~~other related technical officers,~~ inspectors, permit technicians, plans examiners, and other employees. Such employees shall have powers as delegated by the *building official*.

Reason: This proposal adds "permit technicians" into the IBC and elsewhere, acknowledging the role of permit technicians in a building department and, via IBC Appendix A, their potential to become inspectors, plans examiners, and building/code officials.

Where the appendix is used by incorporation or for reference to job descriptions, the inclusion of permit technicians may open the door to allow already qualified individuals in building departments to fill the ever-growing vacancies therein.

This code change also includes editorial changes to add in plans examiners and various coordinations.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Investing in the professional development of permit technicians is a strategic move that may yield significant long-term benefits for building departments, outweighing any initial investment costs.

Estimated Immediate Cost Impact Justification (methodology and variables):

Through this code change, recognizing permit technicians as a specialized role and creating clear career paths may serve as guidance to other bodies as an option to address the code industry's depleting workforce. By providing opportunities for advancement, departments could tap into their pools of experienced permit technicians, who possess valuable, in-department-honed knowledge, skills, and abilities, to fill the roles of inspectors and plans examiners. Unlike external hires, their competency in administration, code interpretation, and customer service areas is often already established, potentially leading to a net decrease in operational (training) and passed on permitting costs.

ADM11-25 Part II

ADM12-25

IZC: [A] 103.5, [A] 103.6, [A] 108.5, [A] 108.6, [A] 109.4, [A] 110.4

Proponents: Kota Wharton, City of Grove City, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Zoning Code

Revise as follows:

[A] 103.5 Chairperson election and rules adoption. The commission shall elect from its membership a chairperson. It shall establish and adopt rules for its organization and transaction of business and shall keep a ~~public~~ record of its proceedings. Such record shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction.

[A] 103.6 Commission secretary. A secretary to assist the commission shall be appointed by the code official. The secretary shall keep minutes of the commission meetings for ~~public~~ the record and conduct all correspondence, including the notification of decisions. The secretary shall certify such records. The secretary shall prepare and submit the minutes of commission meetings to the chairperson and the commission.

[A] 108.5 Chairperson election and rules adoption. The *board* shall elect from its membership a chairperson. It shall establish and adopt rules for its organization and the transaction of business and shall keep a ~~public~~ record of its proceedings. Such record shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction.

[A] 108.6 Board secretary. A secretary to assist the *board* shall be appointed by the code official. The secretary shall keep minutes of the *board* meetings for ~~public~~ record and conduct all correspondence, including the notification of decisions. The secretary shall certify such records. The secretary shall prepare and submit the minutes of *board* meetings to the chairperson and the *board*.

[A] 109.4 Decisions. The examiner shall, within 10 working days, render a decision. Notice in writing of the decision and the minutes of the board meeting ~~record~~ shall be given to the code official for distribution as required. Decisions shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~kept in accordance with state regulations and such decisions shall be open to the public~~.

[A] 110.4 Voting and notice of decision. There shall be a vote of a majority of the *board* and commission present in order to decide any matter under consideration. Each decision shall be entered in the minutes by the secretary. Records of appeals ~~Appeals~~ shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~kept in accordance with state regulations and such appeals shall be open to the public~~.

Notice in writing of the decision and the disposition of each appeal shall be given to the code official and each appellant ~~by mail or otherwise~~.

Reason: In the world of public record requests and state-specific requirements regarding public records, using the term "public" to preface "records" can, and does, raise unintended interpretation issues and retention burdens.

This code change removes the term "public records" and, paired with other proposals, eliminates the burden of regulating records from the I-Codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change eliminates unintended conflicts with other law.

ADM12-25

ADM13-25

IBC: [A] 104.2.2.2; IEBC: [A] 104.2.2.2; IFC: [A] 104.2.2.2; IFGC: [A] 104.2.2.2; IGCC: 104.2.2.2; IMC®: [A] 104.2.2.2; IPC: [A] 104.2.2.2; IPSDC: [A] 104.2.2.2; IPMC: [A] 105.2.1.2; ISPSC: [A] 104.2.2.2; IWUIC: [A] 104.2.1.2

Proponents: Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com); Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org)

2024 International Building Code

Revise as follows:

[A] 104.2.2.2 Preparer qualifications. Where required by the laws of the *jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the *building official*. The *building official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

2024 International Existing Building Code

Revise as follows:

[A] 104.2.2.2 Preparer qualifications. Where required by the laws of the *jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization ~~acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Fire Code

Revise as follows:

[A] 104.2.2.2 Preparer qualifications. Where required by the laws of the *jurisdiction*, the ~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization ~~acceptable to the *fire code official*. The *fire code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.2.2.2 Preparer qualifications.. Where required by the laws of the *jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

2024 International Green Construction Code

Revise as follows:

104.2.2.2 Preparer qualifications. Where required by the laws of the *jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the authority having jurisdiction. The authority having jurisdiction is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Mechanical Code

Revise as follows:

[A] 104.2.2.2 Preparer qualifications. Where required by the laws of the*jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the code official. The code official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

2024 International Plumbing Code

Revise as follows:

[A] 104.2.2.2 Preparer qualifications. Where required by the laws of the*jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.2.2.2 Preparer qualifications. Where required by the laws of the*jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the code official. The code official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.2.1.2 Preparer qualifications. Where required by the laws of the *jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the code official. The code official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.2.2.2 Preparer qualifications. Where required by the laws of the *jurisdiction*, the ~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the code official. The code official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.2.1.2 Preparer qualifications. Where required by the laws of the *jurisdiction*, the~~The~~ technical opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization ~~acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

Reason: The laws of the jurisdiction regarding professional practice requirements should govern the qualifications required to prepare the related technical opinions and reports, not the building official's judgment. The test for whether the preparer is qualified to provide the documentation is established by the state and local regulations governing the practice of the applicable profession. A building official should not be put into a position where they must substitute their judgment to accept or reject the offered documentation when the preparer meets the requirements of those regulations, including any permitted exemptions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed modification makes the code section compliant with the laws of the jurisdiction by clarifying that the section does not supersede state and local laws governing professional practice. It also avoids placing the burden on the building official to decide when specific credentials are required.

ADM13-25

ADM14-25 Part I

IBC: [A] 104.2.3; IFC: [A] 104.2.3; IEBC: [A] 104.2.3; IFGC: [A] 104.2.3; IGCC: 104.2.5; IMC®: 104.2.3; IPC: [A] 104.2.3; IPSDC: [A] 104.2.3; IPMC: [A] 105.2.2; ISPSC: [A] 104.2.3; IWUIC: [A] 104.2.2

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.2.3 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the building official.

Alternative materials, equipment, appliances, designs, or methods of construction shall be approved only when the building official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the *International Code Council Performance Code*. This exception shall not apply to alternative structural materials or to alternative structural designs.

2024 International Fire Code

Revise as follows:

[A] 104.2.3 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the fire code official.

Alternative materials, equipment, appliances, designs, or methods of construction shall be approved only when the fire code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the *International Code Council Performance Code*. This exception shall not apply to alternative structural materials or to alternative structural designs.

2024 International Existing Building Code

Revise as follows:

[A] 104.2.3 Alternative materials, appliances, design and methods of construction, and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the code official.

Alternative materials, equipment, appliances, designs, or methods of construction shall be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the *International Code Council Performance Code*. This exception shall not apply to alternative structural materials or to alternative structural designs.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.2.3 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the code official.

Alternative materials, equipment, appliances, designs, or methods of construction shall be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and *equipment* complying with the *International Code Council Performance Code*.

2024 International Green Construction Code

Revise as follows:

104.2.5 ~~Innovative approaches and alternative~~ Alternative materials, appliances, design, and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the authority having jurisdiction.

Alternative materials, equipment, appliances, designs, or methods of construction shall be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and *equipment* complying with the *International Code Council Performance Code*.

2024 International Mechanical Code

Revise as follows:

[A] 104.2.3 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the code official.

Alternative materials, equipment, appliances, designs, or methods of construction may be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the International Code Council Performance Code.

2024 International Plumbing Code

Revise as follows:

[A] 104.2.3 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the code official.

Alternative materials, equipment, appliances, designs, or methods of construction may be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.

2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the *International Code Council Performance Code*.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.2.3 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the code official.

Alternative materials, equipment, appliances, designs, or methods of construction may be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the International Code Council Performance Code.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.2.2 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the code official.

Alternative materials, equipment, appliances, designs, or methods of construction may be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the *International Code Council Performance Code*.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.2.3 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the code official.

Alternative materials, equipment, appliances, designs, or methods of construction may be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the International Code Council Performance Code.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.2.2 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*, in writing, by the code official.

Alternative materials, equipment, appliances, designs, or methods of construction may be approved only when the code official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the International Code Council Performance Code.

ADM14-25 Part I

ADM14-25 Part II

IRC: R104.2.2

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

2024 International Residential Code

Revise as follows:

R104.2.2 Alternative materials, appliances, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any ~~material~~ materials, equipment, or appliances not specifically prescribed by this code, or to prohibit any ~~design~~ designs or ~~method~~ methods of construction not specifically prescribed by this code, provided that any such alternative materials, equipment, appliances, designs, or methods of construction:

1. Are not specifically prohibited by this code, by any other provision of this code.
2. Shall have ~~has~~ been *approved*~~.~~ , in writing, by the building official.

Alternative materials, equipment, appliances, designs, or methods of construction shall be approved only when the building official shall have determined, in writing, that such alternative is:

1. Satisfactory and complies with the intent of the provisions and requirements of this code.
2. Not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

Exception: Performance-based alternative materials, designs or methods of construction and equipment complying with the *International Code Council Performance Code*.

Reason: This code proposals matches the language in all code books regarding Alternative Materials, as well as matching and/or matching exceptions. Clarifying language is also added to provision and section titles.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code proposal has no impact on cost, as it is solely editorial in matching language and exceptions to provisions.

ADM14-25 Part II

ADM15-25 Part I

IBC: [A] 104.2.3, [A] 104.2.3.1, [A] 104.2.3.2, [A] 104.2.3.3, [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, [A] 104.2.3.6.1, [A] 104.2.3.7, [A] 104.7.3; IEBC: [A] 104.2.3, [A] 104.2.3.1, [A] 104.2.3.2, [A] 104.2.3.3, [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, [A] 104.2.3.6.1, [A] 104.2.3.7, [A] 104.7.3; IFC: [A] 104.2.3, [A] 104.2.3.1, [A] 104.2.3.2, [A] 104.2.3.3, [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, [A] 104.2.3.6.1, [A] 104.2.3.7, [A] 104.7.4; IFGC: [A] 104.2.3, [A] 104.2.3.1, [A] 104.2.3.2, [A] 104.2.3.3, [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, [A] 104.2.3.6.1, [A] 104.2.3.7, [A] 104.7.3; IGCC: 104.2.5, 104.2.5.1, 104.2.5.2, 104.2.5.3, 104.2.5.4, 104.2.5.5, 104.2.5.6.1, 104.2.5.7, 104.8.3; IMC®: 104.2.3, [A] 104.2.3.1, [A] 104.2.3.2, [A] 104.2.3.3, [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, 104.2.3.6.1, 104.2.3.7, 104.7.3; IPC: [A] 104.2.3, [A] 104.2.3.1, [A] 104.2.3.2, [A] 104.2.3.3, [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, [A] 104.2.3.6.1, [A] 104.2.3.7, [A] 104.7.3; IPSDC: [A] 104.2.3, [A] 104.2.3.1, [A] 104.2.3.2, [A] 104.2.3.3, [A] 104.2.3.4, 104.2.3.5, [A] 104.2.3.6.1, [A] 104.2.3.7, [A] 104.7.3; IPMC: [A] 105.2.2, [A] 105.2.2.1, [A] 105.2.2.2, [A] 105.2.2.3, [A] 105.2.2.4, [A] 105.2.2.5, [A] 105.2.2.5.1, [A] 105.2.2.6.1, [A] 105.2.2.7, [A] 105.6.3; ISPSC: [A] 104.2.3, [A] 104.2.3.1, [A] 104.2.3.2, [A] 104.2.3.3, [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.6.1, [A] 104.2.3.7, [A] 104.7.3; IWUIC: [A] 104.2.2, [A] 104.2.2.1, [A] 104.2.2.2, [A] 104.2.2.3, [A] 104.2.2.4, [A] 104.2.2.5, [A] 104.2.2.5.1, [A] 104.2.2.6.1, [A] 104.2.2.7, [A] 104.7.3

Proponents: Kevin Scott, KH Scott & Associates LLC, representing self (khscottassoc@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.2.3 Alternative ~~materials, design and methods of construction and equipment~~method of compliance. The provisions of this code are not intended to prevent the installation or use of any material, system, design or equipment ~~to prohibit any design or method of construction~~ not specifically prescribed by this code, provided that any such alternative has been *approved*.

> **Exception:** Performance-based alternative ~~materials, designs or methods of construction and equipment complying~~ method of compliance in accordance with the *International Code Council Performance Code*. This exception shall not apply to alternative structural materials or to alternative structural designs.

[A] 104.2.3.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~compliance shall be *approved* where the *building official* finds that the proposed alternative is satisfactory and complies with Sections 104.2.3 through 104.2.3.7, as applicable.

[A] 104.2.3.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the *building official* for approval. Where the alternative ~~material, design or~~ method of ~~construction~~compliance is not *approved*, the *building official* shall respond in writing, stating the reasons the alternative was not *approved*.

[A] 104.2.3.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~compliance shall comply with the intent of the provisions of this code.

[A] 104.2.3.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *building official*.

[A] 104.2.3.5.1 Fire Tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative ~~material, design or~~ method of ~~construction application~~compliance shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *building official*.

[A] 104.2.3.6.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *building official* for the installation. The ~~alternate~~alternative ~~material, design or~~ method of ~~construction and product~~compliance evaluated shall be within the scope of the building official's recognition of the *approved agency*. Criteria used for the evaluation shall be identified within the report and, where required, provided to the *building official*.

[A] 104.2.3.7 Peer review. The *building official* is authorized to require submittal of a *peer review* ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~compliance, prepared by a peer reviewer that is *approved* by the *building official*.

[A] 104.7.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance in accordance with Section 104.2.3; modifications in accordance with Section 104.2.4; and documentation of the final decision of the *building official* for either shall be in writing and shall be retained in the official records.

2024 International Existing Building Code

Revise as follows:

[A] 104.2.3 Alternative ~~materials, design and~~ methods of ~~construction, and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been *approved*.

> **Exception:** Performance-based alternative ~~materials, designs or~~ methods of ~~construction and equipment~~compliance complying with the *ICC Performance Code*. This exception shall not apply to alternative structural materials or to alternative structural designs.

[A] 104.2.3.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall be *approved* where the *code official* finds that the proposed alternative is satisfactory and complies with Sections 104.2.3.2 through 104.2.3.7, as applicable.

[A] 104.2.3.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the *code official* for approval. Where the alternative ~~material, design or~~ method of ~~construction~~ compliance is not *approved*, the *code official* shall respond in writing, stating the reasons the alternative was not *approved*.

[A] 104.2.3.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~compliance shall comply with the intent of the provisions of this code.

[A] 104.2.3.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction~~ compliance application shall be of a scale that is sufficient to predict performance of the end use configuration. Such tests shall be performed by a party acceptable to the *code official*.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative ~~material, design or~~ method of ~~construction application~~compliance shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

[A] 104.2.3.6.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency,* and use of the evaluation report shall require approval by the *code official* for the installation. The ~~alternate material, design or method of construction and product~~alternative method of compliance evaluated shall be within the scope of the code official's recognition of the *approved agency.* Criteria used for the evaluation shall be identified within the report and, where required, provided to the *code official*.

[A] 104.2.3.7 Peer review. The *code official* is authorized to require submittal of a *peer review* ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~compliance, prepared by a peer reviewer that is *approved* by the *code official*.

[A] 104.7.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction~~compliance and equipment in accordance with Section 104.2.3; modifications in accordance with Section 104.2.4; and documentation of the final decision of the *code official* for either shall be in writing and shall be retained in the official records.

2024 International Fire Code

Revise as follows:

[A] 104.2.3 Alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved* .

> **Exception:** Performance-based alternative ~~materials, designs or~~ methods of ~~construction and equipment~~compliance complying with the *International Code Council Performance Code*.

[A] 104.2.3.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~compliance shall be *approved* where the *fire code official* finds that the proposed alternative is satisfactory and complies with Sections 104.2.3.2 through 104.2.3.7, as applicable.

[A] 104.2.3.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the *fire code official* for approval. Where the alternative ~~material, design or~~ method of ~~construction~~compliance is not *approved*, the *fire code official* shall respond in writing, stating the reasons the alternative was not *approved*.

[A] 104.2.3.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~compliance shall comply with the intent of the provisions of this code.

[A] 104.2.3.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *fire code official*.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *fire code official*.

[A] 104.2.3.6.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *fire code official* for the installation. The ~~alternate material, design or method of construction and product~~ alternative method of compliance evaluated shall be within the scope of the *fire code official's* recognition of the *approved agency*. Criteria used for the evaluation shall be identified within the report and, where required, provided to the *fire code official*.

[A] 104.2.3.7 Peer review. The *fire code official* is authorized to require submittal of a *peer review* ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~compliance, prepared by a peer reviewer that is *approved* by the *fire code official*.

[A] 104.7.4 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~ compliance in accordance with Section 104.2.3; modifications in accordance with Section 104.2.4; and documentation of the final decision of the *fire code official* for either shall be in writing and shall be retained in the official records.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.2.3 Alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance.. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been *approved*.

> **Exception:** Performance-based alternative ~~materials, designs or~~ methods of ~~construction and *equipment*~~ compliance complying with the *International Code Council Performance Code*.

[A] 104.2.3.1 Approval authority.. An alternative ~~material, design or~~ method of ~~construction~~compliance shall be *approved* where the *code official* finds that the proposed alternative is satisfactory and complies with Sections 104.2.3 through 104.2.3.7, as applicable.

[A] 104.2.3.2 Application and disposition.. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the *code official* for approval. Where the alternative ~~material, design or~~ method of ~~construction~~ compliance is not *approved*, the *code official* shall respond in writing, stating the reasons the alternative was not *approved*.

[A] 104.2.3.3 Compliance with code intent.. An alternative ~~material, design or~~ method of ~~construction~~compliance shall comply with the intent of the provisions of this code.

[A] 104.2.3.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

[A] 104.2.3.6.1 Evaluation reports~~.~~. Evaluation reports shall be issued by an *approved agency*, and use of the evaluation report shall require approval by the code official for the installation. The ~~alternate material, design or method of construction and product~~ alternative method of compliance evaluated shall be within the scope of the code official's recognition of the *approved agency*. Criteria used for the evaluation shall be identified within the report and, where required, provided to the *code official*.

[A] 104.2.3.7 Peer review~~.~~. The *code official* is authorized to require submittal of a *peer review* ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~compliance, prepared by a peer reviewer that is *approved* by the *code official*.

[A] 104.7.3 Code alternatives and modifications~~.~~. Application for alternative ~~materials, design and~~ methods of ~~construction and *equipment*~~ compliance in accordance with Section 104.2.3; modifications in accordance with Section 104.2.4; and documentation of the final decision of the *code official* for either shall be in writing and shall be retained in the official records.

2024 International Green Construction Code

Revise as follows:

104.2.5 Innovative approaches and alternative ~~materials, design, and~~ methods of ~~construction and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design, innovative approach or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

104.2.5.1 Approval authority. An alternative ~~material, design, innovative approach or~~ method of ~~construction~~ compliance shall be approved where the authority having jurisdiction finds that the proposed alternative is satisfactory and complies with Sections 104.2.5 through 104.2.5.7, as applicable.

104.2.5.2 Application and disposition. Where required, a request to use an alternative ~~material, design, innovative approach or~~ method of ~~construction~~ compliance shall be submitted in writing to the authority having jurisdiction for approval. Where the alternative ~~material, design, innovative approach or~~ method of ~~construction~~ compliance is not approved, the authority having jurisdiction shall respond in writing, stating the reasons the alternative was not approved.

104.2.5.3 Compliance with code intent. An alternative ~~material, design, innovative approach or~~ method of ~~construction~~ compliance shall comply with the intent of the provisions of this code.

104.2.5.4 Equivalency criteria. An alternative ~~material, design, innovative approach or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

104.2.5.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the authority having jurisdiction.

104.2.5.6.1 Evaluation reports. Evaluation reports shall be issued by an approved agency, and use of the evaluation report shall require approval by the code official for the installation. The ~~alternate material, design or method of construction and product~~ alternative method of compliance evaluated shall be within the scope of the code official's recognition of the approved agency. Criteria used for the evaluation shall be identified within the report and, where required, provided to the code official.

104.2.5.7 Peer review. The authority having jurisdiction is authorized to require submittal of a peer review ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance, prepared by a peer reviewer that is approved by the authority having jurisdiction.

104.8.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~ compliance in accordance with Section 104.2.5; modifications in accordance with Section 104.2.6; and documentation of the final decision of the authority having jurisdiction for either shall be in writing and shall be retained in the official records.

2024 International Mechanical Code

Revise as follows:

104.2.3 Alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved* .

> **Exception:** Performance-based alternative ~~materials, designs or~~ methods of ~~construction and equipment~~ compliance complying with the International Code Council Performance Code.

[A] 104.2.3.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall be *approved* where the code official finds that the proposed alternative is satisfactory and complies with Sections 104.2.3 through 104.2.3.7, as applicable.

[A] 104.2.3.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the code official for approval. Where the alternative ~~material, design or~~ method of ~~construction~~ compliance is not *approved*, the code official shall respond in writing, stating the reasons the alternative was not *approved*.

[A] 104.2.3.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall comply with the intent of the provisions of this code.

[A] 104.2.3.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

104.2.3.6.1 Evalutaion reports. Evaluation reports shall be issued by an *approved* agency, and use of the evaluation report shall require approval by the code official for the installation. The ~~alternate material, design or method of construction and product~~ alternative method of compliance evaluated shall be within the scope of the code official's recognition of the *approved* agency. Criteria used for the evaluation shall be identified within the report and, where required, provided to the code official.

104.2.3.7 Peer review. The code official is authorized to require submittal of a peer review ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance, prepared by a peer reviewer that is *approved* by the code official.

104.7.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and *equipment*~~ compliance in accordance with Section 104.2.3; modifications in accordance with Section 104.2.4; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records.

2024 International Plumbing Code

Revise as follows:

[A] 104.2.3 Alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been *approved*.

> **Exception:** Performance-based alternative ~~materials, designs or~~ methods of ~~construction and equipment~~ compliance complying with the *International Code Council Performance Code*.

[A] 104.2.3.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall be *approved* where the code official finds that the proposed alternative is satisfactory and complies with Sections 104.2.3 through 104.2.3.7, as applicable.

[A] 104.2.3.2 Application and disposition~~.~~. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the code official for approval. Where the alternative ~~material, design or~~ method of ~~construction~~ compliance is not *approved*, the code official shall respond in writing, stating the reasons the alternative was not *approved*.

[A] 104.2.3.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall comply with the intent of the provisions of this code.

[A] 104.2.3.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 104.2.3.6.1 Evaluation reports~~.~~. Evaluation reports shall be issued by an *approved* agency, and use of the evaluation report shall require approval by the code official for the installation. The alternate ~~material, design or~~ method of ~~construction and product~~ compliance evaluated shall be within the scope of the code official's recognition of the *approved* agency. Criteria used for the evaluation shall be identified within the report and, where required, provided to the code official.

[A] 104.2.3.7 Peer review. The code official is authorized to require submittal of a peer review ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance, prepared by a peer reviewer that is *approved* by the code official.

[A] 104.7.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~ compliance in accordance with Section 104.2.3; modifications in accordance with Section 104.2.4; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.2.3 Alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

Exception: Performance-based alternative ~~materials, designs or~~ methods of ~~construction and equipment~~ compliance complying with the International Code Council Performance Code.

[A] 104.2.3.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall be approved where the code official finds that the proposed alternative is satisfactory and complies with Sections 104.2.3 through 104.2.3.7, as applicable.

[A] 104.2.3.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the code official for approval. Where the alternative ~~material, design or~~ method of ~~construction~~ compliance is not approved, the code official shall respond in writing, stating the reasons the alternative was not approved.

[A] 104.2.3.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall comply with the intent of the provisions of this code.

[A] 104.2.3.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 104.2.3.6.1 Evaluation reports. Evaluation reports shall be issued by an approved agency and use of the evaluation report shall require approval by the code official for the installation. The ~~alternate material, design or method of construction and product~~ alternative method of compliance evaluated shall be within the scope of the code official's recognition of the approved agency. Criteria used for the evaluation shall be identified within the report and, where required, provided to the code official.

[A] 104.2.3.7 Peer review. The code official is authorized to require submittal of a peer review ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance, prepared by a peer reviewer that is approved by the code official.

[A] 104.7.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~ compliance in accordance with Section 104.2.3; modifications in accordance with Section 104.2.4; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.2.2 Alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been *approved*.

Exception: Performance-based alternative ~~materials, designs or~~ methods of ~~construction and equipment~~ compliance complying with the *International Code Council Performance Code*.

[A] 105.2.2.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall be approved where the code official finds that the proposed alternative is satisfactory and complies with Sections 105.2.2 through 105.2.2.7, as applicable.

[A] 105.2.2.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the code official for approval. Where the alternative ~~material, design or~~ method of ~~construction~~ compliance is not approved, the code official shall respond in writing, stating the reasons the alternative was not approved.

[A] 105.2.2.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall comply with the intent of the provisions of this code.

[A] 105.2.2.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 105.2.2.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 105.2.2.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the building official.

[A] 105.2.2.6.1 Evaluation reports. Evaluation reports shall be issued by an approved agency and use of the evaluation report shall require approval by the code official for the installation. The alternate ~~material, design or~~ method of ~~construction and product~~ compliance evaluated shall be within the scope of the code official's recognition of the approved agency. Criteria used for the evaluation shall be identified within the report and, where required, provided to the code official.

[A] 105.2.2.7 Peer review. The code official is authorized to require submittal of a peer review ~~report~~ in con-junction with a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance, prepared by a peer reviewer that is approved by the code official.

[A] 105.6.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~ compliance in accordance with Section 105.2.2; modifications in accordance with Section 105.2.3; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.2.3 Alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

Exception: Performance-based alternative ~~materials, designs or~~ methods of ~~construction and equipment~~ compliance complying with the *International Code Council Performance Code*.

[A] 104.2.3.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall be approved where the code official finds that the proposed alternative is satisfactory and complies with Sections 104.2.3 through 104.2.3.7, as applicable.

[A] 104.2.3.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the code official for approval. Where the alternative material, design or method of construction is not approved, the code official shall respond in writing, stating the reasons the alternative was not approved.

[A] 104.2.3.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall comply with the intent of the provisions of this code.

[A] 104.2.3.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 104.2.3.6.1 Evaluation reports. Evaluation reports shall be issued by an approved agency and use of the evaluation report shall require approval by the code official for the installation. The ~~alternate material, design or method of construction and product~~ alternative method of compliance evaluated shall be within the scope of the code official's recognition of the approved agency. Criteria used for the evaluation shall be identified within the report and, where required, provided to the code official.

[A] 104.2.3.7 Peer review. The code official is authorized to require submittal of a peer review ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance, prepared by a peer reviewer that is approved by the code official.

[A] 104.7.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~ compliance in accordance with Section 104.2.3; modifications in accordance with Section 104.2.4; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.2.2 Alternative ~~materials, design and~~ methods of compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*.

[A] 104.2.2.1 Approval authority. An alternative ~~material, design or~~ method of compliance shall be approved where the *code official* finds that the proposed alternative is satisfactory and complies with Sections 104.2.2.2 through 104.2.2.7, as applicable.

[A] 104.2.2.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the *code official* for approval. Where the alternative ~~material, design or~~ method of ~~construction~~ compliance is not approved, the *code official* shall respond in writing, stating the reasons the alternative was not approved.

[A] 104.2.2.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall comply with the intent of the provisions of this code.

[A] 104.2.2.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.2.5 Tests~~.~~. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

[A] 104.2.2.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 104.2.2.6.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the code official for the installation. The ~~alternate material, design or method of construction and product~~alternative method of compliance evaluated shall be within the scope of the code official's recognition of the *approved agency*. Criteria used for the evaluation shall be identified within the report and, where required, provided to the code official.

[A] 104.2.2.7 Peer review. The *code official* is authorized to require submittal of a peer review ~~report~~ in conjunction with a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance, prepared by a peer reviewer that is approved by the *code official*.

[A] 104.7.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~ compliance in accordance with Section 104.2.2; modifications in accordance with Section 104.2.3; and documentation of the final decision of the *code official* for either shall be in writing and shall be retained in the official records.

ADM15-25 Part I

ADM15-25 Part II

IRC: R104.2.2, R104.2.2.1, R104.2.2.2, R104.2.2.3, R104.2.2.4, R104.2.2.5, R104.2.2.6.1, R104.7.3

Proponents: Kevin Scott, KH Scott & Associates LLC, representing self (khscottassoc@gmail.com)

2024 International Residential Code

Revise as follows:

R104.2.2 Alternative ~~materials, design and~~ methods of ~~construction and equipment~~compliance. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved.

R104.2.2.1 Approval authority. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall be approved where the *building official* finds that the proposed alternative is satisfactory and complies with Sections R104.2.2 through R104.2.2.6.2, as applicable.

R104.2.2.2 Application and disposition. Where required, a request to use an alternative ~~material, design or~~ method of ~~construction~~ compliance shall be submitted in writing to the *building official* for approval. Where the ~~alterna-tive material, design or~~ alternative method of ~~construction~~ compliance is not *approved*, the *building official* shall respond in writing, stating the reasons the alternative was not approved.

R104.2.2.3 Compliance with code intent. An alternative ~~material, design or~~ method of ~~construction~~ compliance shall comply with the intent of the provisions of this code.

R104.2.2.4 Equivalency criteria. An alternative ~~material, design or~~ method of ~~construction~~ compliance ~~construction~~ compliance shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

R104.2.2.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative ~~material, design or~~ method of ~~construction application~~ compliance shall be of a scale that is sufficient to predict performance of the end use configuration. Such tests shall be performed by a party acceptable to the *building official*.

R104.2.2.6.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *building official*for the installation. The alternate ~~material, design or~~ method of ~~construction and product~~ compliance evaluated shall be within the scope of the *building official*'s recognition of the *approved agency*. Criteria used for the evaluation shall be identified within the report and, where required, provided to the *building official*.

R104.7.3 Code alternatives and modifications. Application for alternative ~~materials, design and~~ methods of ~~construction and equipment~~ compliance in accordance with Section R104.2.2; modifications in accordance with Section R104.2.3; and documentation of the final decision of the *building official* for either shall be in writing and shall be retained in the official records.

Reason: Throughout the various I-Codes, the concept of alternative methods and materials is allowed and guidance is provided. However, the terminology is different in several of the codes. This proposal is intended to clean up action taken in ADM13-22 and

ADM14-22 which revised these sections and provide for a single term across all of the codes. The term proposed is “alternative method of compliance.”

The concept of alternative methods is not altered, and the term compliance provides for anything referenced in the codes. Some of the codes used the title “alternative materials or methods of construction”, other used “alternative materials, design and methods of construction and equipment.” Even throughout a single code the terms are not consistent.

The terms used to address this process had become a list of items. The problem with lists is that something is invariably left out. The word “compliance” includes materials, construction methods, equipment, appliances, fixtures, installation methods, design, storage and methods of operation. In other words, any proposed alternative which is not in strict conformance with the code requirements.

This proposal is almost editorial in that it replaces a term with a revised term. The new term is all encompassing because it includes anything regulated in any of the codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial change to the name of Alternative Methods of Compliance.

ADM15-25 Part II

ADM16-25 Part I

IBC: [A] 104.2.1; IEBC: [A] 104.2.1; IFC: [A] 104.2.1; IFGC: [A] 104.2.1; IGCC: 104.2.1; IMC®: [A] 104.2.1; IPC: [A] 104.2.1; IPSDC: [A] 104.2.1; ISPSC: [A] 104.2.1

Proponents: Scott Brody, representing Self (sbrody96@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.2.1 Listed compliance. Where this code or a referenced standard requires equipment, materials, products or services to be listed and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an *approved* listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the *building official*.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

2024 International Existing Building Code

Revise as follows:

[A] 104.2.1 Listed compliance. Where this code or a referenced standard requires equipment, materials, products or services to be *listed* and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an *approved* listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the *code official*.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

2024 International Fire Code

Revise as follows:

[A] 104.2.1 Listed compliance. Where this code or a referenced standard requires equipment, materials, products or services to be listed and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an approved listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the *fire code official*.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

2024 International Fuel Gas Code

Revise as follows:

[A] 104.2.1 Listed compliance. Where this code or a referenced standard requires *equipment*, materials, products or services to be listed and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an *approved* listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the *code official*.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

2024 International Green Construction Code

Revise as follows:

104.2.1 Listed compliance. Where this code or a referenced standard requires equipment, materials, products or services to be listed and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on approved listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the code official.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

2024 International Mechanical Code

Revise as follows:

[A] 104.2.1 Listed compliance. Where this code or a referenced standard requires *equipment*, materials, products or services to be *listed* and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an *approved* listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the code official.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

2024 International Plumbing Code

Revise as follows:

[A] 104.2.1 Listed compliance. Where this code or a referenced standard requires equipment, materials, products or services to be listed and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an approved listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the code official.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.2.1 Listed compliance.. Where this code or a referenced standard requires equipment, materials, products or services to be listed and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an approved listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the code official.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.2.1 Listed compliance. Where this code or a referenced standard requires equipment, materials, products or services to be listed and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an approved listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the code official.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

ADM16-25 Part I

ADM16-25 Part II

IRC: R104.2.1

Proponents: Scott Brody, representing Self (sbrody96@gmail.com)

2024 International Residential Code

Revise as follows:

R104.2.1 Listed compliance.. Where this code or a referenced standard requires equipment, materials, products or services to be *listed* and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on an *approved* listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the *building official*.

Exemption: Other standards and conformity assessment listings shall be permitted to be accepted in lieu of those referenced in this code, provided such alternatives comply with the intent of this code, including its minimum levels of protection, and are *approved.*

Reason: The current code passages lack flexibility to permit alternative standards.

This harms consumers because it limits the market of goods which can be used to conform to the code.

Inflexibility also can harm safety.

For example, in the fire profession, there has been a great deal of helmet innovation in Europe. The European helmet shape reduces the risk of head injury in a fall. If only items listed to US standards are allowed, it blocks innovative products from arriving domestically. Very ridged rules can even harm domestic standard developers if it makes it harder to test foreign standards domestically, thus leaving insufficient data to see if our standards should be changed.

Similar problems exist with US standards and sustainability. Windows and doors tested to US standards are often leakier than their counterparts tested to European standards. This largely owes to Europe having stricter energy efficiency regulations than the US.

The proposed change can be considered conservative because the alternative standards still must meet the intent of these codes, including minimum level of protection. Also, alternative standards require approval.

There are legal issues with the current inflexibility.

1) Only allowing referenced standards, many of which have signed agreements to be available for ICC subscription members, raises tying liability. Tying is an antitrust issue which entails one good being linked to the sale of other goods. Standard developers are partly exempt from anti-trust claims per the Standards Development Organization Advancement Act of 2004. However, as noted by the US Justice Department: "Standards development... is not without antitrust risk, and the Antitrust Division has a strong interest in ensuring that the standard-setting process remains procompetitive."

2) The current wording is inconsistent with the World Trade Organization's Technical Barriers to Trade Agreement. Article 2.7 states:

Members shall give positive consideration to accepting as equivalent technical regulations of other Members, even if these regulations differ from their own, provided they are satisfied that these regulations adequately fulfil the objectives of their own regulations.

Further Article 6.1 states:

Without prejudice to the provisions of paragraphs 3 and 4, Members shall ensure, whenever possible, that results of conformity assessment procedures in other Members are accepted, even when those procedures differ from their own, provided they are satisfied that those procedures offer an assurance of conformity with applicable technical regulations or standards equivalent to their own procedures. It is recognized that prior consultations may be necessary in order to arrive at a mutually satisfactory understanding...

ICC Code Council CP#49 requires US codes be consistent with US and International Law. The disallowance of foreign equivalent standards appears at face a violation of the WTO TBT Agreement, and thus violates international law because the US is a party to such. It is also inconsistent with ICC objectives to make the codes as internationally applicable as possible. For example, in some parts of the world, it can be difficult to find products listed to the US-centric conformity assessments. This is especially true in places with different electrical voltage. Providing more flexibility regarding equivalence determinations will make the I-codes better suited for global adoption.

Bibliography: Agreement on Technical Barriers to Trade. World Trade Organization. 1994.
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U.S. Department of Justice Antitrust Division Comments on the U.S. Standards Strategy September 8, 2020. https://www.justice.gov/media/1091331/dl?inline
Why Is Architecture and Building So Different in Europe? Eliason, M. Treehugger. 2022. https://www.treehugger.com/why-architecture-and-building-so-different-europe-4856473

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

To the extent that it will result in cost changes, costs would be expected to mostly go down both from direct importation and domestic manufacturers having to lower their prices when faced with increased competition. There are too many different products the rule could apply to pinpoint a dollar value.

Estimated Life Cycle Cost Impact:

The life cycle costs would generally be cheaper if it becomes easier to use goods listed to other standards (i.e. ISO, CEN) under the ICC prescriptive codes. Many times, there are far more products tested using other standards versus the US standards alone.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Life cycle costs might also go slightly down if it is easier to find replacement parts conforming to approved international standards.

ADM16-25 Part II

ADM17-25 Part I

IBC: [A] 104.2.3.4; IEBC: [A] 104.2.3.4; IFC: [A] 104.2.3.4; IFGC: [A] 104.2.3.4; IGCC: 104.2.5.4; IMC®: [A] 104.2.3.4; IPC: [A] 104.2.3.4; IPSDC: [A] 104.2.3.4; IPMC: [A] 105.2.2.4; ISPSC: [A] 104.2.3.4; IWUIC: [A] 104.2.2.4

Proponents: Scott Brody, representing self (sbrody96@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. Energy efficiency.

2024 International Existing Building Code

Revise as follows:

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. Energy efficiency.

2024 International Fire Code

Revise as follows:

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.

3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. <u>Energy efficiency.</u>

2024 International Fuel Gas Code

Revise as follows:

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. <u>Energy efficiency.</u>

2024 International Green Construction Code

Revise as follows:

104.2.5.4 Equivalency criteria. An alternative material, design, innovative approach or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. <u>Energy efficiency.</u>

2024 International Mechanical Code

Revise as follows:

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.

3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. Energy efficiency.

2024 International Plumbing Code

Revise as follows:

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. Energy efficiency.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. Energy efficiency.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.2.2.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.

3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. Energy efficiency.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. Energy efficiency.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.2.2.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. Energy efficiency.

ADM17-25 Part I

ADM17-25 Part II

IRC: R104.2.2.4

Proponents: Scott Brody, representing self (sbrody96@gmail.com)

2024 International Residential Code

Revise as follows:

R104.2.2.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.
7. <u>Energy efficiency.</u>

Reason: This code change adds energy efficiency to an existing list of items that must be considered for approval of an equivalency. This list appears across almost all the I-codes, including the International Green Construction Code. Hence, I made the edit uniformly across all codes with the passage.

It does not make sense why the Green Construction Code would list other things like fire safety as needing to be equivalent, but not energy performance. Isn't energy performance the main point of this code? The gap in rules might allow approvals of items under the equivalency section which have inferior energy performance, thus harming homeowners. For example, an exterior door which meets fire and other safety/quality metrics, but leaks heat due to poor seal. Thus, homeowners are left with higher heating and cooling costs.

The existing passages' mention of many other items in equivalency assessment, but not energy efficiency, also creates the perception that energy efficiency is not important. This makes the current language problematic in terms of tone/messaging, irrespective of if there are other authorities a code official could cite to legally address energy performance problems. Many people care about the environment, and consumer protection from flawed construction like leaky windows. Code officials should not make these matters second-class concerns.

Bibliography: See sources in cost impact study

Cost Impact: Increase

Estimated Immediate Cost Impact:

This change is partly editorial. I say that because it appears to be a loophole where other matters are listed in the equivalency assessment process, but not energy efficiency. There is a possibility the code official would still cite other matters to block non-efficient goods being installed, in which case cost change would be zero. But this is not guaranteed.

If this change does prevent installation of some less efficient items, the cost would vary depending on the item. There are a seemingly infinite variety of products which could be impacted by having to be equivalent to the existing code's efficiency benchmarks. To provide an example of costs, the website Angy (Formerly Angies List) reports it typically adds around $200 per window to the starting cost to install a double vs single pane of glass. Costs increase at a slightly higher rate between 2 and 3 panes of glass. These construction costs may partly be recuperable via tax breaks and increased home resale value.

Estimated Immediate Cost Impact Justification (methodology and variables):

For construction costs in example, see *How Much Do Energy-Efficient Windows Cost?* [2025 Data].
Angie: https://www.angi.com/articles/energy-efficient-windows-cost.htm

Estimated Life Cycle Cost Impact:

According to a study in the peer-reviewed journal Energy and Buildings, the cost of energy efficiency upgrades in Passive Houses can generally be recovered in 16-28 years. The International Green Construction Code is not as stringent as the Passive House standard, so its constriction costs, and benefits, would not generally be as high. Nonetheless, it can generally be expected that energy efficiency costs can be recuperated over time.

The Environmental Protection Agency also offers Rule of Thumb costs for various energy efficient items.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

See: *A life-cycle cost analysis of the passive house "POLITEHNICA" from Bucharest.* By Badina et al, 2014. https://www.sciencedirect.com/science/article/abs/pii/S0378778814003703
See also: Rules of Thumb. US Environmental Protection Agency. State and Local Climate and Energy Program. 2016. https://www.epa.gov/sites/default/files/2016-03/documents/table_rules_of_thumb.pdf

ADM17-25 Part II

ADM18-25 Part I

IBC: [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, 104.2.3.5.2 (New); IEBC: [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, 104.2.3.5.2 (New); IFC: [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, 104.2.3.5.2 (New); IFGC: [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, 104.2.3.5.2 (New); IMC®: [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, 104.2.3.5.2 (New); IPC: [A] 104.2.3.4, [A] 104.2.3.5, [A] 104.2.3.5.1, 104.2.3.5.2 (New); IPMC: [A] 105.2.2.4, [A] 105.2.2.5, [A] 105.2.2.5.1, 105.2.2.5.2 (New); IWUIC: [A] 104.2.2.4, [A] 104.2.2.5, [A] 104.2.2.5.1, 104.2.2.5.2 (New)

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Building Code

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *building official*.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *building official*.

Add new text as follows:

<u>**104.2.3.5.2 Fire test properties.** The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.</u>

2024 International Existing Building Code

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Such tests shall be performed by a party acceptable to the *code official*.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official* .

Add new text as follows:

<u>104.2.3.5.2 Fire test properties</u>. <u>The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.</u>

2024 International Fire Code

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *fire code official*.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *fire code official* .

Add new text as follows:

<u>104.2.3.5.2 Fire test properties</u>. <u>The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.</u>

2024 International Fuel Gas Code

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.

5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

Add new text as follows:

104.2.3.5.2 Fire test properties. The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.

2024 International Mechanical Code

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

Add new text as follows:

104.2.3.5.2 Fire test properties. The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.

2024 International Plumbing Code

[A] 104.2.3.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.3.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 104.2.3.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

Add new text as follows:

<u>**104.2.3.5.2 Fire test properties.** The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.</u>

2024 International Property Maintenance Code

[A] 105.2.2.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 105.2.2.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

[A] 105.2.2.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the building official.

Add new text as follows:

<u>**105.2.2.5.2 Fire test properties.** The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.</u>

2024 International Wildland Urban Interface Code

[A] 104.2.2.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all of the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

[A] 104.2.2.5 Tests. . Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

[A] 104.2.2.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

Add new text as follows:

104.2.2.5.2 Fire test properties. The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.

Reason: Fire safety is a broad concept that covers a large number of fire properties, including ignitability, flame spread, heat release, smoke release, and fire resistance ratings. It is important that the alternative being approved addresses the fire property (or fire properties) being addressed in the relevant code section.

Until the 2024 editions of the ICC codes the issue of fire safety was simply being addressed in these sections by referencing "fire resistance", which was intended to be a surrogate for all fire properties. It became clear at the cycle developing the 2024 I codes that a replacement material could exhibit (for example) the same fire resistance rating as the material being replaced (namely, for example, a fire resistance rating of zero hours) but exhibit much worse fire performance in terms of flame spread. In such a case the replacement material should not be considered a suitable equivalent but the wording in the code could make it difficult for the AHJ to apply the correct logic. That has been correctly fixed in the 2024 I codes.

It is very likely that the AHJ is already aware that this is a potential concern but it is important to have it explicitly in the code.

The existing sections that state that "fire safety" needs to be specifically considered and that the fire tests need to be of the appropriate scale are very important but do not address the potential of alternate fire properties being addressed by the proposed equivalent.

The following are four silly examples of an incorrect equivalent substitution.

1.When a roofing assembly meeting a Class A in accordance with ASTM E108 or UL 790 is required and the "equivalent" product is shown to meet a Class A in accordance wit ASTM E84 or UL 723.

2. When a fire resistance rating of 2 hours in accordance with ASTM E1529 is required and the "equivalent" product is shown to exhibit a fire resistance rating of 2 hours in accordance with ASTM E119.

3. When a flame spread index of Class A (25 or less) in accordance with ASTM E84 or UL 723 is required and the "equivalent" product is shown to exhibit a self-ignition temperature of 650°F (343°C) or greater in accordance with ASTM D1929.

4. When a peak heat release of not exceeding 400 kW/ m^2 when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m^2 is required and the "equivalent" product is shown to comply with the fire propagation performance criteria contained in Test

Method 1 of NFPA 701.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal addresses issues that the AHJ is (I am sure) already addressing but makes it explicit.

ADM18-25 Part I

ADM18-25 Part II

IRC: R104.2.2.4, R104.2.2.5, R104.2.2.5.1 (New), R104.2.2.5.2 (New)

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Residential Code

R104.2.2.4 Equivalency criteria. An alternative material, design or method of construction shall, for the purpose intended, be not less than the equivalent of that prescribed in this code with respect to all the following, as applicable:

1. Quality.
2. Strength.
3. Effectiveness.
4. Durability.
5. Safety, other than fire safety.
6. Fire safety.

R104.2.2.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Such tests shall be performed by a party acceptable to the *building official*.

Add new text as follows:

R104.2.2.5.1 Fire Tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the *building official*.

R104.2.2.5.2 Fire Test Properties. The fire tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall address the relevant fire properties being evaluated in the code section for which the alternative material, design, or method of construction is being proposed.

Reason: Fire safety is a broad concept that covers a large number of fire properties, including ignitability, flame spread, heat release, smoke release, and fire resistance ratings. It is important that the alternative being approved addresses the fire property (or fire properties) being addressed in the relevant code section.

Until the 2024 editions of the ICC codes the issue of fire safety was simply being addressed in these sections by referencing "fire resistance", which was intended to be a surrogate for all fire properties. It became clear at the cycle developing the 2024 I codes that a replacement material could exhibit (for example) the same fire resistance rating as the material being replaced (namely, for example, a fire resistance rating of zero hours) but exhibit much worse fire performance in terms of flame spread. In such a case the replacement material should not be considered a suitable equivalent but the wording in the code could make it difficult for the AHJ to apply the correct logic. That has been correctly fixed in the 2024 I codes.

It is very likely that the AHJ is already aware that this is a potential concern but it is important to have it explicitly in the code.

The existing section 104.2.2.5 that states that "fire safety" needs to be specifically considered is very important because it highlights fire safety and goes beyond just :fire resistance". Other I codes have a section worded like the propose 104.2.2.5.1, specifically for fire tests, which explains that the fire tests need to be of the appropriate scale. That is a very important addition and it should be included in the IRC too. However, neither of those sections (the existing one in the IRC and the proposed one, from the other I codes) address the potential of alternate fire properties being addressed by the proposed equivalent.

The following are four silly examples of an incorrect equivalent substitution. Not all of them address specific IRC examples but the concepts apply.

1.When a roofing assembly meeting a Class A in accordance with ASTM E108 or UL 790 is required and the "equivalent" product is shown to meet a Class A in accordance wit ASTM E84 or UL 723.

2. When a fire resistance rating of 2 hours in accordance with ASTM E1529 is required and the "equivalent" product is shown to exhibit a fire resistance rating of 2 hours in accordance with ASTM E119.

3. When a flame spread index of Class A (25 or less) in accordance with ASTM E84 or UL 723 is required and the "equivalent" product is shown to exhibit a self-ignition temperature of 650°F (343°C) or greater in accordance with ASTM D1929.

4. When a peak heat release of not exceeding 400 kW/ m2 when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m^2 is required and the "equivalent" product is shown to comply with the fire propagation performance criteria contained in Test Method 1 of NFPA 701.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is something that the AHJ is probably already aware of but it is important to have it explicitly in the code.

ADM18-25 Part II

ADM19-25 Part I

IBC: [A] 104.2.3.6.2; IEBC: [A] 104.2.3.6.2; IFC: [A] 104.2.3.6.2; IFGC: [A] 104.2.3.6.2; IGCC: 104.2.5.6.2; IMC®: 104.2.3.6.2; IPC: [A] 104.2.3.6.2; IPSDC: [A] 104.2.3.6.2; IPMC: [A] 105.2.2.6.2; ISPSC: [A] 104.2.3.6.2; IWUIC: [A] 104.2.2.6.2

Proponents: Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com); Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.2.3.6.2 Other reports. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the *building official*. The *building official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

2024 International Existing Building Code

Revise as follows:

[A] 104.2.3.6.2 Other reports. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization ~~acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Fire Code

Revise as follows:

[A] 104.2.3.6.2 Other reports. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization ~~acceptable to the *fire code official*. The *fire code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.2.3.6.2 Other reports.. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

2024 International Green Construction Code

Revise as follows:

104.2.5.6.2 Other reports. Reports not complying with Section 104.2.5.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the authority having jurisdiction. The authority having jurisdiction is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Mechanical Code

Revise as follows:

104.2.3.6.2 Other reports. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the code official. The code official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

2024 International Plumbing Code

Revise as follows:

[A] 104.2.3.6.2 Other reports. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the code official. The code official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.2.3.6.2 Other reports.. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the code official. The code official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.2.2.6.2 Other reports. Reports not complying with Section 105.2.2.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the building official. The building official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.2.3.6.2 Other reports. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the code official. The code official is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a registered design professional.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.2.2.6.2 Other reports. Reports not complying with Section 104.2.3.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional*.

ADM19-25 Part I

ADM19-25 Part II

IRC: R104.2.2.6.2

Proponents: Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com); Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org)

2024 International Residential Code

Revise as follows:

R104.2.2.6.2 Other reports. Reports not complying with Section R104.2.2.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. Where required by the laws of the *jurisdiction*, the ~~The~~ report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization ~~acceptable to the *building official*. The *building official* is authorized to require design submittals to be prepared by,~~ and bear the stamp of~~,~~ a *registered design professional.*

Reason: The laws of the jurisdiction regarding professional practice requirements should govern the qualifications required to prepare the related technical opinions and reports, not the building official's judgment. The test for whether the preparer is qualified to provide the documentation is established by the state and local regulations governing the practice of the applicable profession. A building official should not be put into a position where they must substitute their judgment to accept or reject the offered documentation when the preparer meets the requirements of those regulations, including any permitted exemptions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed modification makes the code section compliant with the laws of the jurisdiction by clarifying that the section does not supersede state and local laws governing professional practice. It also avoids placing the burden on the building official to decide when specific credentials are required.

ADM19-25 Part II

ADM20-25

IBC: [A] 104.2.4, [A] 104.2.4.1 (New), [A] 104.2.4.2 (New), [A] 104.2.4.1; IEBC: [A] 104.2.4, [A] 104.2.4.1 (New), [A] 104.2.4.2 (New), [A] 104.2.4.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Robert Marshall, representing FCAC (fcac@iccsafe.org)

2024 International Building Code

Revise as follows:

[A] 104.2.4 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications in accordance with Sections 104.2.4.1, 104.2.4.2 or 104.2.4.3~~for individual cases, provided that the *building official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, *accessibility*, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

[A] 104.2.4.1 Individual cases. The building official shall have the authority to grant modifications for individual cases, provided that the *building official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, *accessibility*, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety.

[A] 104.2.4.2 Natural disasters. In preparation for, during and after a natural disaster event, as determined by the building official, the building official shall have the authority to issue written policies, procedures or rules that modify this code as necessary to protect life and property. Such policies, procedures or rules shall be made available to the public and shall include start and end dates, which can be extended at the building official's discretion.

Revise as follows:

[A] ~~104.2.4.1~~ 104.2.4.3 Flood hazard areas. The *building official* shall not grant modifications to any provision required in *flood hazard areas* as established by Section 1612.3 unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the *site* render the elevation standards of Section 1612 inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the *lot* undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the *flood* hazard.
5. Submission to the applicant of written notice specifying the difference between the *design flood elevation* and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the *design flood elevation* increases risks to life and property.

2024 International Existing Building Code

[A] 104.2.4 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the *code official* shall have the authority to grant modifications in accordance with Sections 104.2.4.1, 104.2.4.2 or 104.2.4.3.

~~for individual cases, provided that the *code official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety.~~

Add new text as follows:

<u>**[A] 104.2.4.1 Individual cases.** The code official shall have the authority to grand modifications for individual cases, provided that the *code official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety.</u>

<u>**[A] 104.2.4.2 Natural disasters.** In preparation for, during and after a natural disaster event, as determined by the code official, the code official shall have the authority to issue written policies, procedures or rules that modify this code as necessary to protect life and property. Such policies, procedures or rules shall be made available to the public and shall include start and end dates, which can be extended at the code official's discretion.</u>

Revise as follows:

[A] ~~104.2.4.1~~ <u>104.2.4.3</u> Flood hazard areas. For *existing buildings* located in *flood hazard areas* for which *repairs*, *alterations* and *additions* constitute *substantial improvement*, the *code official* shall not grant modifications to provisions related to flood resistance unless a determination is made that:

1. The applicant has presented good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions inappropriate.
2. Failure to grant the modification would result in exceptional hardship.
3. The granting of the modification will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. A written notice will be provided to the applicant specifying, if applicable, the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and that construction below the design flood elevation increases risks to life and property.

Reason: There is no change to the requirements in the first section. It is just split into two to match the format in the IFC.

The focus of this change is added the section for Natural Disasters. Emergencies have happened which demonstrate the need for granting the authority to allow, by policy, conditions that would otherwise constitute code violations. Buildings may be used for purposes other than what they were designed for. A school gymnasium being used for temporary housing for displaced victims of a flood. Over 200,000 people were relocated during the Kincade Fire in California in 2019. Buildings are utilized to handle the needs resulting from the emergency incident. For example, temporary housing is established, outdoor canopies are set up, portable toilets are utilized, electric power and heating is provided. These needs of the people need to be provided for, but many times strict compliance with the code is not possible. These revisions could allow temporary emergency shelters that may not fully meet code requirements for a congregate residential use.

These sections were added into the IFC in the 2022 code cycle. But it is not just fire code regulations that are affected when these emergencies occur. Therefore, this proposal adds these correlating provisions into the IBC so the fire code official and building official can work together to solve these problems that arise in emergency situations.

By adding text to the code that specifically addresses this concern, the building official will be guided to develop written documentation that should globally address special allowances that will be permitted during a disaster event.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) and the ICC Fire Code Action Committee (FCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the FCAC Website

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

While this is not a change in construction requirements, by allowing for preplanning, this will most likely result in a recuction of cost. This will allow for a quicker response and for officials to work together, and averting additional costs.

ADM20-25

ADM21-25

IBC: [A] 104.2.4, [A] 104.2.4.1 (New), [A] 104.2.4.1; IFC: 104.2.4, 104.2.4.1, 104.2.4.2

Proponents: Kevin Scott, KH Scott & Associates LLC, representing self (khscottassoc@gmail.com)

2024 International Building Code

Revise as follows:

[A] 104.2.4 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications in accordance with Sections 104.2.4.1, 104.2.4.2 or 104.2.4.3. ~~for individual cases, provided that the *building official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, *accessibility*, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety.~~

Add new text as follows:

[A] 104.2.4.1 Individual cases. The *building official* shall have the authority to grant modifications for individual cases, provided that the *building official* shall first find that special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code, and that such modification does not lessen health, accessibility, life and fire safety or structural requirements. Details of the written request for and action granting modifications shall be in writing and maintained in the files of the department of building safety.

[A] 104.2.4.1 Natural disasters. In preparation for, during and after a natural disaster event, as determined by the *building official*, the *building official* shall have the authority to issue written policies, procedures or rules that modify this code as necessary to protect life and property. Such policies, procedures or rules shall be made available to the public and shall include start and end dates, which can be extended at the *building official's* discretion.

Revise as follows:

[A] ~~104.2.4.1~~ 104.2.4.3 Flood hazard areas. The *building official* shall not grant modifications to any provision required in *flood hazard areas* as established by Section 1612.3 unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the *site* render the elevation standards of Section 1612 inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the *lot* undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the *flood* hazard.
5. Submission to the applicant of written notice specifying the difference between the *design flood elevation* and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the *design flood elevation* increases risks to life and property.

2024 International Fire Code

[A] 104.2.4 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the *fire code official* shall have the authority to grant modifications in accordance with Section 104.2.4.1 or 104.2.4.2.

Revise as follows:

[A] 104.2.4.1 Individual cases. The *fire code official* shall have the authority to grant modifications for individual cases, provided that the *fire code official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. ~~The details~~Details of the request for and action granting modifications shall be ~~recorded and entered~~ in writing and maintained in the files of the code compliance agency.

[A] 104.2.4.2 Natural disasters. In preparation for, during and after a natural disaster event, as determined by the *fire code official*, the *fire code official* shall have the authority to issue written policies, procedures or rules that modify this code as necessary to protect life and property. Such policies, procedures or rules shall be made available to the public and shall include start and end dates, which can be extended at the *fire code official ' s* discretion.

Reason: This proposal correlates the IFC and IBC regarding modifications to the code. IFC Section 104.2.4 was revised in the 2022 code cycle and the sections for individual cases and natural disasters were created. But it is not just fire code regulations which can be affected when these emergencies occur. Therefore, this proposal adds these correlating provisions into the IBC so the fire code official and building official can work together to solve these problems that arise in preparation for and during natural disasters.

Emergencies have occurred which demonstrate the need for granting the authority to allow, by policy, conditions that would otherwise constitute code violations. Buildings may be used for purposes other than what they were designed for. A school gymnasium being used for temporary housing for displaced victims of a flood. Over 200,000 people were relocated during the Kincade Fire in California in 2019. Buildings are utilized to handle the needs resulting from the emergency incident. For example, temporary housing is established, outdoor canopies are set up, portable toilets are utilized, electric power and heating is provided. These needs of the people need to be provided for, but many times strict compliance with the code is not possible. These revisions could allow temporary emergency shelters that may not fully meet code requirements for a congregate residential use. This proposal adds correlating provisions into the IBC so the fire code official and building official can work together to solve these problems that arise in emergency situations.

The last sentence in IFC Section 104.2.4.1 is cleaned up with no change in application.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposal will allow for a quicker response to the needs of the public and enhance the ability for fire and building officials to work together thus averting additional costs for filing with both agencies.

Estimated Immediate Cost Impact Justification (methodology and variables):

A survey of several agencies resulted in a range of $100 to $350 for filing a request for modification.

ADM21-25

ADM22-25 Part I

IFC: 104.2.4, 104.2.4.1, 104.2.4.2, 104.2.4.3 (New), 104.2.4.4 (New), 104.2.4.5 (New), 104.2.4.6 (New), 104.2.4.6.1 (New), 104.2.4.6.2 (New), 104.2.4.7 (New), 104.2.4.8 (New), [A] 104.7.5; IBC: [A] 104.2.4, 104.2.4.1 (New), [A] 104.2.4.1, 104.2.4.2 (New), 104.2.4.3 (New), 104.2.4.4 (New), 104.2.4.5 (New), 104.2.4.5.1 (New), 104.2.4.5.2 (New), 104.2.4.6 (New), 104.2.4.7 (New), [A] 104.7.4; IEBC: [A] 104.2.4, 104.2.4.1 (New), [A] 104.2.4.1, 104.2.4.2 (New), 104.2.4.3 (New), 104.2.4.4 (New), 104.2.4.5 (New), 104.2.4.5.1 (New), 104.2.4.5.2 (New), 104.2.4.6 (New), 104.2.4.7 (New), [A] 104.7.4; IFGC: [A] 104.2.4, 104.2.4.1 (New), [A] 104.2.4.1, 104.2.4.2 (New), 104.2.4.3 (New), 104.2.4.4 (New), 104.2.4.5 (New), 104.2.4.5.1 (New), 104.2.4.5.2 (New), 104.2.4.6 (New), [A] 104.7.4; IGCC: 104.2.6, 104.2.6.1 (New), 104.2.6.2 (New), 104.2.6.3 (New), 104.2.6.4 (New), 104.2.6.5 (New), 104.2.6.5.1 (New), 104.2.6.5.2 (New), 10104.2.6.6 (New), 104.2.6.7 (New), 104.8.4; IMC®: [A] 104.2.4, 104.2.4.1 (New), 104.2.4.1, 104.2.4.2 (New), 104.2.4.3 (New), 104.2.4.4 (New), 104.2.4.5 (New), 104.2.4.5.1 (New), 104.2.4.5.2 (New), 104.2.4.6 (New), 104.2.4.7 (New), 104.7.4; IPC: [A] 104.2.4, 104.2.4.1 (New), [A] 104.2.4.1, 104.2.4.2 (New), 104.2.4.3 (New), 104.2.4.4 (New), 104.2.4.5 (New), 104.2.4.5.1 (New), 104.2.4.5.2 (New), 104.2.4.6 (New), 104.2.4.7 (New), [A] 104.7.4; IPSDC: [A] 104.2.4, 104.2.4.1 (New), [A] 104.2.4.1, 104.2.4.2 (New), 104.2.4.3 (New), 104.2.4.4 (New), 104.2.4.5 (New), 104.2.4.5.1 (New), 104.2.4.5.2 (New), 104.2.4.6 (New), 104.2.4.7 (New), [A] 104.7.4; IPMC: [A] 105.2.3, 105.2.3.1 (New), 105.2.3.2 (New), 105.2.3.3 (New), 105.2.3.4 (New), 105.2.3.5 (New), 105.2.3.5.1 (New), 105.2.3.5.2 (New), 105.2.3.6 (New), 105.2.3.7 (New), [A] 105.6.4; ISPSC: [A] 104.2.4, 104.2.4.1 (New), [A] 104.2.4.1, 104.2.4.2 (New), 104.2.4.3 (New), 104.2.4.4 (New), 104.2.4.5 (New), 104.2.4.5.1 (New), 104.2.4.5.2 (New), 104.2.4.6 (New), 104.2.4.7 (New), [A] 104.7.4; IWUIC: [A] 104.2.3, 104.2.3.1 (New), 104.2.3.2 (New), 104.2.3.3 (New), 104.2.3.4 (New), 104.2.3.5 (New), 104.2.3.5.1 (New), 104.2.3.5.2 (New), 104.2.3.6 (New), 104.2.3.7 (New), [A] 104.7.4

Proponents: Kevin Scott, KH Scott & Associates LLC, representing self (khscottassoc@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Fire Code

Revise as follows:

104.2.4 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of~~ the *fire code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.3, the *fire code official* shall have the authority to ~~grant~~approve modifications in accordance with Section 104.2.4.1 or 104.2.4.2.

104.2.4.1 Individual cases. ~~The *fire code official* shall have the authority to grant modifications for individual cases, provided that the *fire code official* shall first find that special individual reason makes the strict letter of this code impractical, and the modification is in compliance with the intent and purpose of this code, and that such modification does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the code compliance agency.~~The *fire code official* shall have the authority to approve modifications for individual cases, provided that the *fire code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.3.

104.2.4.2 Natural disasters. In preparation for, during and after a natural disaster event, as determined by the *fire code official*, the *fire code official* shall have the authority to issue written policies, procedures or rules that modify this code as necessary to protect life and property. Such policies, procedures or rules shall be made available to the public and shall include start and end dates, which can be extended at the *fire code official ' s* discretion.

Add new text as follows:

104.2.4.3 Application and disposition. A request to use a modification shall be submitted in writing to the *fire code official* for approval. Where the modification is not approved, the *fire code official* shall respond in writing, stating the reasons the modification was not approved.

104.2.4.4 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

104.2.4.5 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *fire code official*.

104.2.4.6 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.4.6.1 and 104.2.4.6.2.

104.2.4.6.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *fire code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.4.6.2 Other reports. Reports not complying with Section 104.2.4.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with the intent of the code. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *fire code official*. The *fire code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.4.7 Peer review. The *fire code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is *approved* by the *fire code official*.

104.2.4.8 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 104.7.5.

Revise as follows:

[A] 104.7.5 Tests. The *fire code official* shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.3.5 and 104.2.4.5.

2024 International Building Code

Revise as follows:

[A] 104.2.4 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the *building official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.3, the *building official* shall have the authority to ~~grant~~ approve modifications for individual cases~~, provided that the *building official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, *accessibility*, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

104.2.4.1 Approval authority. As a condition of approval, the building official shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.3.

Revise as follows:

[A] ~~104.2.4.1~~ 104.2.4.1.1 Flood hazard areas. The *building official* shall not grant modifications to any provision required in *flood hazard areas* as established by Section 1612.3 unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the *site* render the elevation standards of Section 1612 inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the *lot* undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the *flood* hazard.
5. Submission to the applicant of written notice specifying the difference between the *design flood elevation* and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the *design flood elevation* increases risks to life and property.

Add new text as follows:

104.2.4.2 Application and disposition. A request to use a modification shall be submitted in writing to the *building official* for approval. Where the modification is not approved, the *building official* shall respond in writing, stating the reasons the modification was not approved.

104.2.4.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

104.2.4.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *building official*.

104.2.4.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.4.5.1 and 104.2.4.5.2.

104.2.4.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *building official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.4.5.2 Other reports. Reports not complying with Section 104.2.4.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *building official*. The *building official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.4.6 Peer review. The *building official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is *approved* by the *building official.*

104.2.4.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 104.7.4.

Revise as follows:

[A] 104.7.4 Tests. The *building official* shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.3.5 and 104.2.4.4.

2024 International Existing Building Code

Revise as follows:

[A] 104.2.4 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~the *code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.3, the *code official* shall have the authority to ~~grant~~approve modifications for individual cases~~, provided that the *code official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

104.2.4.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.3.

Revise as follows:

[A] ~~104.2.4.1~~ 104.2.4.1.1 Flood hazard areas. For *existing buildings* located in *flood hazard areas* for which *repairs*, *alterations* and *additions* constitute *substantial improvement*, the *code official* shall not grant modifications to provisions related to flood resistance unless a determination is made that:

1. The applicant has presented good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions inappropriate.
2. Failure to grant the modification would result in exceptional hardship.
3. The granting of the modification will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. A written notice will be provided to the applicant specifying, if applicable, the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and that construction below the design flood elevation increases risks to life and property.

Add new text as follows:

104.2.4.2 Application and disposition. A request to use a modification shall be submitted in writing to the *code official* for approval. Where the modification is not approved, the *code official* shall respond in writing, stating the reasons the modification was not approved.

104.2.4.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

104.2.4.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

104.2.4.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.4.5.1 and 104.2.4.5.2.

104.2.4.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.4.5.2 Other reports. Reports not complying with Section 104.2.4.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.4.6 Peer review. The *code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is *approved* by the *code official*.

104.2.4.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 104.7.4.

Revise as follows:

[A] 104.7.4 Tests. The *code official* shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.3.5 and 104.2.4.4.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.2.4 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the *code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.3, the *code official* shall have the authority to ~~grant~~ *approve* modifications for individual cases~~, provided that the *code official* shall first find that one or more special individual reasons make the strict letter of this code impractical, that the modification is in compliance with the intent and purpose of this code, and that such modification does not lessen health, accessibility, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

104.2.4.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it

104.2.4.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.3.

Revise as follows:

[A] ~~104.2.4.1~~ 104.2.4.1.1 Flood hazard areas. The *code official* shall not grant modifications to any provision required in *flood hazard areas* as established by Section 1612.3 of the *International Building Code* unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

Add new text as follows:

104.2.4.2 Application and disposition. A request to use a modification shall be submitted in writing to the *code official* for approval. Where the modification is not approved, the *code official* shall respond in writing, stating the reasons the modification was not approved.

104.2.4.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

104.2.4.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

104.2.4.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.4.5.1 and 104.2.4.5.2.

104.2.4.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.4.5.2 Other reports. Reports not complying with Section 104.2.4.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.4.6 Peer review. The *code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is *approved* by the *code official.*

Revise as follows:

[A] 104.7.4 Tests. The *code official* shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.3.5 and 104.2.4.4.

2024 International Green Construction Code

Revise as follows:

104.2.6 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the authority having jurisdiction determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.5, the authority having jurisdiction shall have the authority to ~~grant~~ approve modifications for individual cases~~, provided the authority having jurisdiction shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen the minimum requirements of this code. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

104.2.6.1 Approval authority. As a condition of approval, the authority having jurisdiction shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.5.

104.2.6.2 Application and disposition. A request to use a modification shall be submitted in writing to the authority having jurisdiction for approval. Where the modification is not approved, the authority having jurisdiction shall respond in writing, stating the reasons the modification was not approved.

104.2.6.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen the minimum requirements of this code.

104.2.6.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the authority having jurisdiction.

104.2.6.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.6.5.1 and 104.2.6.5.2.

104.2.6.5.1 Evaluation reports. Evaluation reports shall be issued by an approved agency and use of the evaluation report shall require approval by the authority having jurisdiction. Evaluation of the modification shall be within the scope of the accreditation of the approved agency. Criteria used for the evaluation shall be identified within the report.

104.2.6.5.2 Other reports. Reports not complying with Section 104.2.6.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the authority having jurisdiction. The authority having jurisdiction is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

10104.2.6.6 Peer review. The authority having jurisdiction is authorized to require submittal of a peer review in conjunction with a modification request, prepared by a peer reviewer that is approved by the authority having jurisdiction.

104.2.6.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section

104.8.4.

Revise as follows:

104.8.4 Tests. The authority having jurisdiction shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.5.5 and 104.2.6.4.

2024 International Mechanical Code

Revise as follows:

[A] 104.2.4 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the *code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.3, the *code official* shall have the authority to ~~grant~~ approve modifications for individual cases~~, provided that the code official shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

104.2.4.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.3.

Revise as follows:

~~**104.2.4.1**~~ **104.2.4.1.1 Flood hazard areas.** The code official shall not grant modifications to any provision required in flood hazard areas, as established by Section 1612.3 of the *International Building Code*, unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the *building* is to be built, stating that the cost of flood ~~in-surance~~ insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

Add new text as follows:

104.2.4.2 Application and disposition. A request to use a modification shall be submitted in writing to the *code official* for approval. Where the modification is not approved, the *code official* shall respond in writing, stating the reasons the modification was not approved.

104.2.4.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.

2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

104.2.4.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

104.2.4.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.4.5.1 and 104.2.4.5.2.

104.2.4.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.4.5.2 Other reports. Reports not complying with Section 104.2.4.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.4.6 Peer review. The *code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is approved by the *code official*.

104.2.4.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 104.7.4.

Revise as follows:

104.7.4 Tests. The *code official* shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.3.5 and 104.2.4.4.

2024 International Plumbing Code

Revise as follows:

[A] 104.2.4 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the *code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.3, the *code official* shall have the authority to ~~grant~~ approve modifications for individual cases~~, provided that the code official shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

104.2.4.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.3.

Revise as follows:

[A] ~~104.2.4.1~~ 104.2.4.1.1 Flood hazard areas. The *code official* shall not grant modifications to any provision required in flood hazard areas as established by Section 1612.3 of the *International Building Code* unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

Add new text as follows:

104.2.4.2 Application and disposition. A request to use a modification shall be submitted in writing to the *code official* for approval. Where the modification is not approved, the *code official* shall respond in writing, stating the reasons the modification was not approved.

104.2.4.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

104.2.4.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

104.2.4.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.4.5.1 and 104.2.4.5.2.

104.2.4.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.4.5.2 Other reports. Reports not complying with Section 104.2.4.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.4.6 Peer review. The *code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is approved by the *code official*.

104.2.4.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 104.7.4.

Revise as follows:

[A] 104.7.4 Tests. The *code official* shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.3.5 and 104.2.4.4.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.2.4 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the *code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.3, the *code official* shall have the authority to ~~grant~~ approve modifications for individual cases~~, provided that the code official shall first find that one or more special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

104.2.4.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.3.

Revise as follows:

[A] ~~104.2.4.1~~ 104.2.4.1.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas as established by Section 1612.3 of the *International Building Code*, unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

Add new text as follows:

104.2.4.2 Application and disposition. A request to use a modification shall be submitted in writing to the *code official* for approval. Where the modification is not approved, the *code official* shall respond in writing, stating the reasons the modification was not approved.

104.2.4.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.

4. Fire safety.
5. Structural safety.

104.2.4.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

104.2.4.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.4.5.1 and 104.2.4.5.2.

104.2.4.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.4.5.2 Other reports. Reports not complying with Section 104.2.4.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.4.6 Peer review. The *code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is approved by the *code official*.

104.2.4.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 104.7.4.

Revise as follows:

[A] 104.7.4 Tests. The *code official* shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.3.5 and 104.2.4.4.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.2.3 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the *code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 105.2.2, the *code official* shall have the authority to ~~grant~~ approve modifications for individual cases~~, provided that the *code official* shall first find that special individual reasons make the strict letter of this code impractical, and that the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

105.2.3.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 105.2.2.

105.2.3.2 Application and disposition. A request to use a modification shall be submitted in writing to the *code official* for approval. Where the modification is not approved, the *code official* shall respond in writing, stating the reasons the modification was not approved.

105.2.3.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

105.2.3.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

105.2.3.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 105.2.3.5.1 and 105.2.3.5.2.

105.2.3.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

105.2.3.5.2 Other reports. Reports not complying with Section 105.2.3.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

105.2.3.6 Peer review. The *code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is approved by the *code official*.

105.2.3.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 105.6.4.

Revise as follows:

[A] 105.6.4 Tests. The *code official* shall keep a record of tests conducted to comply with Sections 105.2.1.4, ~~and~~ 105.2.2.5 and 105.2.3.4.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.2.4 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the *code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.3, the *code official* shall have the authority to ~~grant~~ approve modifications for individual cases ~~provided that the code official shall first find that one or more special individual reasons make the strict letter of this code impractical, that the modification is in compliance with the intent and purpose of this code, and that such modification does not lessen health, accessibility, life and fire safety or structural requirements. The details of the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety~~.

Add new text as follows:

104.2.4.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it

104.2.4.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.3.

Revise as follows:

[A] ~~104.2.4.1~~ 104.2.4.1.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas as established by Section 1612.3 of the *International Building Code* unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

Add new text as follows:

104.2.4.2 Application and disposition. A request to use a modification shall be submitted in writing to the *code official* for approval. Where the modification is not approved, the *code official* shall respond in writing, stating the reasons the modification was not approved.

104.2.4.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

104.2.4.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

104.2.4.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.4.5.1 and 104.2.4.5.2.

104.2.4.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.4.5.2 Other reports. Reports not complying with Section 104.2.4.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.4.6 Peer review. The *code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is approved by the *code official.*

104.2.4.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 104.7.4.

Revise as follows:

[A] 104.7.4 Tests. The *code official* shall keep a record of tests conducted to comply with Sections 104.2.2.4, ~~and~~ 104.2.3.5 and 104.2.4.4.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.2.3 Modifications. Where ~~there are practical difficulties involved in carrying out the provisions of this code~~ the *code official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section 104.2.2, the *code official* shall have the authority to ~~grant~~ approve modifications for individual cases~~, provided that the *code official* shall first find that one or more special individual reasons make the strict letter of this code impractical, that the modification is in conformance with the intent and purpose of this code, and that such modification does not lessen health, life and fire safety requirements. The details of the written request and action granting modifications shall be recorded and entered into the files of the code enforcement agency~~.

Add new text as follows:

104.2.3.1 Approval authority. As a condition of approval, the *code official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section 104.2.2.

104.2.3.2 Application and disposition. A request to use a modification shall be submitted in writing to the *code official* for approval. Where the modification is not approved, the code official shall respond in writing, stating the reasons the modification was not approved.

104.2.3.3 Compliance with code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health.
2. Accessibility.
3. Life safety.
4. Fire safety.
5. Structural safety.

104.2.3.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *code official*.

104.2.3.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification shall comply with Sections 104.2.3.5.1 and 104.2.3.5.2.

104.2.3.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *code official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

104.2.3.5.2 Other reports. Reports not complying with Section 104.2.3.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *code official*. The *code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

104.2.3.6 Peer review. The *code official* is authorized to require submittal of a *peer review* in conjunction with a modification request, prepared by a peer reviewer that is approved by the *code official*.

104.2.3.7 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section 104.7.4.

Revise as follows:

[A] 104.7.4 Tests. The *code official* shall keep a record of tests conducted to comply with Sections 104.2.1.4, ~~and~~ 104.2.2.5 and 104.2.3.4.

Reason: This proposal adds evaluation and approval parameters for modifications, making them similar to those currently in the code for alternative methods. The primary difference between an alternative method and a modification is that a modification changes a code requirement in unique cases where equivalency cannot be achieved, as opposed to an alternative method, which establishes equivalency with a code requirement.

Accordingly, the provisions for approval of a modification should at least be equivalent to those for approval of an alternative method. However, code text currently suggests that the hurdle to obtain approval of a modification is less stringent. To address this, the modification requirements have been clarified to state that the code official must determine 1) direct compliance with the code is not achievable, and 2) potential alternative methods of compliance have been explored but cannot produce equivalency to the code.

Further, this proposal achieves consistency with changes to the alternative method provisions made under ADM13-22 and ADM 14-22, minus the requirement for code equivalency. Relevant provisions from the requirements for alternative methods have been added to the requirements for modifications. The one exception to this equivalency occurs in the IRC. In the IRC, the code official does not have the authority to require technical reports or a peer review for alternative methods, but if a technical report or peer review is submitted the code official can approve the agency or agent preparing the documentation. The same occurs for modifications in the IRC—the code official does not have the authority to require peer review or a technical report, but if it is submitted, the preparer must meet with the code official's approval.

This proposal will provide consistency across all the codes where modifications are allowed, with the exception of excluding accessibility, given that the IRC does not regulate accessibility.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides guidance to the code official for the administrative process when dealing with modifications.

ADM22-25 Part I

ADM22-25 Part II

IRC: R104.2.3, R104.2.3.1 (New), R104.2.3.1, R104.2.3.2 (New), R104.2.3.3 (New), R104.2.3.4 (New), R104.2.3.5 (New), R104.2.3.5.1 (New), R104.2.3.5.2 (New), R104.2.3.6 (New), R104.7.4

Proponents: Kevin Scott, KH Scott & Associates LLC, representing self (khscottassoc@gmail.com)

2024 International Residential Code

Revise as follows:

R104.2.3 Modifications. ~~Where there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications for individual cases, provided the *building official* shall first find that one or more special individual reasons make the strict letter of this code impractical, and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety or structural requirements. The detailsof the written request for and action granting modifications shall be recorded and entered in the files of the department of building safety.~~ Where the *building official* determines that it is not practical to specifically comply with this code or utilize an alternative method of compliance in accordance with Section R104.2.2, the *building official* shall have the authority to approve modifications for individual cases.

Add new text as follows:

R104.2.3.1 Approval authority. As a condition of approval, the *building official* shall find that one or more special individual reasons make it impractical to specifically comply with this code or provide equivalency through an alternative method of compliance in accordance with Section R104.2.2.

Revise as follows:

~~**R104.2.3.1**~~ **R104.2.3.1 Flood hazard areas.** The *building official* shall not grant modifications to any provisions required in flood hazard areas as established by Table R301.2 unless a determination has been made that:

1. There is good and sufficient cause showing that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section R306 inappropriate.
2. Failure to grant the modification would result in exceptional hardship by rendering the lot undevelopable.
3. The granting of modification will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. Written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and stating that construction below the design flood elevation increases risks to life and property, has been submitted to the applicant.

Add new text as follows:

R104.2.3.2 Application and disposition. A request to use a modification shall be submitted in writing to the *building official* for approval. Where the modification is not approved, the *building official* shall respond in writing, stating the reasons the modification was not approved.

R104.2.3.3 Compliance with the code intent. Modifications shall comply with the intent and purpose of this code, and shall not lessen any of the following:

1. Health

2. Life safety
3. Fire safety
4. Structural safety

R104.2.3.4 Tests. Tests conducted in support of a modification shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the *building official*.

R104.2.3.5 Reports. Supporting documentation, where necessary to assist in the approval of a modification, shall comply with Sections R104.2.3.5.1 and R104.2.3.5.2.

R104.2.3.5.1 Evaluation reports. Evaluation reports shall be issued by an *approved agency* and use of the evaluation report shall require approval by the *building official*. Evaluation of the modification shall be within the scope of the accreditation of the *approved agency*. Criteria used for the evaluation shall be identified within the report.

R104.2.3.5.2 Other reports. Reports not complying with Section R104.2.3.5.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with the intent of the code. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the *building official*. The *building official* is authorized to require design submittals to be prepared by, and bear the stamp of, a *registered design professional*.

R104.2.3.6 Records. Records of the written request for and action granting modifications shall be retained in accordance with Section R104.7.4.

Revise as follows:

R104.7.4 Tests. The *building official* shall keep a record of tests conducted to comply with ~~Section~~Sections R104.2.2.5 and R104.2.3.4.

Reason: This proposal adds evaluation and approval parameters for modifications, making them similar to those currently in the code for alternative methods. The primary difference between an alternative method and a modification is that a modification changes a code requirement in unique cases where equivalency cannot be achieved, as opposed to an alternative method, which establishes equivalency with a code requirement.

Accordingly, the provisions for approval of a modification should at least be equivalent to those for approval of an alternative method. However, code text currently suggests that the hurdle to obtain approval of a modification is less stringent. To address this, the modification requirements have been clarified to state that the code official must determine 1) direct compliance with the code is not achievable, and 2) potential alternative methods of compliance have been explored but cannot produce equivalency to the code.

Relevant provisions from the requirements for alternative methods have been added to the requirements for modifications. One difference between the IRC provisions and the other codes is that in the IRC the code official does not have the authority to require technical reports or peer review, but if a technical report or peer review is submitted the code official can approve the agency or agent preparing the documentation.

This proposal will provide consistency across all the codes with the process for review and approval of a request for modification.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is an administrative requirement and does not require the applicant to submit a request for modification. This proposal identifies the review and approval process.

ADM22-25 Part II

ADM23-25 Part I

IBC: [A] 104.2.4.1; IEBC: [A] 104.2.4.1; IFGC: [A] 104.2.4.1; IMC®: 104.2.4.1; IPC: [A] 104.2.4.1; IPSDC: [A] 104.2.4.1; ISPSC: [A] 104.2.4.1

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

THIS IS A 3 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IBC-S CODE COMMITTEE. PART III WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The *building official* shall not grant modifications to any provision required in *flood hazard areas* ~~as established by Section 1612.3~~ unless a determination has been made that:

1. The applicant has presented ~~A showing of~~ good and sufficient cause that the unique characteristics of the size, configuration or topography of the *site* render compliance with the flood-resistant construction provisions ~~the elevation standards~~ of Section 1612 inappropriate.
2. ~~A determination that failure~~ Failure to grant the modification ~~variance~~ would result in exceptional hardship by rendering the *lot* undevelopable.
3. ~~A determination that the~~ The granting of the modification ~~a variance~~ will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. ~~A determination that the variance~~ The modification is the minimum necessary to afford relief, considering the *flood* hazard.
5. ~~Submission to the applicant of written notice specifying the difference between the *design flood elevation* and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the *design flood elevation* increases risks to life and property.~~

Where a modification permits the lowest floor to be lower than the elevation required by Section 1612, the building official shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

2024 International Existing Building Code

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. ~~For *existing buildings* located in *flood hazard areas* for which *repairs*, *alterations* and *additions* constitute *substantial improvement*, the~~ The *code official* shall not grant modifications to provisions required in flood hazard areas ~~related to flood resistance~~ unless a determination has been ~~is~~ made that:

1. The applicant has presented good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions of Section 1612 of the International Building Code or Section R306 of the International Residential Code, as applicable, inappropriate.
2. Failure to grant the modification would result in exceptional hardship by rendering the lot undevelopable.
3. The granting of the modification will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.

4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. ~~A written notice will be provided to the applicant specifying, if applicable, the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and that construction below the design flood elevation increases risks to life and property.~~

Where a modification permits the lowest floor to be lower than the elevation required by Section 1612 of the International Building Code or Section R306 of the International Residential Code, as applicable, the code official shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The *code official* shall not grant modifications to any provision required in *flood hazard areas* ~~as established by Section 1612.3 of the *International Building Code*~~ unless a determination has been made that:

1. The applicant has presented ~~A showing of~~ good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions ~~the elevation standards~~ of Section 1612 of the *International Building Code* inappropriate.
2. ~~A determination that failure~~ Failure to grant the modification ~~variance~~ would result in exceptional hardship by rendering the lot undevelopable.
3. ~~A determination that the~~ The granting of the modification ~~a variance~~ will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. ~~A determination that the variance~~ The modification is the minimum necessary to afford relief, considering the flood hazard.
5. ~~Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.~~

Where a modification permits the lowest floor to be lower than the elevation required by Section 1612 of the International Building Code, the code official shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

2024 International Mechanical Code

Revise as follows:

104.2.4.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas~~, as established by Section 1612.3 of the *International Building Code*,~~ unless a determination has been made that:

1. The applicant has presented ~~A showing of~~ good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions ~~the elevation standards~~ of Section 1612 of the *International Building Code* inappropriate.
2. ~~A determination that failure~~ Failure to grant the modification ~~variance~~ would result in exceptional hardship by rendering the lot undevelopable.

3. ~~A determination that the~~ The granting of the modification ~~a variance~~ will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. ~~A determination that the variance~~ The modification is the minimum necessary to afford relief, considering the flood hazard.
5. ~~Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the *building* is to be built, stating that the cost of flood in-surance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.~~

Where a modification permits the lowest floor to be lower than the elevation required by Section 1612 of the International Building Code , the code official shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

2024 International Plumbing Code

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas ~~as established by Section 1612.3 of the *International Building Code*~~ unless a determination has been made that:

1. The applicant has presented ~~A showing of~~ good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions ~~the elevation standards~~ of Section 1612 of the *International Building Code* inappropriate.
2. ~~A determination that failure~~ Failure to grant the modification ~~variance~~ would result in exceptional hardship by rendering the lot undevelopable.
3. ~~A determination that the~~ The granting of the modification ~~a variance~~ will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. ~~A determination that the variance~~ The modification is the minimum necessary to afford relief, considering the flood hazard.
5. ~~Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.~~

Where a modification permits the lowest floor to be lower than the elevation required by Section 1612 of the International Building Code, the code official shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas ~~as established by Section 1612.3 of the *International Building Code*,~~ unless a determination has been made that:

1. The applicant has presented ~~A showing of~~ good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions ~~the elevation standards~~ of Section 1612 of the *International Building Code* inappropriate.
2. ~~A determination that failure~~ Failure to grant the modification ~~variance~~ would result in exceptional hardship by rendering the lot undevelopable.

3. ~~A determination that the~~ The granting of the modification ~~a variance~~ will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. ~~A determination that the variance~~ The modification is the minimum necessary to afford relief, considering the flood hazard.
5. ~~Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.~~

Where a modification permits the lowest floor to be lower than the elevation required by Section 1612 of the International Building Code, the code official shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas ~~as established by Section 1612.3 of the *International Building Code*~~ unless a determination has been made that:

1. The applicant has presented ~~A showing of~~ good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions ~~the elevation standards~~ of Section 1612 of the *International Building Code* inappropriate.
2. ~~A determination that failure~~ Failure to grant the modification ~~variance~~ would result in exceptional hardship by rendering the lot undevelopable.
3. ~~A determination that the~~ The granting of the modification ~~a variance~~ will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. ~~A determination that the variance~~ The modification is the minimum necessary to afford relief, considering the flood hazard.
5. ~~Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.~~

Where a modification permits the lowest floor to be lower than the elevation required by Section 1612 of the International Building Code, the code official shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

ADM23-25 Part I

ADM23-25 Part II

IBC: APPENDIX G, G106.7

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Building Code

APPENDIX G
FLOOD-RESISTANT CONSTRUCTION

Revise as follows:

G106.7 Conditions for issuance. *Variances* shall not~~only~~ be issued by the board ~~where all of the following criteria are met~~unless a determination has been made that:

1. The applicant has presented ~~A technical showing of~~ good and sufficient cause that the unique characteristics of the size, configuration or topography of the *site* render~~s the elevation standards~~ compliance with this appendix inappropriate.
2. ~~A determination that failure~~ Failure to grant the *variance* would result in exceptional hardship by rendering the *lot* undevelopable.
3. ~~A determination that the~~ The granting of a *variance* will not result in increased *flood* heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances.
4. ~~A determination that the~~ The *variance* is the minimum necessary to afford relief, considering the *flood* hazard~~, to afford relief~~.
5. ~~Notification to the applicant in writing over the signature of the floodplain administrator that the issuance of a *variance* to construct a *structure* below the *base flood* level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage, and that such construction below the *base flood* level increases risks to life and property.~~

Where a variance permits the lowest floor to be lower than the elevation required by Section 1612, the floodplain administrator shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

ADM23-25 Part II

ADM23-25 Part III

IRC: R104.2.3.1

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

Revise as follows:

R104.2.3.1 Flood hazard areas. The *building official* shall not grant modifications to any provisions required in flood hazard areas ~~as established by Table R301.2~~ unless a determination has been made that:

1. The applicant has presented ~~There is~~ good and sufficient cause ~~showing~~ that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions ~~the elevation standards~~ of Section R306 inappropriate.
2. Failure to grant the modification would result in exceptional hardship by rendering the lot undevelopable.
3. The granting of the modification will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. ~~Written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and stating that construction below the design flood elevation increases risks to life and property, has been submitted to the applicant.~~

Where a modification permits the lowest floor to be lower than the elevation required by Section R306, the building official shall provide a written notice to the applicant stating that the cost of federal flood insurance will be commensurate with the increased risk and that construction below the minimum required elevation increases risks to life and property.

Reason: This proposal is editorial to achieve consistent phrasing of similar sections across the IBC, IRC, IEBC, and IMC, IPC, IFGC, ISPSC, IPSDC for granting modifications (variances) to the flood-resistant provisions. The IBC, IRC and IEBC have had these sections for many editions. The sections were added by others to the IMC, IPC, IFGC, ISPSC, and IPSDC starting with the 2024 edition.

The term “variance” is used in floodplain management and is changed to the term “modification” which is used in the I-Codes. The existing list item (5), the written notification, is moved to an independent paragraph because, unlike the remaining four items, it does not require a determination. It is an action taken after a decision on a request for modification has been made.

The origin of this provision is in the regulations of the National Flood Insurance Program at 44 Code of Federal Regulations Section 60.6(a)(3), (4), and (5).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial to make language consistent across similar sections of multiple codes. There is no change to the technical content of the provisions. By making similar language more consistent there will be no cost impact when approving this proposal.

ADM23-25 Part III

ADM24-25

IFC: 104.2.4.2

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Fire Code

[A] 104.2.4.2 ~~Natural disasters~~ Disasters or Emergencies. In preparation for, during and after a ~~natural~~ disaster or other emergency event, as determined by the *fire code official*, the *fire code official* shall have the authority to issue written policies, procedures or rules that modify this code as necessary to protect life and property. Such policies, procedures or rules shall be made available to the public and shall include start and end dates, which can be extended at the *fire code official ' s* discretion.

Reason: A disaster may be natural or man made. The fire official needs to be able to respond to emergency events regardless of initial cause. There is an additional change that puts this section in the IBC and IEBC. It is the intent for all three sections to undergo this change.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

While this is not a change in construction requirements, by allowing for preplanning, this will most likely result in a reduction of cost. This will allow for a quicker response and for officials to work together, and averting additional costs.

ADM24-25

ADM25-25

IFC: 104.2.4.2

Proponents: Jonathan Flannery, representing Pandemic Task Force Code Development Working Group, PTF CDWG (jflannery@aha.org)

2024 International Fire Code

Revise as follows:

[A] 104.2.4.2 Natural disasters or public health emergencies. In preparation for, during and after a natural disaster event or a public health emergency, ~~as determined by the *fire code official*,~~the *fire code official* shall have the authority to issue written policies, procedures or rules that modify this code as necessary to protect life and property. Such policies, procedures or rules shall be made available to the public and shall include start and end dates, which can be extended at the *fire code official ' s* discretion.

Reason: The IFC Code Development Committee rejected proposal F153-24 in CAH #1 and CAH #2 that would allow the fire code official some enforcement flexibilities regarding occupant loads during specific events. At CAH #2, it was suggested by the committee that this should be located in section 104 of the IFC instead of chapter 10. The original proposal specifically noted allowances for increased or decreased occupant loads while maintaining the intended level of egress required by the code. Although this code change does not provide any specific parameters, the Pandemic Task Force Code Development Work Group recognized that both public health emergencies and natural disasters may require the fire code official to allow modifications and flexibilities for the public good at the same time provide protection of life and property that code intends. Based on the advice of the IFC Code Development Committee, this appear to be a reasonable application of the flexibility needed during these events and emergencies. Upon review of this code section, the PTF CDWG is also suggesting the deletion of a portion of the sentence that suggest the fire code official determines and, by default would declare either the public health emergency or the natural disaster. In the opinion of the group, the fire code official does not make this declaration and deletion of this portion of the sentence clarifies the role of the fire code official.

The ICC/NEHA Pandemic Task Force (PTF) was organized and tasked with researching the effects of the COVID-19 pandemic on the built environment and developing a roadmap and proposing needed resources – including guidelines, recommended practices, publications and updates to the International Codes® (I-Codes®) – that are necessary to overcome the numerous challenges that may be faced during future pandemics and to construct and manage safe, sustainable and affordable occupancy of the built environment. The ICC Pandemic Tak Force Code Development Work Group (PTF CDWG) has conducted a comprehensive review of current code requirements as they relate to the prevention of the transmission of diseases and other serious health concerns and suggested revisions to current code requirements based on this assessment.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds the intended public health emergency to help clarify that it was intended as part of natural disasters.

ADM25-25

ADM26-25 Part I

IBC: [A] 104.4.1; IEBC: [A] 104.4.1; IFC: [A] 104.4.1; IFGC: [A] 104.4.1; IGCC: 104.5.1; IMC®: 104.4.1; IPC: [A] 104.4.1; IPSDC: [A] 104.4.1; IPMC: 105.3.1; ISPSC: [A] 104.4.1

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Delete without substitution:

~~**[A] 104.4.1 Warrant.** Where the *building official* has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an *owner* , the *owner* 's authorized agent, occupant or *person* having charge, care or control of the *structure* or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the *building official* for the purposes of inspection and examination pursuant to this code.~~

2024 International Existing Building Code

Delete without substitution:

~~**[A] 104.4.1 Warrant.** Where the *code official* has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent, occupant or person having charge, care or control of the structure or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the *code official* for the purposes of inspection and examination pursuant to this code.~~

2024 International Fire Code

Delete without substitution:

~~**[A] 104.4.1 Warrant.** Where the *fire code official* has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an *owner*, the *owner's* authorized agent, occupant or person having charge, care or control of the structure or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the *fire code official* for the purposes of inspection and examination pursuant to this code.~~

2024 International Fuel Gas Code

Delete without substitution:

~~**[A] 104.4.1 Warrant.** Where the *code official* has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent, occupant or person having charge, care or control of the structure or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the *code official* for the purposes of inspection and examination pursuant to this code.~~

2024 International Green Construction Code

Delete without substitution:

~~**104.5.1 Warrant.** Where the authority having jurisdiction has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent, occupant or person having charge, care or control of the building or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the authority having jurisdiction for the purposes of inspection and examination pursuant to this code.~~

2024 International Mechanical Code

Delete without substitution:

~~**104.4.1 Warrant.** Where the code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent, occupant or person having charge, care or control of the structure or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the code official for the purposes of inspection and examination pursuant to this code.~~

2024 International Plumbing Code

Delete without substitution:

~~**[A] 104.4.1 Warrant.** Where the code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent, occupant or person having charge, care or control of the structure or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the code official for the purposes of inspection and examination pursuant to this code.~~

2024 International Private Sewage Disposal Code

Delete without substitution:

~~**[A] 104.4.1 Warrant.** Where the code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent, occupant or person having charge, care or control of the structure or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the code official for the purposes of inspection and examination pursuant to this code.~~

2024 International Property Maintenance Code

Delete without substitution:

~~**105.3.1 Warrant.** Where the code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent, occupant or *person* having charge, care or control of the structure or premises shall not fail or neglect, after proper a request is made as herein provided, to permit entry therein by the code official for the purposes of inspection and examination pursuant to this code.~~

2024 International Swimming Pool and Spa Code

Delete without substitution:

~~**[A] 104.4.1 Warrant.** Where the code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an owner, the owner's authorized agent or occupant or person having charge, care or control of the structure or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the code official for the purposes of inspection and examination pursuant to this code.~~

ADM26-25 Part I

ADM26-25 Part II

IRC: R104.4.1

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Delete without substitution:

~~**R104.4.1 Warrant.** Where the building code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an *owner*, the *owner*'s authorized agent, occupant or *person* having charge, care or control of the *structure* or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the building code official for the purposes of inspection and examination pursuant to this code.~~

Reason: The existing code language addresses obstruction of a warrant; a instrument of the court. Because warrants are governed under other laws, including the obstructions thereof, this section is outside of the scope of the building code, would not be used for a basic of a conviction, and is proposed to be deleted.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no cost impacts to the change. See the reason.

ADM26-25 Part II

ADM27-25 Part I

IBC: [A] 104.4; IEBC: [A] 104.4; IFC: [A] 104.4; IFGC: [A] 104.4; IGCC: 104.5; IMC®: [A] 104.4; IPC: [A] 104.4; IPSDC: [A] 104.4; IPMC: [A] 105.3; ISPSC: [A] 104.4; IWUIC: [A] 104.4

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *building official* has reasonable cause to believe that there exists in a *structure* or on a premises a condition that is contrary to or in violation of this code that makes the *structure* or premises unsafe, *dangerous* or hazardous, the *building official* is authorized to enter the *structure* or premises at all reasonable times to inspect or to perform the duties imposed by this code. ~~If such *structure* or premises is occupied, the *building official* shall present credentials to the occupant and request entry. If such *structure* or premises is unoccupied, the~~ The *building official* shall first make a reasonable effort to locate ~~the *owner*, the *owner*'s authorized agent or other~~ a *person* having apparent charge or control of the *structure* or premises and request entry. If entry is refused, or a *person* having apparent charge or control of the *structure* or premises is unable to be located, the *building official* shall have recourse to every remedy provided by law to secure entry.

2024 International Existing Building Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *code official* has reasonable cause to believe that there exists in a structure or on any premises a condition that is contrary to or in violation of this code that makes the structure or premises *unsafe*, *dangerous* or hazardous, the *code official* is authorized to enter the structure or premises at all reasonable times to inspect or to perform the duties imposed by this code. ~~If such structure or premises is occupied, the code offical shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The *code official* shall first make a reasonable effort to locate ~~the owner, the owner's authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If entry is refused,or a *person* having apparent charge or control of the *structure* or premise is unable to be located,the *code official* shall have recourse to every remedy provided by law to secure entry.

2024 International Fire Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *fire code official* has reasonable cause to believe that there exists in a structure or on any premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *fire code official* is authorized to enter the structure or premises at all reasonable times to inspect or to perform the duties imposed on the *fire code official* by this code. ~~If such structure or premises is occupied, the *fire code official* shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The*fire code official* shall first make a reasonable effort to locate ~~the *owner*, the *owner 's* authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If entry is refused,or a *person* having apparent charge or control of the *structure* or premise is unable to be located, the *fire code official* shall have recourse to every remedy provided by law to secure entry.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *code official* has reasonable cause to believe that there exists in a structure or on anypremises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *code official* is authorized to enter the structure or premises at all reasonable times to inspect or to perform the duties imposed by this code. ~~If such structure or premises is occupied, the *code official* shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ the code official shall first make a reasonable effort to locate ~~the owner, the owner's authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If entry is refused or a *person* having apparent charge or control of the *structure* or premise is unable to be located, the code official shall have recourse to every remedy provided by law to secure entry.

2024 International Green Construction Code

Revise as follows:

104.5 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the authority having jurisdiction has reasonable cause to believe that there exists in a structure or on a premises any conditions or violations of this code that make the structure or premises unsafe, dangerous or hazardous, the authority having jurisdiction shall have the authority to enter the structure or premises at all reasonable times to inspect or to perform the duties imposed on the authority having jurisdiction by this code. ~~If such structure or premises is occupied, the authority having jurisdiction shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The authority having jurisdiction shall first make a reasonable effort to locate ~~the owner, the owner's authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If entry is refused, or a *person* having apparent charge or control of the *structure* or premise is unable to be located, the authority having jurisdiction shall have recourse to every remedy provided by law to secure entry.

2024 International Mechanical Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the code official has reasonable cause to believe that there exists in a structure or on any premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the code official is authorized to enter the structure or premises at all reasonable times to inspect or to perform the duties imposed by this code. ~~If such structure or premises is occupied, the code official shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The code official shall first make a reasonable effort to locate ~~the owner, the owner's authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If entry is refused, or a *person* having apparent charge or control of the *structure* or premise is unable to be located, the code official shall have recourse to every remedy provided by law to secure entry.

2024 International Plumbing Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the code official has reasonable cause to believe that there exists in a structure or on any premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the code official is authorized to enter the structure or premises at all reasonable times to inspect or to perform the duties imposed by this code. ~~If such structure or premises is occupied, the code official shall present credentials to the occupant and request entry.If such building or premises is occupied, the code official shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The code official shall first make a reasonable effort to locate ~~the owner, the owner's authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If entry is refused, or a *person* having apparent charge or control of the *structure* or premise is unable to be located, the code official shall have recourse to every remedy provided by law to secure entry.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the code official has reasonable cause to believe that there exists in a structure or on any premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the code official is authorized to enter the structure or premises at all reasonable times to inspect or to perform the duties imposed by this code. ~~If such structure or premises is occupied, the code official shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The code official shall first make a reasonable effort to locate ~~the owner, the owner's authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If entry is refused, or a *person* having charge or control of the *structure* or premise is unable to be located, the code official shall have recourse to every remedy provided by law to secure entry.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.3 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *code official* has reasonable cause to believe that there exists in a *structure* or on any *premises* a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *code official* is authorized to enter the *structure* or *premises* at all reasonable times to inspect or perform the duties imposed by this code. ~~If such *structure* or *premises* is occupied, the *code official* shall present credentials to the *occupant* and request entry. If such *structure* or *premises* is unoccupied, the~~ The *code official* shall first make a reasonable effort to locate ~~the *owner*, *owner*'s authorized agent or other~~ a *person* having apparent charge or control of the *structure* or *premises* and request entry. If entry is refused, or a *person* having apparent charge or control of the *structure* or premise is unable to be located, the *code official* shall have recourse to every remedy provided by law to secure entry.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *code official* has reasonable cause to believe that there exists in a structure or on a premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *code official* is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code. ~~If such structure or premises is occupied, the code official shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The code official shall first make a reasonable effort to locate ~~the owner, the owner's authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If entry is refused, or a *person* having apparent charge or control of the *structure* or premise is unable to be located, the code official shall have recourse to every remedy provided by law to secure entry.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *code official* has reasonable cause to believe that there exists in a structure or on any premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *code official* is authorized to enter the structure or premises at all reasonable times to inspect or to perform the duties imposed by this code. ~~If such structure or premises is occupied, the *code official* shall present proper credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The *code official* shall first make a reasonable effort to locate ~~the owner, the owner's authorized agent or other~~ a person having apparent charge or control of the structure or premises and request entry. If such entry is refused,or a *person* having apparent charge or control of the *structure* or premise is unable to be located, then the *code official* shall have recourse to every remedy provided by law to secure entry.

ADM27-25 Part I

ADM27-25 Part II

IRC: R104.4

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

R104.4 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *building official* has reasonable cause to believe that there exists in a *structure* or on any premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *building official* is authorized to enter the *structure* or premises at all reasonable times to inspect or to perform the duties imposed by this code. ~~If such structure or premises is occupied, the *building official* shall present credentials to the occupant and request entry. If such structure or premises is unoccupied, the~~ The *building official* shall first make a reasonable effort to locate ~~the *owner*, the *owner*'s authorized agent, or other~~ a *person* having apparent charge or control of the structure or premises and request entry. If entry is refused, or a *person* having apparent charge or control of the *structure* or premise is unable to be located, the *building official* shall have recourse to every remedy provided by law to secure entry.

Reason: The proposed amendments to Section 104.4 "Right of Entry" aims to enhance clarity, efficiency, and compliance with constitutional standards. The deletion of specifics regarding occupancy simplifies the entry procedure, ensuring a uniform approach that reflects broader Fourth Amendment principles; privacy rights should be consistent regardless of whether a property is occupied or not. The introduction of "apparent" charge and control aligns the code with Illinois v. Rodriguez (1990), where the Supreme Court clarified that consent from someone with apparent authority over the premises is valid. Code officials should be well-versed in this case, however this code change will likely necessitate refreshing.

By consolidating specific persons - "the owner, the owner's authorized agent or other [etc.]" - to "a person having apparent charge or control," the amendment removes redundancy and arguable burden of proving formal authorization, focusing instead on practical control, which is more in line with Illinois v. Rodriguez. The clarification on unsuccessful entry maintains the provision for officials to use legal remedies when consent is not forthcoming or when no one with apparent control can be located; the proposed language reinforces the intent in this aspect.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change clarifies administrative provisions to reduce complexity and delete potential search consent issues; there is no direct cost impact.

ADM27-25 Part II

ADM28-25 Part I

IBC: [A] 104.7, [A] 104.7.1, [A] 104.7.2, [A] 104.7.3, [A] 104.7.4, [A] 104.7.5, [A] 107.5; IEBC: [A] 104.7, [A] 104.7.1, [A] 104.7.2, [A] 104.7.3, [A] 104.7.4, [A] 104.7.5, [A] 106.5; IFC: [A] 104.7, [A] 104.7.1, [A] 104.7.2, 104.7.3, [A] 104.7.4, [A] 104.7.5, [A] 104.7.6, [A] 106.4 (New); IFGC: [A] 104.7, [A] 104.7.1, [A] 104.7.2, [A] 104.7.3, [A] 104.7.4, [A] 104.7.5, [A] 106.2 (New); IGCC: 104.8, 104.8.1, 104.8.2, 104.8.3, 104.8.4, 104.8.5; IMC®: [A] 104.7, 104.7.1, 104.7.2, 104.7.3, 104.7.4, 104.7.5, [A] 106.2; IPC: [A] 104.7, [A] 104.7.1, [A] 104.7.2, [A] 104.7.3, [A] 104.7.4, [A] 104.7.5, [A] 106.2 (New); IPSDC: [A] 104.7, [A] 104.7.1, [A] 104.7.2, [A] 104.7.3, [A] 104.7.4, [A] 104.7.5, [A] 107.2 (New); IPMC: [A] 105.6, [A] 105.6.1, [A] 105.6.2, [A] 105.6.3, [A] 105.6.4, [A] 105.6.5; ISPSC: [A] 104.7, [A] 104.7.1, [A] 104.7.2, [A] 104.7.3, [A] 104.7.4, [A] 104.7.5, [A] 107.2 (New); IWUIC: [A] 104.7, [A] 104.7.1, [A] 104.7.2, [A] 104.7.3, [A] 104.7.4, [A] 104.7.5, [A] 105.9, [A] 106.8, 405.4

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.7 Official records. The *building official* shall keep ~~official~~ records of the agency as required by Sections 104.7.1 through 104.7.5. Such ~~official~~ records shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~for not less than 5 years or for as long as the building or *structure* to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 104.7.1 Approvals**. A record of approvals shall be maintained by the *building official* and shall be available for public inspection during business hours in accordance with applicable laws.~~

[A] 104.7.1 Approvals. The *building official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.

Revise as follows:

[A] 104.7.2 Inspections. The *building official* shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ and the findings and disposition of each.

[A] 104.7.3 Code alternatives and modifications. The *building official* shall keep a record of each application, and the final determination of each application, ~~Application~~ for alternative materials, design and methods of construction and equipment submitted in accordance with Section 104.2.3~~;~~ and modifications submitted in accordance with Section 104.2.4~~; and documentation of the final decision of the *building official* for either shall be in writing and shall be retained in the official records~~.

[A] 104.7.4 Tests. The *building official* shall ~~keep a~~ record ~~of tests~~ test information submitted ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.3.5.

[A] 104.7.5 Fees. The *building official* shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 109.

Delete without substitution:

~~**[A] 107.5 Retention of construction documents.** One set of *approved construction documents* shall be retained by the *building official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~

2024 International Existing Building Code

Revise as follows:

[A] 104.7 ~~Official~~ Agency records. The *code official* shall keep ~~official~~ records of the agency as required by Sections 104.7.1 through 104.7.5. Such official records shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~for not less than 5 years or for as long as the structure or activity to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 104.7.1 Approvals.** A record of approvals shall be maintained by the *code official* and shall be available for public inspection during business hours in accordance with applicable laws.~~

[A] 104.7.1 Approvals. The code official shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.

Revise as follows:

[A] 104.7.2 Inspections. The *code official* shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ and the findings and disposition of each.

[A] 104.7.3 Code alternatives and modifications. The *code official* shall keep a record of each application, and the final determination of each application, ~~Application~~ for alternative materials, design and methods of construction and equipment submitted in accordance with Section 104.2.3~~;~~ and modifications submitted in accordance with Section 104.2.4~~; and documentation of the final decision of the *building official* for either shall be in writing and shall be retained in the official records~~.

[A] 104.7.4 Tests. The *code official* shall ~~keep a~~ record ~~of tests~~ test information submitted ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.3.5.

[A] 104.7.5 Fees. The *code official* shall ~~keep a~~ record ~~of~~ fees collectedand refunded in accordance with Section 108.

Delete without substitution:

~~**[A] 106.5 Retention of construction documents.** One set of *approved* construction documents shall be retained by the *code official* for a period of not less than the period required for retention of public records.~~

2024 International Fire Code

Revise as follows:

[A] 104.7 ~~Official~~ Agency records. The *fire code official* shall keep ~~official~~ records of the agency as required by Sections 104.7.1 through 104.7.6. Such ~~official~~ records shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~for not less than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 104.7.1 Approvals.** A record of approvals shall be maintained by the *fire code official* and shall be available for public inspection during business hours in accordance with applicable laws.~~

[A] 104.7.1 Approvals. The fire code official shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.

Revise as follows:

[A] 104.7.2 Inspections. The *fire code official* shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ and the findings and disposition of each.

104.7.3 Fire records. The *fire* code ~~offical~~ official shall ~~keep a~~ record ~~of~~ fires occurring within its jurisdiction and of facts concerning the same, including statistics as to the extent of such fires and the damage caused thereby, together with other information as required by the *fire code official*.

[A] 104.7.4 Code alternatives and modifications. The fire code official shall keep a record of each application, and the final determination of each application, ~~Application~~ for alternative materials, design and methods of construction and equipment submitted in accordance with Section 104.2.3~~;~~ and each modifications submitted in accordance with Section 104.2.4~~; and documentation of the final decision of the *fire code official* for either shall be in writing and shall be retained in the official records~~.

[A] 104.7.5 Tests. The *fire code official* shall ~~keep a~~ record ~~of tests~~ test information submitted ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.3.5.

[A] 104.7.6 Fees. The *fire code official* shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 108.

[A] 106.4 Retention of construction documents. ~~One set of *construction documents* shall be retained by the *fire code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~ One set of *approved construction documents* shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.7 ~~Official~~ Agency records. The *code official* shall keep ~~official~~ records of the agency as required by Sections 104.7.1 through 104.7.5. Such ~~official~~ records shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction~~for not less than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 104.7.1 Approvals.**. A record of approvals shall be maintained by the *code official* and shall be available for public inspection during business hours in accordance with applicable laws.~~

[A] 104.7.1 Approvals. The *code official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.

Revise as follows:

[A] 104.7.2 Inspections. ~~The *code official* shall have the authority to conduct inspections, or shall accept reports of inspection by *approved agencies* or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such *approved agency* or by the responsible individual.~~ The *code official* shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ and the findings and disposition of each.

[A] 104.7.3 Code alternatives and modifications. The *code official* shall keep a record of each application, and the final determination of each application,~~Application~~ for alternative materials, design and methods of construction and *equipment* submitted in accordance with Section 104.2.3~~;~~ and modifications submitted in accordance with Section 104.2.4~~; and documentation of the final decision of the *code official* for either shall be in writing and shall be retained in the official records.~~

[A] 104.7.4 Tests. The *code official* shall ~~keep a~~ record ~~of tests~~ test information submitted ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.3.5.

[A] 104.7.5 Fees. The *code official* shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 108.

[A] 106.2 Retention of construction documents. ~~One set of *approved construction documents* shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~ One set of *approved construction documents* shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

2024 International Green Construction Code

Revise as follows:

104.8 ~~Official~~ Agency records. The authority having jurisdiction shall keep ~~official~~ records of the agency as required by Sections 104.8.1 through 104.8.5. Such ~~official~~ records shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~for not less than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**104.8.1 Approvals**. A record of approvals shall be maintained by the authority having jurisdiction and shall be available for public inspection during business hours in accordance with applicable laws.~~

104.8.1 Approvals. The *authority having jurisdiction*shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.

Revise as follows:

104.8.2 Inspections. The code official shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ and the findings and disposition of each.

104.8.3 Code alternatives and modifications. The *code official* shall keep a record of each application, and the final determination of each application.~~Application~~ for alternative materials, design and methods of construction and equipment submitted in accordance with Section 104.2.5~~;~~ and modifications submitted in accordance with Section 104.2.6~~; and documentation of the final decision of the authority having jurisdiction for either shall be in writing and shall be retained in the official records~~.

104.8.4 Tests. The authority having jurisdictionshall ~~keep a~~ record ~~of tests~~ test information submitted ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.5.5.

104.8.5 Fees. The authority having jurisdiction shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 108.

2024 International Mechanical Code

Revise as follows:

[A] 104.7 ~~Official~~ Agency records. The code official shall keep ~~official~~ records of the agency as required by Sections 104.7.1 through 104.7.5. Such ~~official~~ records shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~for not less than 5 years or for as long as the *building* or structure to which such records relate remains in existence, unless~~

~~otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**104.7.1 Approvals.** A record of approvals shall be maintained by the code official and shall be available for public inspection during business hours in accordance with applicable laws.~~

<u>**104.7.1**</u> <u>**Approvals.**</u> <u>The *code official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.</u>

Revise as follows:

104.7.2 Inspections. ~~The code official shall have the authority to conduct inspections, or shall accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual.~~ The code official shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ <u>and</u> the findings and disposition of each.

104.7.3 Code alternatives and modifications. <u>The *code official* shall keep a record of each application, and the final determination of each application.</u>~~Application~~ for alternative materials, design and methods of construction and *equipment* <u>submitted</u> in accordance with Section 104.2.3~~;~~ <u>and</u> modifications in accordance with Section 104.2.4~~; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records~~.

104.7.4 Tests. The *code official* shall ~~keep a~~ record ~~of tests~~ <u>test information submitted</u> ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.3.5.

104.7.5 Fees. The code official shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 108.

[A] 106.2 Retention of construction documents. ~~One set of *approved construction documents* shall be retained by the code official for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~ One set of *approved construction documents* shall be returned to the applicant, and said set shall be kept on the site of the *building* or job at all times during which the work authorized thereby is in progress.

2024 International Plumbing Code

Revise as follows:

[A] 104.7 ~~Official~~ <u>Agency</u> records. The code official shall keep ~~official~~ records <u>of the agency</u> as required by Sections 104.7.1 through 104.7.5. Such ~~official~~ records shall be retained <u>and made available to the public where required by the laws and ordinances of this jurisdiction</u> ~~for not less than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 104.7.1 Approvals.** A record of approvals shall be maintained by the code official and shall be available for public inspection during business hours in accordance with applicable laws.~~

<u>**[A]**</u> <u>**104.7.1**</u> <u>**Approvals.**</u> <u>The *code official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.</u>

Revise as follows:

[A] 104.7.2 Inspections. ~~The code official shall have the authority to conduct inspections, or shall accept reports of inspection by~~

~~approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual.~~ The code official shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ <u>and</u> the findings and disposition of each.

[A] 104.7.3 Code alternatives and modifications. <u>The *code official* shall keep a record of each application, and the final determination of each application,</u>~~Application~~ for alternative materials, design and methods of construction and equipment <u>submitted</u> in accordance with Section 104.2.3~~;~~ <u>and</u> modifications <u>submitted</u> in accordance with Section 104.2.4~~; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records~~.

[A] 104.7.4 Tests. The *code official* shall ~~keep a~~ record ~~of tests~~ <u>test information submitted</u> ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.3.5.

[A] 104.7.5 Fees. The code official shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 108.

[A] 106.2 Retention of construction documents. ~~One set of *approved* construction documents shall be retained by the code official for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~One set of *approved* construction documents shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.7 ~~Official~~ <u>Agency</u> records. The code official shall keep ~~official~~ records <u>of the agency</u> as required by Sections 104.7.1 through 104.7.5. Such ~~official~~ records shall be retained <u>and made available to the public where required by the laws and ordinances of this jurisdiction</u> ~~for not less than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 104.7.1 Approvals**. A record of approvals shall be maintained by the code official and shall be available for public inspection during business hours in accordance with applicable laws.~~

<u>**[A] 104.7.1 Approvals.** The *code official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.</u>

Revise as follows:

[A] 104.7.2 Inspections. ~~The code official shall have the authority to conduct inspections, or shall accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual.~~ The code official shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ <u>and</u> the findings and disposition of each.

[A] 104.7.3 Code alternatives and modifications. <u>The *code official* shall keep a record of each application, and the final determination of each application,</u>~~Application~~ for alternative materials, design and methods of construction and equipment <u>submitted</u> in accordance with Section 104.2.3~~;~~ <u>and</u> modifications <u>submitted</u> in accordance with Section 104.2.4~~; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records~~.

[A] 104.7.4 Tests. The *code official* shall ~~keep a~~ record ~~of tests~~ <u>test information submitted</u> ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.3.5.

[A] 104.7.5 Fees. The code official shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 106.

[A] 107.2 Retention of construction documents..

~~One set of approved *construction documents* shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~ One set of approved *construction documents* shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.6 ~~Official~~ Agency records. The *code official* shall keep ~~official~~ records of the agency as required by Sections 105.6.1 through 105.6.5. Such ~~official~~ records shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~for not less than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 105.6.1 Approvals.** A record of approvals shall be maintained by the code official and shall be available for public inspection during business hours in accordance with applicable laws.~~

[A] 105.6.1 Approvals. The *code official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.

Revise as follows:

[A] 105.6.2 Inspections. ~~The code official shall have the authority to conduct inspections, or shall accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual.~~ The code official shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ and the findings and disposition of each.

[A] 105.6.3 Code alternatives and modifications. The *code official* shall keep a record of each application, and the final determination of each application.~~Application~~ for alternative materials, design and methods of construction and equipment submitted in accordance with Section 105.2.2~~;~~ and modifications submitted in accordance with Section 105.2.3~~; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records~~.

[A] 105.6.4 Tests. The *code official* shall ~~keep a~~ record ~~of tests~~ test information submitted ~~conducted~~ to comply with Sections 105.2.1.4 and 105.2.2.5.

[A] 105.6.5 Fees. The code official shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 104.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.7 ~~Official~~ Agency records. The code official shall keep ~~official~~ records as required by Sections 104.7.1 through 104.7.5. Such ~~official~~ records shall be retained for not less and made available to the public where required by the laws and ordinances of this jurisdiction ~~than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 104.7.1 Approvals**. A record of approvals shall be maintained by the code official and shall be available for public inspection during business hours in accordance with applicable laws.~~

<u>**[A] 104.7.1 Approvals.** The *code official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.</u>

Revise as follows:

[A] 104.7.2 Inspections. ~~The code official shall have the authority to conduct inspections, or shall accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual.~~ The code official shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ <u>and</u> the findings and disposition of each.

[A] 104.7.3 Code alternatives and modifications. <u>The *code official* shall keep a record of each application, and the final determination of each application,</u>~~Application~~ for alternative materials, design and methods of construction and equipment <u>submitted</u> in accordance with Section 104.2.3~~;~~ <u>and</u> modifications <u>submitted</u> in accordance with Section 104.2.4~~; and documentation of the final decision of the code official for either shall be in writing and shall be retained in the official records~~.

[A] 104.7.4 Tests. The *code official* shall ~~keep a~~ record ~~of tests~~ <u>test information submitted</u> ~~conducted~~ to comply with Sections 104.2.2.4 and 104.2.3.5.

[A] 104.7.5 Fees. The code official shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 109.

[A] 107.2 Retention of construction documents.

~~One set of approved *construction documents* shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~ One set of approved *construction documents* shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.7 ~~Official~~ <u>Agency</u> records. The *code official* shall keep ~~official~~ records <u>of the agency</u> as required by Sections 104.7.1 through 104.7.5. Such ~~official~~ records shall be retained <u>and made available to the public where required by the laws and ordinances of this jurisdiction</u> ~~for not less than 5 years or for as long as the structure or activity to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**[A] 104.7.1 Approvals**. A record of approvals shall be maintained by the *code official* and shall be available for public inspection during business hours in accordance with applicable laws.~~

<u>**[A] 104.7.1 Approvals.** The *code official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.</u>

Revise as follows:

[A] 104.7.2 Inspections. The *code official* shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ <u>and</u> the findings and disposition of each.

[A] 104.7.3 Code alternatives and modifications. The *code official* shall keep a record of each application, and the final determination of each application.~~Application~~ for alternative materials, design and methods of construction and equipment submitted in accordance with Section 104.2.2~~;~~ and modifications in accordance with Section 104.2.3~~; and documentation of the final decision of the *code official* for either shall be in writing and shall be retained in the official records~~.

[A] 104.7.4 Tests. The *code official* shall ~~keep a~~ record ~~of tests~~ test information submitted ~~conducted~~ to comply with Sections 104.2.1.4 and 104.2.2.5.

[A] 104.7.5 Fees. The *code official* shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section 108.

Delete without substitution:

~~**[A] 105.9 Retention of permits.**~~ ~~Permits shall at all times be kept on the premises designated therein and shall at all times be subject to inspection by the *code official* or other authorized representative.~~

Revise as follows:

[A] 106.8 Retention of plans. ~~One set of *approved* plans, specifications and computations shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work or as required by state or local laws;~~ and one set of *approved* plans and specifications shall be returned to the applicant, and said set shall be kept on the site of the building, use or work at all times during which the work authorized thereby is in progress.

Delete without substitution:

~~**405.4 Plan retention.**~~ ~~The *fire protection plan* shall be retained by the *code official*.~~

ADM28-25 Part I

ADM28-25 Part II

IRC: R104.7, R104.7.1, R104.7.2, R104.7.3, R104.7.4, R104.7.5, R106.5, APPENDIX BA, BA106.2

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

R104.7 ~~Official~~ Agency records. The *building official* shall keep ~~official~~ records of the agency as required in Sections R104.7.1 through R104.7.5. Such ~~official~~ records shall be retained and made available to the public where required by the laws and ordinances of this jurisdiction ~~for not less than 5 years or for as long as the building or structure to which such records relate remains in existence, unless otherwise provided by other regulations~~.

Delete and substitute as follows:

~~**R104.7.1 Approvals.** A record of approvals shall be maintained by the *building official* and shall be available for public inspection during business hours in accordance with applicable laws.~~

R104.7.1 Approvals. The *building official* shall record each approval issued, including notices and orders issued, showing the finding and disposition of each.

Revise as follows:

R104.7.2 Inspections. ~~The code official shall have the authority to conduct inspections, or shall accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency or by the responsible individual.~~ The *building official* shall ~~keep a~~ record ~~of~~ each inspection made, including notices and orders issued, ~~showing~~ and the findings and disposition of each.

R104.7.3 Code alternatives and modifications. The *building official* shall keep a record of each application, and the final determination of each application,~~Application~~ for alternative materials, design and methods of construction and equipment submitted in accordance with Section R104.2.2~~;~~ and modifications submitted in accordance with Section R104.2.3~~; and documentation of the final decision of the *building official* for either shall be in writing and shall be retained in the official records~~.

R104.7.4 Tests. ~~Tests.~~ The *building official* shall ~~keep a~~ record ~~of tests~~ test information submitted ~~conducted~~ to comply with Sections R104.2.2.5.

R104.7.5 Fees. The *building official* shall ~~keep a~~ record ~~of~~ fees collected and refunded in accordance with Section R108.

Delete without substitution:

~~**R106.5 Retention of construction documents.** One set of *approved construction documents* shall be retained by the *building official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~

APPENDIX BA
MANUFACTURED HOUSING USED AS DWELLINGS

~~**BA106.2 Retention of plans.** One set of *approved* plans and specifications shall be returned to the applicant and shall be kept on the site of the *building* or work at all times during which the work authorized thereby is in progress. One set of *approved* plans, specifications and computations shall be retained by the *building official* until final approval of the work.~~

Reason: This code change removes the default 5-year record retention period, clarifying that records must be retained and made available to the public solely according to local laws and ordinances, along with various editorial changes.

Virtually every jurisdiction has established record retention schedules, whether locally or at the state level. The previous 5-year default could cause confusion, as officials might misinterpret it as a minimum requirement, potentially overriding local laws with shorter retention times leading to unintentional non-compliance. Additionally, the public could be misled about actual retention periods, hindering access to information and creating over-reliance on agencies to maintain building records that should ultimately be the owner's responsibility.

Removing the default emphasizes that local laws are the sole authority on record retention. This simplifies the code and encourages code officials and the public to refer to the proper authority for records retention.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes in this code are editorial and emphasizes the codes existing deference to other laws and ordinances.

ADM28-25 Part II

ADM29-25 Part I

IBC: [A] 104.9.1; IEBC: [A] 104.9.1; IFC: [A] 104.9.1; IFGC: [A] 104.9.1; IGCC: 104.10.1; IMC®: [A] 104.9.1; IPC: [A] 104.9.1; IPSDC: [A] 104.9.1; IPMC: [A] 105.8.1; ISPSC: [A] 104.9.1; IWUIC: [A] 104.9.1

Proponents: Kevin Scott, KH Scott & Associates LLC, representing self (khscottassoc@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Existing Building Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Fire Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse~~.~~. Materials, *equipment* and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.

2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Green Construction Code

Revise as follows:

104.10.1 Material, product and equipment reuse. Materials, products, equipment and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Mechanical Code

Revise as follows:

[A] 104.9.1 Material and equipment reuse. Materials, *equipment* and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Plumbing Code

Revise as follows:

[A] 104.9.1 Material and equipment reuse. Materials, equipment and devices shall not be reused unless such elementscomply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elementsare in good working condition, ~~and~~*approved*, and used in the same type of application as the original installation.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.

2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.8.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

ADM29-25 Part I

ADM29-25 Part II

IRC: R104.9.1

Proponents: Kevin Scott, KH Scott & Associates LLC, representing self (khscottassoc@gmail.com)

2024 International Residential Code

Revise as follows:

R104.9.1 Materials and equipment reuse. Materials, *equipment* and devices shall not be reused unless such elements comply with at least one of the following:

1. The elements are listed as rebuilt equipment and installed in accordance with the listing, the manufacturer's installation instructions and this code.
2. The elements are in good working condition, ~~and~~ *approved*, and used in the same type of application as the original installation.

Reason: The reuse of materials, equipment and devices is very common for a variety of reasons. Those reasons include sustainability, cost, availability of products, installation design, or a product is no longer manufactured. A product that can meet the needs of the owner and still perform the desired functions should not be prohibited just because of being an existing item.
However, guidance and tools to provide approval for their reuse are needed. Current language in Chapter 1 requires reused materials to be in good working condition and to be approved. Certain factors need to be considered before such approval.
Equipment and devices that are recertified to be in accordance with the listing standard are included in Item 1. These items are listed as rebuilt equipment and should be allowed based on the additional listing.

Equipment and devices can also be approved in Item 2 provided they are in good working condition, approved by the code official, and reused in the same application as the original installation. For example, this would allow faucets on a sink to be reinstalled as faucets on a sink provided they are in good working condition. It would not allow gas piping to be reinstalled as water piping.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0. This proposal presents the ability to reuse materials rather than purchase new.

Estimated Immediate Cost Impact Justification (methodology and variables):

The fact that this revision allows for the reuse of materials would reduce the cost of construction because new materials would not need to be purchased. There could be a cost to have the previously used material evaluated, examined or tested. The cost for this analysis would be measured against the cost of purchasing new materials or equipment. The owner has the option to choose which path to follow.

ADM29-25 Part II

ADM30-25 Part I

IBC: [A] 104.9.1, [A] 104.9.1.1 (New), [A] 104.9.1.1.1 (New), [A] 104.9.1.2 (New); IEBC: [A] 104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New); IFC: [A] 104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New); IFGC: [A] 104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New); IMC®: [A] 104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New); IPC: [A] 104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New); IPSDC: [A] 104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New); IPMC: [A] 105.8.1, 105.8.1.1 (New), 105.8.1.1.1 (New), 105.8.1.2 (New); ISPSC: [A] 104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New); IWUIC: [A] 104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New)

Proponents: John Taecker, Taecker Codes & Technical Services, representing Taecker Codes & Technical Services (john@taeckercodes.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless ~~such elements are in good working condition and~~ approved <u>in accordance with Sections 104.9.1.1 through 104.9.1.2.</u>

Add new text as follows:

<u>**[A] 104.9.1.1 Condition of reused materials, equipment and devices.** Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:</u>

1. <u>Not damaged, broken, or deteriorated.</u>
2. <u>Reused in the same type of application.</u>
3. <u>In good working condition.</u>
4. <u>Installed and used in compliance with this code.</u>

<u>**[A] 104.9.1.1.1 Electrical equipment exposed to fire or water.** Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.</u>

> <u>**Exception:** Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.</u>

<u>**[A] 104.9.1.2 Required inspection.** The *building official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.</u>

2024 International Existing Building Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements are ~~in good working condition and~~ *approved* <u>in accordance with Sections 104.9.1.1 through 104.9.1.2.</u>

Add new text as follows:

104.9.1.1 **Condition of reused materials, equipment and devices.** Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

104.9.1.1.1 Condition of reused materials, equipment and devices. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

Exception: Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 Required inspection. The *code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

2024 International Fire Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements are ~~in good working order and~~ *approved* in accordance with Sections 104.9.1.1 through 104.9.1.2.

Add new text as follows:

104.9.1.1 **Condition of reused materials, equipment and devices.** Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

104.9.1.1.1 **Electrical equipment exposed to fire or water.** Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

Exception: Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 **Required inspection.** The *fire code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

2024 International Fuel Gas Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse.. Materials, *equipment* and devices shall not be reused unless such elements are ~~in good working condition and~~ *approved* in accordance with Sections 104.9.1.1 through 104.9.1.2. .

Add new text as follows:

104.9.1.1 Condition of reused materials, equipment and devices. Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition
4. Installed and used in compliance with this code

104.9.1.1.1 Electrical equipment exposed to fire or water. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

Exception: Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 Required inspection. The *code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

2024 International Mechanical Code

Revise as follows:

[A] 104.9.1 Material and equipment reuse. Materials, *equipment* and devices shall not be reused unless such elements are ~~in good working condition and~~ *approved* in accordance with Sections 104.9.1.1 through 104.9.1.2.

Add new text as follows:

104.9.1.1 Condition of reused materials, equipment and devices. Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

104.9.1.1.1 Electrical equipment exposed to fire or water. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

> **Exception:** Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 Required inspection. The *code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

2024 International Plumbing Code

Revise as follows:

[A] 104.9.1 Material and equipment reuse. Materials, equipment and devices shall not be reused unless such elements are ~~in good working condition and~~ *approved* in accordance with Sections 104.9.1.1 through 104.9.1.2.

Add new text as follows:

104.9.1.1 Condition of reused materials, equipment and devices. Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

104.9.1.1.1 Electrical equipment exposed to fire or water. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

> **Exception:** Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 Required inspection. The *code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements are ~~in good working condition and~~ approved in accordance with Sections 104.9.1.1 through 104.9.1.2..

Add new text as follows:

104.9.1.1 Condition of reused materials, equipment and devices. Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

104.9.1.1.1 Electrical equipment exposed to fire or water. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

Exception: Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 Required inspection. The *code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

2024 International Property Maintenance Code

Revise as follows:

[A] 105.8.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements are ~~in good working condition and~~ approved in accordance with Sections 105.8.1.1 through 105.8.1.2. .

Add new text as follows:

105.8.1.1 Condition of reused materials, equipment and devices. Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

105.8.1.1.1 Electrical equipment exposed to fire or water. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

Exception: Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

105.8.1.2 Required inspection. The *code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements are ~~in good working condition and~~ approved in accordance with Sections 104.9.1.1 through 104.9.1.2..

Add new text as follows:

104.9.1.1 Condition of reused materials, equipment and devices. Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

104.9.1.1.1 Electrical equipment exposed to fire or water. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

Exception: Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 Required inspection. The *code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 104.9.1 Materials and equipment reuse. Materials, equipment and devices shall not be reused unless such elements are ~~in good working order and~~ *approved* in accordance with Sections 104.9.1.1 through 104.9.1.2..

Add new text as follows:

104.9.1.1 Condition of reused materials, equipment and devices. Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

104.9.1.1.1 Electrical equipment exposed to fire or water. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

Exception: Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 Required inspection. The *code official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

ADM30-25 Part I

ADM30-25 Part II

IRC: R104.9.1, 104.9.1.1 (New), 104.9.1.1.1 (New), 104.9.1.2 (New)

Proponents: John Taecker, Taecker Codes & Technical Services, representing Taecker Codes & Technical Services (john@taeckercodes.com)

2024 International Residential Code

Revise as follows:

R104.9.1 Materials and equipment reuse. Materials, *equipment* and devices shall not be reused unless such elements are ~~in good working condition and~~ *approved* in accordance with Sections 104.9.1.1 through 104.9.1.2. .

Add new text as follows:

104.9.1.1 Condition of reused materials, equipment and devices. Materials, equipment and devices are permitted to be reused where such elements meet all of the following conditions:

1. Not damaged, broken, or deteriorated.
2. Reused in the same type of application.
3. In good working condition.
4. Installed and used in compliance with this code.

104.9.1.1.1 Electrical equipment exposed to fire or water. Electrical equipment, appliances or devices that have been exposed to fire or water shall not be permitted to be reused.

Exception: Electrical equipment, appliances or devices shall be allowed to be reused where an inspection report from the equipment manufacturer, an *approved* manufacturer's representative or an *approved* field evaluation body indicates that the equipment has not sustained damage, or has been *listed* and *labeled* as rebuilt equipment.

104.9.1.2 Required inspection. The *building official* is authorized to require *approved* professionals to verify, at the expense of the owner, that the used material, equipment or devices are suitable to be reused for the application in accordance with this code. Technical assistance is permitted to be provided in accordance with Section 104.2.2.

Reason: The reuse of materials, equipment and devices is very common for a variety of reasons. Those reasons include sustainability concerns, cost, availability of products, installation design, or a product is no longer manufactured. A product that can meet the needs of the consumer and still perform the desired functions should not be prohibited just because of being an existing item.

However, guidance and tools to provide approval, as well as guardrails to provide reasonable safeguards regarding reuse are needed to address health, safety and welfare as required by the codes. Chapter 1 of the existing codes only require reused materials, equipment and devices to be in good working condition and be approved. Other factors need to be considered before reuse. There are a few specific requirements for some materials, equipment and devices in the codes, but not all situations are addressed. For example, there are specific requirements for salvage lumber in IBC Section 2303.1.1.3 and IRC Sections R502.1.1.1 and R602.1.1.1, but there are no specific requirements that would prohibit the use of a fuel gas pipe for water piping.

Some additional factors to consider, besides "good working condition", include:

1. Damaged, broken, or deteriorated due to time or previous use
2. Not used for its original purpose
3. Subjected to fire, seismic, wind or water damage

There are specific requirements in the International Property Maintenance Code (Sections 604.3.1 and 604.3.2) that address electrical equipment that has been subjected to fire or water damage. There are also specific requirements in NFPA 70 (Sections 110.20 and 110.21) for reuse of electrical equipment.

The code official does have the ability to require technical assistance to determine code compliance in accordance with Section 104.2.2, but that section does not specifically permit the use of a third party inspection to determine if material, equipment or devices are suitable to be reused.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change has the potential to lower cost impacts by allowing materials that are suitable for the purpose to be reused. There is also the potential of a cost impact that would be related to the investigation and creation of a report for a specific product or the cost of a field evaluation. The cost in this case is not the major concern. If an owner desires a specific item, material, or piece of equipment to be reused, the owner needs to evaluate the costs related to the reuse versus the cost of replacing it with new. In other cases, there will be no cost impact.

ADM30-25 Part II

ADM31-25 Part I

IBC: 104.10 (New); IEBC: 104.10 (New); IFC: 104.12 (New); IFGC: 104.10 (New); IGCC: 104.11 (New); IMC®: 104.10 (New); IPC: 104.10 (New); IPSDC: 104.10 (New); IPMC: [A] 102.5; ISPSC: 104.10 (New); IWUIC: 104.11 (New)

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new text as follows:

104.10 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Existing Building Code

Add new text as follows:

104.10 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Fire Code

Add new text as follows:

104.12 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Fuel Gas Code

Add new text as follows:

104.10 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Green Construction Code

Add new text as follows:

104.11 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Mechanical Code

Add new text as follows:

104.10 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Plumbing Code

Add new text as follows:

104.10 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Private Sewage Disposal Code

Add new text as follows:

104.10 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Property Maintenance Code

Revise as follows:

[A] 102.5 Workmanship. Repairs, maintenance ~~work~~, alterations or installations ~~that are caused directly or indirectly by the enforcement of this code~~ shall be executed and installed in a *workmanlike* manner and installed in accordance with this code and the manufacturer's installation instructions.

2024 International Swimming Pool and Spa Code

Add new text as follows:

104.10 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

2024 International Wildland Urban Interface Code

Add new text as follows:

104.11 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

ADM31-25 Part I

ADM31-25 Part II

IRC: R104.10 (New)

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov)

2024 International Residential Code

Add new text as follows:

R104.10 Workmanship. Repairs, maintenance, alterations or installations shall be executed and installed in a workmanlike manner in accordance with this code and the manufacturer's installation instructions.

Reason: This code proposal suggests adding a provision to all the code books regarding "workmanship," as well as editing the provision in the International Property Maintenance Code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code proposal will have no cost impact, as it is editing the language in the International Property Maintenance Code, as well as adding this provision to all the other code books. It is editorial in nature and does not change the intent of any code language.

ADM31-25 Part II

ADM32-25 Part I

IBC: [A] 105.1.1, [A] 114.1, SECTION 202, [F] 414.1.3, H104.1; IEBC: [A] 105.1.1, [A] 113.1; IFC: [A] 113.1, [A] 105.1.6, SECTION 202, 2006.4.4, 5003.3.1.4; IFGC: [A] 105.1.1, [A] 113.1; IMC®: [A] 105.1.1, [A] 114.1; IPC: [A] 105.1.1, [A] 114.1; IPMC: [A] 107.1, SECTION 202; IPSDC: [A] 105.1.1, [A] 113.1; ISPSC: [A] 113.1, SECTION 202; IZC: SECTION 202

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 105.1.1 Annual permit. Instead of an individual *permit* for each *alteration* to an already *approved* electrical, gas, mechanical or plumbing installation, the *building official* is authorized to issue an annual *permit* upon application therefor to any *person*~~, firm or corporation~~ regularly employing one or more qualified tradespersons in the building, *structure* or on the premises owned or operated by the applicant for the *permit*.

[A] 114.1 Unlawful acts. It shall be unlawful for any *person*~~, firm or corporation~~ to erect, construct, alter, extend, *repair*, move, remove, demolish or occupy any *building*, *structure* or equipment regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

[BS] APPROVED FABRICATOR. An established and qualified *person*~~, firm or corporation~~ *approved* by the *building official* pursuant to Chapter 17 of this code.
[A] APPROVED SOURCE. An independent *person*~~, firm or corporation,~~ *approved* by the *building official*, who is competent and experienced in the application of engineering principles to materials, methods or systems analyses.
[A] OWNER. Any *person*~~, agent, operator, entity, firm or corporation~~ having any legal or equitable interest in the property; or recorded in the official records of the state, county or municipality as holding an interest or title to the property; or otherwise having possession or control of the property, including the guardian of the estate of any such *person*, and the executor or administrator of the estate of such *person* if ordered to take possession of real property by a court.
[A] PERSON. An individual, heirs, executors, administrators or assigns, and also includes a firm, partnership or corporation, its or their successors or assigns, or the agent of any of the aforesaid.

[F] 414.1.3 Information required. A report shall be submitted to the *building official* identifying the maximum expected quantities of *hazardous materials* to be stored, used in a *closed system* and used in an *open system*, and subdivided to separately address *hazardous material* classification categories based on Tables 307.1(1) and 307.1(2). The methods of protection from such hazards, including but not limited to *control areas*, *fire protection systems* and Group H occupancies shall be indicated in the report and on the *construction documents*. The opinion and report shall be prepared by a qualified *person*~~, firm or corporation~~ *approved* by the *building official* and provided without charge to the enforcing agency.

For *buildings* and *structures* with an occupancy in Group H, separate floor plans shall be submitted identifying the locations of anticipated contents and processes so as to reflect the nature of each occupied portion of every building and *structure*.

H104.1 Identification. Every outdoor advertising *display sign* hereafter erected, constructed or maintained, for which a *permit* is required, shall be plainly marked with the name of the *person*~~, firm or corporation~~ erecting and maintaining such *sign* and shall have affixed on the front thereof the *permit* number issued for said *sign* or other method of identification *approved* by the *building official*.

2024 International Existing Building Code

Revise as follows:

[A] 105.1.1 Annual permit. Instead of an individual permit for each *alteration* to an already *approved* electrical, gas, mechanical, or plumbing installation, the *code official* is authorized to issue an annual permit on application therefor to any person~~, firm or corporation~~ regularly employing one or more qualified trade persons in the building, structure, or on the premises owned or operated by the applicant for the permit.

[A] 113.1 Unlawful acts. It shall be unlawful for any person~~, firm or corporation~~ to *repair*, alter, extend, add, move, remove, demolish or change the occupancy of any building or equipment regulated by this code or cause same to be done in conflict with or in violation of any of the provisions of this code.

2024 International Fire Code

Revise as follows:

[A] 113.1 Unlawful acts. It shall be unlawful for a person~~, firm or corporation~~ to erect, construct, alter, repair, remove, demolish or utilize a building, occupancy, premises or system regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

[A] 105.1.6 Annual permit. Instead of an individual construction permit for each *alteration* to an already *approved* system or equipment installation, the *fire code official* is authorized to issue an annual permit on application therefor to any person~~, firm or corporation~~ regularly employing one or more qualified tradespersons in the building, structure or on the premises owned or operated by the applicant for the permit.

[A] OWNER. Any person~~, agent, operator, entity, firm or corporation~~ having any legal or equitable interest in the property; or recorded in the official records of the state, county or municipality as holding an interest or title to the property; or otherwise having possession or control of the property, including the guardian of the estate of any such person, and the executor or administrator of the estate of such person if ordered to take possession of real property by a court.
[A] PERSON. An individual, heirs, executors, administrators or assigns, and also includes a firm, partnership or corporation, its or their successors or assigns, or the agent of any of the aforesaid.

2006.4.4 Operators. Aircraft-fueling vehicles that are operated by a person~~, firm or corporation~~ other than the permittee or the permittee's authorized employee shall be provided with a legible sign visible from outside the vehicle showing the name of the person, firm or corporation operating such unit.

5003.3.1.4 Responsibility for cleanup. The person~~, firm or corporation~~ responsible for an unauthorized discharge shall institute and complete all actions necessary to remedy the effects of such unauthorized discharge, whether sudden or gradual, without cost to the jurisdiction. Where deemed necessary by the *fire code official*, cleanup can be initiated by the fire department or by an authorized individual or firm. Costs associated with such cleanup shall be borne by the ~~*owner*, operator or other~~ *person* responsible for the unauthorized discharge.

2024 International Fuel Gas Code

Revise as follows:

[A] 105.1.1 Annual permit. Instead of an individual construction permit for each *alteration* to an already *approved* system or *equipment* installation, the *code official* is authorized to issue an annual permit upon application therefor to any person~~, firm or corporation~~ regularly employing one or more qualified tradespersons in the building, structure or on the premises owned or operated by the applicant for the permit.

[A] 113.1 Unlawful acts. It shall be unlawful for a person~~, firm or corporation~~ to erect, construct, alter, repair, remove, demolish or utilize an installation, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

2024 International Mechanical Code

Revise as follows:

[A] 105.1.1 Annual permit. Instead of an individual construction permit for each *alteration* to an already *approved* system or *equipment* or application installation, the code official is authorized to issue an annual permit upon application therefor to any person~~, firm or corporation~~ regularly employing one or more qualified tradespersons in the *building*, structure or on the premises owned or operated by the applicant for the permit.

[A] 114.1 Unlawful acts. It shall be unlawful for a person~~, firm or corporation~~ to erect, construct, alter, repair, remove, demolish or utilize a mechanical system, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

2024 International Plumbing Code

Revise as follows:

[A] 105.1.1 Annual permit. Instead of an individual construction permit for each alteration to an already *approved* system or equipment or appliance installation, the code official is authorized to issue an annual permit upon application therefor to any person~~, firm or corporation~~ regularly employing one or more qualified tradespersons in the building, structure or on the premises owned or operated by the applicant for the permit.

[A] 114.1 Unlawful acts. It shall be unlawful for any person~~, firm or corporation~~ to erect, construct, alter, repair, remove, demolish or utilize any plumbing system, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

2024 International Property Maintenance Code

Revise as follows:

[A] 107.1 Unlawful acts. It shall be unlawful for a *person*~~, firm or corporation~~ to be in conflict with or in violation of any of the provisions of this code.

[A] OWNER. Any *person*~~, agent, *operator*, firm or corporation~~ having legal or equitable interest in the property; or recorded in the official records of the state, county or municipality as holding title to the property; or otherwise having control of the property, including the guardian of the estate of any such *person*, and the executor or administrator of the estate of such *person* if ordered to take possession of real property by a court.

Delete and substitute as follows:

~~**[A] PERSON.** An individual, corporation, partnership or any other group acting as a unit.~~
[A] PERSON. An individual, heirs, executors, administrators or assigns, and also includes a firm, partnership or corporation, its or their successors or assigns, or the agent of any of the aforesaid.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 105.1.1 Annual permit. Instead of an individual construction permit for each alteration to an already approved system or equipment or appliance installation, the *code official* is authorized to issue an annual permit upon application therefor to any person~~, firm or corporation~~ regularly employing one or more qualified tradespersons in the building, structure or on the premises owned or operated by the applicant for the permit.

[A] 113.1 Unlawful acts. It shall be unlawful for any person~~, firm or corporation~~ to erect, construct, alter, repair, remove, demolish or use any *private sewage disposal system*, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 113.1 Unlawful acts. It shall be unlawful for any person~~, firm or corporation~~ to erect, construct, alter, repair, remove, demolish or utilize any system, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

[A] OWNER. Any person~~, agent, operator, entity, firm or corporation~~ having any legal or equitable interest in the property; or recorded in the official records of the state, county or municipality as holding an interest or title to the property; or otherwise having possession or control of the property, including the guardian of the estate of any such person, and the executor or administrator of the estate of such person if ordered to take possession of real property by a court.

2024 International Zoning Code

[A] PERSON. An individual, heirs, executors, administrators or assigns, and includes a firm, partnership or corporation, its or their successors or assigns, or the agent of any of the aforesaid.

ADM32-25 Part I

ADM32-25 Part II

IRC: R113.1, SECTION 202

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

R113.1 Unlawful acts. It shall be unlawful for any *person*~~, firm or corporation~~ to erect, construct, alter, extend, *repair*, move, remove, demolish or occupy any *building*, structure or equipment regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

[RB] APPROVED SOURCE. An independent *person*~~, firm or corporation,~~ *approved* by the *building official*, who is competent and experienced in the application of engineering principles to materials, methods or systems analyses. For the definition applicable in Chapter 11, see Section N1101.6.

[RB] OWNER. Any *person*~~, agent, firm or corporation~~ having a legal or equitable interest in the property~~.~~; or recorded in the official records of the state, county or municipality as holding an interest or title to the property; or otherwise having possession or control of the property, including the guardian of the estate of any such*person*, and the executor or administrator of the estate of such*person*if ordered to take possession of real property by a court.

[RB] PERSON. An individual, heirs, executors, administrators or assigns, and a firm, partnership or corporation, its or their successors or assigns, or the agent of any of the aforesaid.

Reason: The inclusion of "firm or corporation" in the phrase "person, firm or corporation [,]" is redundant and creates unnecessary complexity in our code. The provided definition of "person" explicitly encompasses firms, partnerships, and corporations. Therefore, specifying "firm or corporation" adds no legal meaning and serves only to clutter the language. This is akin to saying "humans, men or women"—the broader term already encompasses the more specific categories.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change removes redundant language.

ADM32-25 Part II

ADM33-25

IFC: [A] 105.1.5, 105.1.5.1 (New), SECTION 202 (New)

Proponents: Jeffrey Hugo, NFSA - National Fire Sprinkler Association, representing NFSA (hugo@nfsa.org)

2024 International Fire Code

[A] 105.1.5 Repairs. Application or notice to the *fire code official* is not required for ordinary repairs to structures, equipment or systems. Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or change of any required *means of egress*, or rearrangement of parts of a structure affecting the egress requirements; nor shall any repairs include addition to, *alteration* of, replacement or relocation of any standpipe, fire protection water supply, *automatic sprinkler system*, fire alarm system or other work affecting fire protection or life safety.

Add new text as follows:

105.1.5.1 Repairs performed as maintenance. *Fire protection system repairs* conducted as maintenance in accordance with Section 901.6 of this code shall not be considered modifications or replacements requiring a permit.

Add new definition as follows:

[A] REPAIR. The reconstruction, replacement or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

Reason: This proposed new text to Section [A] 105.1.5.1 Repairs Performed as Maintenance clarifies that routine repairs and like-for-like replacements of fire sprinkler system components, as outlined in Section 901.6, do not require a permit. By incorporating the definition of "repair" from the IBC, IRC, and IEBC—the reconstruction, replacement, or renewal of any part of an existing building for maintenance or damage correction—the proposal ensures clear guidance on activities exempt from permit requirements. This amendment aligns with the code's intent to maintain operable fire protection systems while streamlining routine maintenance tasks and supporting timely repairs to enhance life safety.

- Clarifying the Definition of Repairs: Incorporates the existing definition of "repair" in the code (*the reconstruction, replacement, or renewal of any part of an existing building for maintenance or damage correction*), ensuring clear guidance on routine maintenance activities exempt from permit requirements.
- Encouraging Timely Repairs: Exempts like-for-like replacements of fire sprinkler components, such as sprinklers and minor parts (e.g., O-rings, gaskets), from permit requirements, reducing administrative delays and keeping systems operational.
- Inspection and testing per NFPA 25, NFPA 72 and on: Inspection, testing, and maintenance are foundational to system reliability and are already mandated by NFPA 25 and NFPA 72 (and more) enforced by the IFC and IPMC. These activities are routine and ensure systems remain operational. Requiring permits for these routine tasks do not need code official oversight. Many jurisdictions are getting inspection reports through a third party observing the inspections occurring in their jurisdiction already.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The IFC currently allows maintenance to occur without a permit. This change elaborates on the maintenance activities that are exempt from permits.

ADM33-25

ADM34-25 Part I

IBC: [A] 105.2; IWUIC: [A] 105.3

Proponents: Lucas Pump, City of Cedar Rapids, representing Self (l.pump@cedar-rapids.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATION CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 105.2 Work exempt from permit. Exemptions from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction*. *Permits* shall not be required for the following:

Building:

1. One-story detached accessory *structures* used as tool and storage sheds, playhouses, gazebos, pergolas and similar uses, provided that the floor area is not greater than 120 square feet (11 m^2).
2. Fences, other than swimming pool barriers, not over 7 feet (2134 mm) high.
3. Oil derricks.
4. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
5. Water tanks supported directly on grade if the capacity is not greater than 5,000 gallons (18 925 L) and the ratio of height to diameter or width is not greater than 2:1.
6. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any *basement* or *story* below and are not part of an *accessible route*.
7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated *swimming pools* accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground.
10. Shade cloth *structures* constructed for nursery or agricultural purposes, not including service systems.
11. Swings and other playground equipment accessory to detached one- and two-family *dwellings*.
12. Window *awnings* in Group R-3 and U occupancies, supported by an *exterior wall* that do not project more than 54 inches (1372 mm) from the *exterior wall* and do not require additional support.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

1. ***Repairs* and maintenance:** Minor *repair* work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.
2. **Radio and television transmitting stations:** The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and antennas.
3. **Temporary testing systems:** A *permit* shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part that does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (4.54 kg) or less of refrigerant and actuated by motors of 1 horsepower (0.75 kW) or less.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided that such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 105.3 Work exempt from permit. Unless otherwise provided in the requirements of the *International Building Code* or *International Fire Code*, a permit shall not be required for the following:

1. One-story detached accessory structures used as tool and storage sheds, playhouses, gazebos, pergolas and similar uses, provided that the floor area does not exceed 120 square feet (11.15 m^2) and the structure is located more than 50 feet (15 240 mm) from the nearest adjacent structure.
2. Fences not over 6 feet (1829 mm) high.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

The *code official* is authorized to stipulate conditions for permits. Permits shall not be issued where public safety would be at risk, as determined by the *code official*.

Reason: The addition of adding detached gazebos and pergolas under 120 sq. ft. would add clarification that these structures don't require a building permit. These structures typically pose very little safety concern similar to sheds and playhouses which are currently listed.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The average price of a building permit for a detached accessory structure, like a pergola or small gazebo, typically falls between $50 and $150 depending on the local jurisdiction and the size of the structure, with smaller structures often costing closer to the lower end of that range. According to the ICC

Building Valuation Data – August 2024, the valuation of a Utility/Miscellaneous building would be $64.85 per square foot. Most permit fees are calculated based on the square footage or valuation of the structure, so larger accessory structures will have higher permit costs. Some localities may also factor in additional fees based on inspections required, the complexity of the project, and the type of construction materials used.

Source: https://homeguide.com/costs/building-permit-cost

Estimated Immediate Cost Impact Justification (methodology and variables):

See cost impact

ADM34-25 Part I

ADM34-25 Part II

IRC: R105.2

Proponents: Lucas Pump, City of Cedar Rapids, representing Self (l.pump@cedar-rapids.org)

2024 International Residential Code

Revise as follows:

R105.2 Work exempt from permit. Exemption from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction.Permits* shall not be required for the following:

Building:

1. Other than *storm shelters*, one-*story* detached *accessory structures,* <u>gazebos, pergolas, and similar structures</u> provided that the floor area does not exceed 200 square feet (18.58 m^2).
2. Fences not over 7 feet (2134 mm) high.
3. *Retaining walls* that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon *grade* if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment.
9. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks not exceeding 200 square feet (18.58 m^2) in area, that are not more than 30 inches (762 mm) above *grade* at any point, are not attached to a *dwelling* or *townhouse* and do not serve the exit door required by Section R318.4.

Electrical:

1. *Listed* cord-and-plug connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles but not the outlets therefor.
3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Electrical wiring, devices, *appliances,* apparatus or *equipment* operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
5. Minor *repair* work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.

Gas:

1. Portable heating, cooking or clothes drying *appliances*.
2. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
3. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

Mechanical:

1. Portable heating *appliances*.
2. Portable ventilation *appliances*.
3. Portable cooling units.
4. Steam, hot- or chilled-water piping within any heating or cooling *equipment* regulated by this code.
5. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Reason: Pergolas and Gazebos have always been a subject of debate on whether or not they require a building permit. Adding this language would make it clear that detached pergolas and gazebos are not required to have a building permit. These types of structures are typically purchased at the box stores and pose a low hazard. I believe that most building departments don't want to chase down pergolas and gazebos, as there isn't any guidance or code language to enforce currently within the I-Codes. Also, by adding "similar structures" it would allow the AHJ to use this language if a similar structure was proposed, like a small greenhouse or pavilion.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The average price of a building permit for a detached accessory structure, like a pergola or small gazebo, typically falls between $50 and $150 depending on the local jurisdiction and the size of the structure, with smaller structures often costing closer to the lower end of that range. According to the ICC Building Valuation Data – August 2024, the valuation of a Utility/Miscellaneous building would be $64.85 per square foot. Most permit fees are calculated based on the square footage or valuation of the structure, so larger accessory structures will have higher permit costs. Some localities may also factor in additional fees based on inspections required, the complexity of the project, and the type of construction materials used.

Source: https://homeguide.com/costs/building-permit-cost

Estimated Immediate Cost Impact Justification (methodology and variables):

See cost impact statement.

ADM34-25 Part II

ADM35-25

IBC: [A] 105.2

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Building Code

Revise as follows:

[A] 105.2 Work exempt from permit. Exemptions from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction*. *Permits* shall not be required for the following:

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided that the floor area is not greater than 120 square feet (11 m2).
2. Fences, other than swimming pool barriers, not over 7 feet (2134 mm) high.
3. Oil derricks.
4. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
5. Water tanks supported directly on grade if the capacity is not greater than 5,000 gallons (18 925 L) and the ratio of height to diameter or width is not greater than 2:1.
6. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or story below and are not part of an accessible route.
7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated swimming pools accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground.
10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
11. Swings and other playground equipment accessory to detached one- and two-family dwellings.
12. Window awnings in Group R-3 and U occupancies, supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

1. **Repairs and maintenance:** Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.**2. ~~Radio and television transmitting~~ Telecommunication and broadcast transmission stations:** The provisions of this code shall not apply to electrical equipment used for ~~radio and television~~ telecommunication and broadcast transmissions ~~,~~ but do apply to equipment and wiring for a power supply and the installations of towers and antennas.**3. Temporary testing systems:** A permit shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part that does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (4.54 kg) or less of refrigerant and actuated by motors of 1 horsepower (0.75 kW) or less.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided that such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Reason: This code change modernizes the language to match IBC 3108 for clarity.

Note: cdpACCESS did not copy the entire existing language of 105.2. The intent of this code change is to only affect the parts legislatively marked.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The language is updated for modern terminology and to point to other sections of code. No change to intent is made.

ADM35-25

ADM36-25

IFC: [A] 105.6.1, [A] 105.6.2, [A] 105.6.7, [A] 105.6.8, [A] 105.6.19, [A] 105.6.24

Proponents: Jeffrey Hugo, NFSA - National Fire Sprinkler Association, representing NFSA (hugo@nfsa.org)

2024 International Fire Code

Revise as follows:

[A] 105.6.1 Automatic fire-extinguishing systems. A construction permit is required for installation of or modification to an *automatic fire-extinguishing system* , other than an *automatic sprinkler system* . Maintenance performed in accordance with Section 901.6. of this code is not considered to be a modification and does not require a permit.

[A] 105.6.2 Automatic sprinkler systems. A construction permit is required for installation of or modification to an *automatic sprinkler system*. Maintenance performed in accordance with Section 901.6 of this code is not considered to be a modification and does not require a permit.

[A] 105.6.7 Fire alarm and detection systems and related equipment. A construction permit is required for installation of or modification to fire alarm and detection systems and related equipment. Maintenance performed in accordance with Section 901.6 of this code is not considered to be a modification and does not require a construction permit.

[A] 105.6.8 Fire pumps and related equipment. A construction permit is required for installation of or modification to fire pumps and related fuel tanks, jockey pumps, controllers and generators. Maintenance performed in accordance with Section 901.6 of this code is not considered to be a modification and does not require a construction permit.

[A] 105.6.19 Private fire hydrants. A construction permit is required for the installation or modification of private fire hydrants. Maintenance performed in accordance with Section 901.6 of this code is not considered to be a modification and does not require a permit.

[A] 105.6.24 Standpipe systems. A construction permit is required for the installation, modification or removal from service of a standpipe system. Maintenance performed in accordance with Section 901.6 of this code is not considered to be a modification and does not require a permit.

Reason: This proposal adds language to Section 105.6 to clarify that maintenance performed in accordance with Section 901.6 is not considered a modification and does not require a permit. This change is primarily editorial, points to the maintenance section, Section 901.6, which mandates routine maintenance, inspection, and testing to keep fire protection and life safety systems operational. By explicitly distinguishing maintenance from modifications, this addition ensures consistency in application of this code and its referenced maintenance standards.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial in nature, as these sections already reference maintenance of the code, which are the standards referenced in Section 901.6.

ADM36-25

ADM37-25

IFC: SECTION 105, [A] 105.6, [A] 105.6.6

Proponents: Robert J Davidson, Davidson Code Concepts LLC, representing Self (rjd@davidsoncodeconcepts.com); Adria Smith, CSG Engineers, representing California Fire Prevention Officers (adrias@csgengr.com); Darcy Davidson, Carlsbad Fire Department, representing California Fire Prevention Officers (darcy.davidson@carlsbadca.gov); Robert Marshall, San Mateo Consolidated Fire Department, representing International Association of Fire Chiefs- Fire and Life Safety Section (rmarshall@smcfire.org); Crystal Sujeski, representing CAL FIRE/Office of the State Fire Marshal (crystal.sujeski@fire.ca.gov)

2024 International Fire Code

SECTION 105
PERMITS

[A] 105.6 Required construction permits. The *fire code official* is authorized to issue construction permits for work as set forth in Sections 105.6.1 through 105.6.25.

Revise as follows:

[A] 105.6.6 Energy storage systems. A construction permit is required to install energy storage systems regulated by Section 1207 <u>or Section R330 of the *International Residential Code*.</u>

Reason: The relationship between the IFC and the IRC has historically required IFC permits for interior or exterior systems regulated by the IFC.

> ***2024 IFC (and earlier) [A] 102.5 Application of residential code.***
>
> *Where structures are designed and constructed in accordance with the International Residential Code, the provisions of this code shall apply as follows:*
>
> *1. Construction and design provisions of this code pertaining to the exterior of the structure shall apply including, but not limited to, premises identification, fire apparatus access and water supplies. Where interior or exterior systems or devices are installed, construction permits required by Section 105.6 shall apply.*
>
> *2.Administrative, operational and maintenance provisions of this code shall apply.*

Prior to the 2018 IFC and IRC the only regulations that existed for stationary storage battery systems was found within the IFC and the IFC had a permit trigger for the most common systems installed.

> ***2015 IFC***
>
> ***[A] 105.7.2 Battery systems.***
>
> *A permit is required to install stationary storage battery systems having a liquid capacity of more than 50 gallons (189 L).*

When the 2018 IFC was updated, the following change was made which broke the application to the IRC dwellings unintentionally. Extremely limited language was added to the IRC without linkage in the IFC by including a section reference because one did not exist for the IFC to include.

> ***2018 IFC***
>
> ***[A] 105.7.2 Battery systems.***
>
> *A construction permit is required to install stationary storage battery systems regulated by Section 1206.2.*

This has resulted in uneven application of the review process wherein jurisdiction A does a joint Building Code Official/Fire Code Official review for commercial and residential installations and jurisdiction B does a joint Building Code Official/Fire Code Official review for commercial and a Building Code Official review only for residential installations which was never intended. ESS installation consistency requires joint review for both IFC and IRC ESS application since the hazards, standards and testing required are the same.

For many residential ESS installations, they are done in conjunction with solar system installations, based on the current wording, the solar system would require a permit under the IFC, and the fire detection required for the ESS if installed indoors would require a permit under the IFC, but the ESS in and of itself would not require a permit under the IFC because of the error linking the ESS permit to Section 1207.

2024 IFC (and earlier)

[A] 105.6.7 Fire alarm and detection systems and related equipment*.*

A construction permit is required for installation of or modification to fire alarm and detection systems and related equipment. Maintenance performed in accordance with this code is not considered to be a modification and does not require a construction permit.

[A] 105.6.21 Solar photovoltaic power systems. *A construction permit is required to install or modify solar photovoltaic power systems. Maintenance performed in accordance with this code is not considered to be a modification and does not require a permit.*

This proposal corrects an error and properly correlates the permit and plan review process for the systems.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal does not impact constructions costs. It corrects a correlation error and at most would result in an additional permit fee which is an administrative jurisdiction decision, not a technical issue.

ADM37-25

ADM38-25

IFC: [A] 105.6.6

Proponents: William Koffel, Koffel Associates, Inc., representing California Solar and Storage Association (CALSSA) (wkoffel@koffel.com)

2024 International Fire Code

[A] 105.6.6 Energy storage systems. A construction permit is required to install energy storage systems regulated by Section 1207.

> **Exception:** A construction permit, in addition to the permit required by Section R105 of the International Residential Code, is not required for energy storage systems installed in accordance with Exception 2 of Section 1207.11.

Reason: Section R105 requires a permit to install a stationary ESS. An additional permit should not be required by the IFC when the installation is in accordance with the requirements of the IRC.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Decrease by the cost of obtaining an additional construction permit. Typical permit fees range from $200 to $500.

Estimated Immediate Cost Impact Justification (methodology and variables):

In those jurisdictions in which two construction permits are being issued, if there are any, the cost will decrease.

ADM38-25

ADM39-25

IFC: 105.6.26 (New)

Proponents: Joseph Cervantes, Self, representing Space Age Electronics

2024 International Fire Code

Add new text as follows:

<u>**105.6.26 Two-way communications systems.** A construction permit is required for the installation of or modification to two-way communications systems designated for area of refuge, area of rescue assistance, stairway communications systems, occupant evacuation elevator lobby systems or elevator landings and related equipment. Maintenance performed in accordance with this code is not considered to be a modification and does not require a construction permit.</u>

Reason: The addition of Section 105.6.26 ensures clear regulatory oversight of Two-Way Communications Systems that are critical for occupant safety during emergencies. These systems, including those designated for Areas of Refuge, Areas of Rescue Assistance, Stairway Communication Systems, Occupant Evacuation Elevator Lobby Systems, and Elevator Landings, are integral to the safe evacuation and rescue of individuals, particularly those with disabilities or limited mobility.

Requiring a construction permit for the installation or modification of these systems establishes a mechanism for authorities having jurisdiction (AHJs) to verify compliance with design, installation, and operational standards. It provides an opportunity to ensure that the systems are properly designed, installed, and integrated with other life safety systems, reducing the risk of system failure during emergencies.

Excluding maintenance activities from the permit requirement avoids undue administrative burden while ensuring that essential repairs and inspections remain routine and do not impede functionality.

This amendment aligns with the overall intent of the International Fire Code to enhance public safety, provide clarity in enforcement, and promote the consistent application of life safety provisions across jurisdictions.

Bibliography:

1. **International Fire Code (IFC), 2024 Edition.** International Code Council. Sections pertaining to construction permits and life safety system requirements.
2. **NFPA 72, National Fire Alarm and Signaling Code, 2022 Edition.** National Fire Protection Association. Chapters 24 and 26 on emergency communications systems and design considerations.
3. **Americans with Disabilities Act (ADA) Standards for Accessible Design, 2010.** U.S. Department of Justice. Guidance on Areas of Refuge and Rescue Assistance communication requirements.
4. **2016 Emergency Evacuation Planning Guide for People with Disabilities.** National Fire Protection Association. Recommendations for integrating two-way communication systems into evacuation plans.
5. **Building Fire Safety Systems: Performance-Based Design Approaches.** Society of Fire Protection Engineers, 2020. Analysis of integrated communication systems in high-rise buildings and evacuation scenarios.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The proposed requirement for a construction permit for the installation or modification of Two-Way Communications Systems will have a minimal cost impact on building owners and contractors. The associated costs primarily relate to permit application fees and potential inspections, which are standard components of most construction projects. These costs are typically offset by the benefits of enhanced oversight, ensuring compliance with safety codes and reducing the likelihood of system malfunctions during emergencies.

The amendment does not introduce new technical requirements or system features but rather formalizes the permitting process to ensure the proper installation and modification of existing systems. Maintenance activities, which represent routine operational costs, are explicitly excluded from the permit requirement, minimizing additional financial burdens on system owners.

The benefits of increased life safety, regulatory clarity, and proper system integration during emergency situations far outweigh the nominal costs associated with permit compliance. This amendment aligns with the International Fire Code's mission to enhance public safety without imposing significant financial hardship on stakeholders.

Estimated Immediate Cost Impact Justification (methodology and variables):

1. **Permit Fees:**
    - Average permit fees across jurisdictions typically range from $100 to $500, depending on the scope of work and local government requirements.
    - For large-scale projects (e.g., high-rise buildings or large facilities), permit fees may increase proportionally but remain a small fraction of overall project costs.
2. **Labor for Permit Application and Inspections:**
    - The time required to prepare and submit a permit application is estimated at 2–4 hours, depending on the project's complexity. At an average labor rate of $50/hour, this cost ranges from $100 to $200.
    - Inspections typically require 1–2 hours of coordination, adding another $50 to $100.
3. **Frequency of Applications:**
    - It is estimated that approximately 20–30 new projects or modifications involving Two-Way Communication Systems occur annually in a given jurisdiction.
4. **Exclusion of Maintenance Costs:**
    - Routine maintenance is explicitly excluded from the permit requirement, minimizing additional cost burdens.

Variables

1. **Project Type and Size:** Larger or more complex projects may incur slightly higher costs due to additional documentation or coordination.
2. **Local Permit Fees:** Fees vary by jurisdiction and are subject to local government regulations.
3. **Scope of Work:** Simple modifications may require fewer resources compared to the installation of a new system.

Calculation

- **Average cost per permit application:**
    - Permit Fee: $300 (median estimate)
    - Labor for Application: $150 (3 hours at $50/hour)
    - Inspection Coordination: $75 (1.5 hours at $50/hour)
    - **Total Estimated Cost per Project:** $525
- **Annual Impact (per jurisdiction):**
    - Assuming 25 applications per year: $525 × 25 = **$13,125**

Justification

The cost impact is justified by the critical role these systems play in ensuring life safety during emergencies. Proper permitting provides AHJs the opportunity to confirm compliance with safety standards, reducing the risk of system failures. This small upfront cost supports the long-term safety of building occupants and aligns with the IFC's goals of promoting robust life safety measures. Additionally, these costs are comparable to or less than other permits required for life safety systems, ensuring consistency in enforcement.

ADM39-25

ADM40-25

IFC: [A] 105.6.27 (New)

Proponents: Joseph Cervantes, Self, representing Space Age Electronics

2024 International Fire Code

Add new text as follows:

[A] 105.6.27 Site safety llan. A construction permit is required for the development and approval of a site safety plan as required in Chapter 33. The plan shall be prepared by a site safety director and approved by the authority having jurisdiction prior to the issuance of a building permit. Maintenance and routine updates performed in accordance with this code that do not alter the scope of the original approved plan are not considered modifications and do not require a construction permit.

Reason: The addition of Section 105.6.XX establishes a permitting requirement for the Site Safety Plan mandated in Chapter 33, reinforcing the charging language that requires the plan to be approved by the authority having jurisdiction (AHJ) prior to the issuance of a building permit. This ensures that the AHJ has the opportunity to thoroughly review the proposed safety measures and confirm that they meet the minimum standards of the code before construction begins.

Requiring the Site Safety Plan to be approved through a formal permitting process promotes consistent and thorough evaluation of critical safety elements, including hazard mitigation, emergency response protocols, and temporary fire protection systems. This proactive approach ensures that site-specific safety considerations are addressed during the planning stage, minimizing the potential for incidents that could endanger workers, first responders, and the public.

By linking the approval of the Site Safety Plan to the building permit process, this requirement enhances regulatory oversight, ensures compliance with Chapter 33 provisions, and establishes a clear mechanism for AHJs to enforce safety measures at construction sites. Exempting routine updates and maintenance from requiring additional permits streamlines the process while preserving the integrity of the approved plan. This amendment aligns with the code's intent to safeguard life safety during construction activities.

Bibliography:

- **International Fire Code (IFC), 2024 Edition.** International Code Council. Chapter 33, specifically Section 3308.2, which mandates the development of a Site Safety Plan under the supervision of a Site Safety Supervisor.
- **International Building Code (IBC), 2024 Edition.** International Code Council. Provisions regarding permitting and plan review processes for construction activities.
- **Occupational Safety and Health Administration (OSHA) Standards for Construction Safety and Health, 29 CFR Part 1926.** U.S. Department of Labor. Guidelines on construction site safety and hazard mitigation.
- **NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations, 2023 Edition.** National Fire Protection Association. Guidance on temporary fire protection measures and site safety management during construction.
- **Site Safety Management: Best Practices for Construction Projects, 3rd Edition.** American Society of Safety Professionals, 2020. Industry standards and recommendations for site safety planning and oversight.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The proposed requirement for a Site Safety Plan permit has minimal cost impact on construction projects and jurisdictions. The primary cost considerations are related to the preparation, submission, and review of the plan, as follows:

Immediate Costs:

1. **Preparation of the Site Safety Plan:**
   - The cost of developing the plan is already accounted for under the requirements of Chapter 33. This proposal does not introduce new requirements for plan content or preparation, as such plans are already mandated.
2. **Permit Fees:**
   - Typical permit fees range from $200 to $500, depending on the jurisdiction and project complexity. These fees align with standard costs for construction-related permits.

3. **AHJ Review and Approval:**
    - The AHJ's review process may involve 2–4 hours of labor, depending on the complexity of the site safety plan. This is generally absorbed as part of the jurisdiction’s permitting process and covered by the permit fee.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost of requiring a permit for the Site Safety Plan is offset by the benefits of regulatory oversight, which ensures that safety measures are adequately addressed before construction begins. This reduces the risk of accidents, litigation, and enforcement actions, ultimately protecting workers, first responders, and the public. The financial impact is minimal and proportional to the overall safety benefits gained.

Estimated Life Cycle Cost Impact:

This requirement does not impose recurring costs as routine updates or maintenance of the Site Safety Plan are explicitly excluded from requiring additional permits.

By ensuring compliance during the planning phase, jurisdictions and project stakeholders can avoid costly incidents, fines, or retrofits due to noncompliance with safety requirements, leading to potential long-term cost savings.

ADM40-25

ADM41-25 Part I

IBC: SECTION 106, [A] 106.1, [A] 106.2, [A] 106.3

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IBC-S CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Delete without substitution:

~~SECTION 106~~
~~FLOOR AND ROOF DESIGN LOADS~~

~~**[A] 106.1 Live loads posted.** In commercial or industrial *buildings*, for each floor or portion thereof designed for *live loads* exceeding 50 psf (2.40 kN/m^2), such design *live loads* shall be conspicuously posted by the *owner* or the *owner's* authorized agent in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.~~

~~**[A] 106.2 Issuance of certificate of occupancy.** A certificate of occupancy required by Section 111 shall not be issued until the floor load signs, required by Section 106.1, have been installed.~~

~~**[A] 106.3 Restrictions on loading.** It shall be unlawful to place, or cause or permit to be placed, on any floor or roof of a *building*, *structure* or portion thereof, a *load* greater than is permitted by this code.~~

Staff Analysis: S49-25 Part II and ADM41-25 Part I address requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

ADM41-25 Part I

ADM41-25 Part II

IBC: 1607.8.5

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

1607.8.5 Posting. The maximum weight of vehicles allowed into or on a garage or other *structure* shall be posted on a durable sign in a readily visible location at the vehicle entrance to the building or other approved location ~~by the *owner* or the *owner*'s authorized agent in accordance with Section 106.1~~.

Reason: The intent of this proposal is to remove a section for structural signage from Chapter 1. Signage requirements are ineffective in Chapter 1, do not belong in the administrative provisions and no signage requirements are found in any of the administrative requirements in any of the other codes.

This section was moved to the administrative provisions from structural by S48-07/08. The structural committee felt that this sign did not belong with the loading provisions in Chapter 16.

The BCAC has attempted to move this requirement back to the related requirements in Chapter 16 (S52-19), similar to the signage for occupant load and exits in Chapter 10. There was testimony stating that the existing requirements for signage when live loads exceeded 50 pounds was an erroneous requirement. This code requirement is a hold-over from the legacy codes and its origins are unknown. The Structural committee disapproved this change because they did not want these signs in Chapter 16.

S99-22 attempted to clarify and limit the signage requirements (based on the testimony to S52-19) and move that small portion to Section 1607 with the requirements. The Structural committee again expressed that they felt the requirements were more appropriate however they still did not want the signage requirement in Chapter 16.

The text as currently written in unreasonable and unenforceable. Considering the expected audience of such a sign, it isn't practical that the end user of a building would equate a PSF load posting into a practical limitation as to the use of the structure. Further, the code only requires one sign be posted per story in a building of any area, it is unlikely that a majority of building users would ever even see such a sign. Following is a detailed reasoning for the deletion of this section.

Section 106 - Chapter 1 is an administrative chapter. Signage posting requirements are not an administrative function. These signage requirements should be located with the loading requirements to be consistent with the code - examples include - signage for gas detection alarms (916.9) under gas detection systems (916); occupant load posting (1004.9) with occupant loads (1004); area of refuge and two-way communication requirements (1009.9) with accessible means of egress (1009); stairway identification signage (1023.9) in exit stairways (1023); exit signs (1013) are located with exit requirements in Chapter 10; toilet room signage (2902.4) in minimum plumbing facilities (2902); elevator signage (3002.3) with the elevator provisions (3002), and heavy vehicle loading signage (1607.8.5) are located in Heavy vehicle loads (1607.8).

Section 106.1 - Table 1607.1 does not have 'commercial' or 'industrial' buildings listed and these terms are not defined, leaving it unclear where the signage is required. The weight requirement of "exceeding 50 lbs." could be interpreted to require this signage in many spaces listed in Table 1607.

Section 106.2 - Signage requirements should not be tied to receiving a certificate of occupancy, any more than other code section would be.

Section 106.3 - This is unenforceable. Making sure the loading in a space is not exceeded is an operational issue, not a building code issue. There is no mechanism to enforce this beyond the final building inspection.

Section 1607.8.5 - The proposed language removes the reference to Section 106 and provides more specific information for the required signage. This signage is already in Chapter 16.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the

committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The net effect of the public comment and code change proposal will not increase or decrease the cost of construction This technically is a reduction in the signage requirements, but it is our understanding that this is not currently being enforced. This is not a change to the technical requirements.

ADM41-25 Part II

ADM42-25 Part I

IBC: [A] 107.1, [A] 107.2.1; IEBC: [A] 106.1, [A] 106.2.1; IFC: [A] 106.1, [A] 106.2.1; IFGC: [A] 106.1; IMC®: [A] 106.1; IPC: [A] 106.1; IPSDC: [A] 107.1; ISPSC: [A] 107.1; IWUIC: [A] 106.1

Proponents: Kota Wharton, City of Grove City, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 107.1 General. Submittal documents consisting of *construction documents*, statement of *special inspections*, geotechnical report and other data shall be submitted in two or more sets, or in ~~a~~ an *approved* digital format where allowed or required by the *building official*, with each *permit* application. The *construction documents* shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed. Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a *registered design professional*.

> **Exception:** The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a *registered design professional* if it is found that the nature of the work applied for is such that review of *construction documents* is not necessary to obtain compliance with this code.

[A] 107.2.1 Information on construction documents. *Construction documents* shall be dimensioned and drawn on suitable material. ~~Electronic media documents are permitted to be submitted where *approved* by the *building official*.~~ *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *building official*.

2024 International Existing Building Code

Revise as follows:

[A] 106.1 General. Submittal documents consisting of construction documents, special inspection and structural observation programs, investigation and evaluation reports, and other data shall be submitted in two or more sets, or in ~~a~~ an *approved* digital format where allowed or required by the *code official,* with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *code official* is authorized to require additional construction documents to be prepared by a registered design professional.

> **Exception:** The *code official* is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that reviewing of construction documents is not necessary to obtain compliance with this code.

[A] 106.2.1 Construction documents. Construction documents shall be dimensioned and drawn on suitable material. ~~Electronic media documents are permitted to be submitted where *approved* by the *code official*.~~ Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *code official*. The *work areas* shall be shown.

2024 International Fire Code

Revise as follows:

[A] 106.1 Submittals. *Construction documents* and supporting data shall be submitted in two or more sets, or in an *approved* digital format where allowed or required by the *fire code official*, with each application for a permit ~~and in such form and detail as required by the *fire code official*~~. The *construction documents* shall be prepared by a *registered design professional* where required by the statutes of the jurisdiction in which the project is to be constructed.

Exception: The *fire code official* is authorized to waive the submission of *construction documents* and supporting data not required to be prepared by a *registered design professional* if it is found that the nature of the work applied for is such that review of *construction documents* is not necessary to obtain compliance with this code.

[A] 106.2.1 Information on construction documents. *Construction documents* shall be drawn to scale on suitable material. ~~Documents in a digital format are allowed to be submitted where *approved* by the *fire code official*.~~ *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations as determined by the *fire code official*.

2024 International Fuel Gas Code

Revise as follows:

[A] 106.1 Construction documents. *Construction documents*, engineering calculations, diagrams and other data shall be submitted in two or more sets, or in ~~a~~ an *approved* digital format where allowed or required by the ~~building official~~ *code official*, with each application for a permit. The *code official* shall require *construction documents*, computations and specifications to be prepared and designed by a *registered design professional* where required by state law. *Construction documents* shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code. *Construction documents* for buildings more than two stories in height shall indicate where penetrations will be made for installations and shall indicate the materials and methods for maintaining required structural safety, fire-resistance rating and fireblocking.

Exception: The *code official* shall have the authority to waive the submission of *construction documents,* calculations or other data if the nature of the work applied for is such that reviewing of *construction documents* is not necessary to determine compliance with this code.

2024 International Mechanical Code

Revise as follows:

[A] 106.1 Construction documents. *Construction documents*, engineering calculations, diagrams and other data shall be submitted in two or more sets, or in ~~a~~ an *approved* digital format where allowed or required by the ~~building official~~ *code official*, with each application for a permit. The code official shall require *construction documents*, computations and specifications to be prepared and designed by a *registered design professional* where required by state law. Where special conditions exist, the code official is authorized to require additional *construction documents* to be prepared by a *registered design professional*. *Construction documents* shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code. *Construction documents* for *buildings* more than two stories in height shall indicate where penetrations will be made for mechanical systems, and the materials and methods for maintaining required structural safety, fire-resistance rating and fireblocking.

Exception: The code official shall have the authority to waive the submission of *construction documents*, calculations or other data if the nature of the work applied for is such that reviewing of *construction documents* is not necessary to determine compliance with this code.

2024 International Plumbing Code

Revise as follows:

[A] 106.1 Construction documents. Construction documents, engineering calculations, diagrams and other such data shall be submitted in two or more sets, or in ~~a~~ an *approved* digital format where allowed or required by the code official, with each application for a permit. The code official shall require construction documents, computations and specifications to be prepared and designed by a registered design professional where required by state law. Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code. Construction documents for buildings more than two stories in height shall indicate where penetrations will be made for pipes, fittings and components and shall indicate the materials and methods for maintaining required structural safety, fire-resistance rating and fireblocking.

Exception: The code official shall have the authority to waive the submission of construction documents, calculations or other data if the nature of the work applied for is such that the reviewing of construction documents is not necessary to determine compliance with this code.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 107.1 Construction documents. An application for a permit shall be accompanied by not less than two copies of *construction documents* drawn to scale, or in ~~a~~ an *approved* digital format where allowed or required by the ~~building official~~ *code official*, with sufficient clarity and detail dimensions showing the nature and character of the work to be performed. Specifications shall include pumps and controls, dose volume, elevation differences (vertical lift), pipe friction loss, pump performance curve, pump model and pump manufacturer. The *code official* is permitted to waive the requirements for filing *construction documents* where the work involved is of a minor nature. Where the quality of the materials is essential for conformity to this code, specific information shall be given to establish such quality, and this code shall not be cited, or the term “legal” or its equivalent used as a substitute for specific information.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 107.1 Construction documents. Construction documents, engineering calculations, diagrams and other such data shall be submitted in two or more sets, or in an *approved* digital format where allowed or required by the *code official*, with each application for a permit. The *code official* shall require construction documents, computations and specifications to be prepared and designed by a registered design professional where required by state law. Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 106.1 General. Plans, engineering calculations, diagrams and other data shall be submitted in not fewer than two sets, or in ~~a~~ an *approved* digital format where allowed or required by the ~~building official~~ *code official*, with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *code official* is authorized to require additional documents to be prepared by a registered design professional.

Exception: Submission of plans, calculations, construction inspection requirements and other data, if it is found that the nature of the work applied for is such that reviewing of plans is not necessary to obtain compliance with this code.

ADM42-25 Part I

ADM42-25 Part II

IRC: R106.1, R106.1.1

Proponents: Kota Wharton, City of Grove City, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

R106.1 Submittal documents. Submittal documents consisting of *construction documents*, and other data shall be submitted in two or more sets, or in ~~a~~ an *approved* digital format where allowed or required by the *building official*, with each application for a *permit.* The *construction documents* shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed. Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a *registered design professional*.

Exception: The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a *registered design professional* if it is found that the nature of the work applied for is such that reviewing of *construction documents* is not necessary to obtain compliance with this code.

R106.1.1 Information on construction documents. *Construction documents* shall be drawn upon suitable material. ~~Electronic media documents are permitted to be submitted where *approved* by the *building official*.~~ *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *building official.*

Reason: This code change intends to allow code officials to transition to entirely digital submittal models while maintaining the options for hybrid and paper-only models for others.

The code change also enhances existing submittal models by giving the code official explicit authority to regulate the file format of documents received and, if needed, permissions for such documents.

Note: The language intentionally does not specify the required file formats or permissions and relies on *approved*. Such granular requirements would need to be established at the jurisdiction level by policy to allow flexibility based on the jurisdiction's capabilities and needs

An example policy could be described simply as follows:

> Effective [insert date], construction documents [may/are required to] be submitted in digital format to the [insert jurisdiction name].
>
> [Insert jurisdiction name] requires all digital construction documents to be submitted in PDF or PDF/A format without file modification restrictions (e.g., may not be locked to restrict markup).
>
> Supporting documentation that does not need to be stamped by the jurisdiction may only be submitted in PDF, PDF/A, JPEG, PNG, TIFF, DOC, or DOCX format and may have file modification restrictions (e.g., markup restrictions).
>
> Raw and HEIF images and DWG files are not supported file formats.

Various editorial changes are also made throughout with narrow scope.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0. This code change will impact costs; however, the magnitude is likely insignificant and unmeasurable.

Estimated Immediate Cost Impact Justification (methodology and variables):

Cost decreases could be as follows:

- Reduction of printing costs.
- Reduction of administrative time unlocking or transacting unreadable or unmodifiable plans.

There are limited cost increase considerations other than potential costs to digitalize submittals at submittal.

ADM42-25 Part II

ADM43-25 Part I

IBC: [A] 107.1, SECTION 202 (New); IEBC: [A] 106.1, SECTION 202 (New)

Proponents: Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com); Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org)

2024 International Building Code

[A] 107.1 General. Submittal documents consisting of *construction documents*, statement of *special inspections*, geotechnical report and other data shall be submitted in two or more sets, or in digital format where allowed by the *building official*, with each *permit* application. The construction documents shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed. Where special conditions exist, the *building official* is authorized to require ~~additional~~ *supplemental construction documents* to be provided to explain how the proposed design complies with this code. Where required by the laws of the *jurisdiction*, a *supplemental construction document* shall be prepared by a *registered design professional*.

> **Exception:** The *building official* is authorized to waive the submission of *construction documents* and other data ~~not required to be prepared by a *registered design professional*~~ if it is found that the nature of the work applied for is such that review of the waived *construction documents* is not necessary to obtain compliance with this code.

Add new definition as follows:

SPECIAL CONDITION. An element of the construction site or design that is outside the parameters upon which the code is based or exceeds the prescriptive guidance found in the code and is unique to the project rather than generally applicable within the project area. General project characteristics, such as size of the structure and the cost of construction, are not special conditions.

SUPPLEMENTAL CONSTRUCTION DOCUMENT. A construction document not normally provided as part of the standard *permit* application package for the type of work proposed that demonstrates how the proposed design addresses a *special condition* presented by the project so as to meet the intent of the code.

2024 International Existing Building Code

Revise as follows:

[A] 106.1 General. Submittal documents consisting of construction documents, special inspection and structural observation programs, investigation and evaluation reports, and other data shall be submitted in two or more sets, or in a digital format where allowed by the *code official*,with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *code official* is authorized to require ~~additional~~ *supplemental* construction documents to be provided to explain how the proposed design complies with this code. Where required by the laws of the *jurisdiction*, a *supplemental construction document* shall be prepared by a registered design professional.

> **Exception:** The *code official* is authorized to waive the submission of construction documents and other data ~~not required to be prepared by a registered design professional~~ if it is found that the nature of the work applied for is such that reviewing of the waived construction documents is not necessary to obtain compliance with this code.

Add new definition as follows:

SPECIAL CONDITION. An element of the construction site or design that is outside the parameters upon which the code is based or exceeds the prescriptive guidance found in the code and is unique to the project rather than generally applicable within the project area. General project characteristics, such as size of the structure and the cost of construction, are not special conditions.

SUPPLEMENTAL CONSTRUCTION DOCUMENT. A construction document not normally provided as part of the standard *permit* application package for the type of work proposed that demonstrates how the proposed design addresses a *special condition* presented by the project so as to meet the intent of the code.

Attached Files

- **ICC Opinion email of 11-27-2023 (1).pdf**
  https://www.cdpaccess.com/proposal/11255/35348/files/download/9627/

Reason: Many jurisdictions have deployed or plan to implement online building permit application processes that require digital rather than paper plan submittals. This fact is already recognized by the wording of R106.1, which is repeated here.

The second proposed modification reflects the need to recognize the intent of the original term "additional construction documents," which is to demonstrate how the proposed design addresses the special conditions, by replacing "additional" with "supplemental," adding the reason for requesting the supplemental documents, and clarifying who may prepare such documents. The proposed deletion of "registered design professional" recognizes that state professional practice laws determine who may or must prepare these additional construction documents depending on their nature. In addition, the current wording fails to allow the exemptions that exist in the majority of states for non-registered persons and property owners to prepare construction documents for residential and smaller commercial projects, which creates a conflict with these state laws. However, the requirement for a registered design professional to prepare any supplemental document is preserved.

The revised wording in the Exception clause is intended to recognize that it is the nature of the proposed work, and not the person who might prepare an unnecessary construction document, that should determine whether a specific construction document is not necessary for the contemplated project. For example, an interior modification may not need an exterior elevation, which, under the laws of the jurisdiction, might be prepared by anyone. A building official should be able to avoid the submission and subsequent review of any unnecessary construction documents in accordance with the nature of the proposed work.Two phrases are italicized in the modified section: special conditions and supplemental construction documents. This font notation reflects the related proposal of new definitions for these terms in order to remove ambiguity that is creating issues in multiple jurisdictions regarding the intent behind these phrases. Services of a registered design professional are often not required by the laws of the jurisdiction when the prescriptive guidance needed is found in the code or in the referenced standards on which that guidance is based and the laws of the jurisdiction provide an exemption for registration in order to prepare such submittals.

The new definitions proposed for *supplemental construction document* and *special condition* are needed to clarify the current intent related to the provisions of the sentence in Section 107.1 that says, "Where *special conditions* exist, the *building official* is authorized to require additional *construction documents* to be prepared by a *registered design professional*." The intent of the subject sentence was confirmed in an advisory opinion provided to the proponent by ICC staff (see attachment). The proposed definitions seek to clarify the intent by removing ambiguity, which is leading some local jurisdictions to declare construction cost, livable space, or even just the project's presence within the jurisdiction as being a special condition, and then requiring that all construction documents be prepared by a registered design professional. Special conditions should only exist where design parameters or site conditions are outside those accommodated by the prescriptive guidance found in the code. Additional construction documents should not include the documents that are common for the proposed type of construction; they should address how the proposed design will meet the intent of the code relative to those special conditions. Replacing "additional" with "supplemental" will reinforce that intent.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Allowing the submittal of digital documents will save permit applicants the cost of printing paper documents and will save the building safety departments the cost of long-term paper storage. There may also be some savings from reducing the number of construction documents that must be prepared by registered design professionals when the laws of the jurisdiction do not require such persons to prepare the documents.

For an average commercial project - 35 sheets x $6.75 per sheet x 2 sets = $472.50 cost per project.

Estimated Immediate Cost Impact Justification (methodology and variables):

Although the savings from not printing construction documents depends on the number of sheets and the local cost of production, the fact that any printing costs may be avoided through electronic submission of the documents is readily apparent. Long-term storage costs of submitted construction documents depends on the retention requirements of the jurisdiction, but clearly accumulate over time as the volume increases. Many jurisdictions are actually converting paper documents to an electronic form in order to avoid these storage costs. Receiving such documents in an original electronic form will additionally avoid the cost of digitization. It can also speed the plan review process.

ADM43-25 Part I

ADM43-25 Part II

IRC: R106.1, SECTION 202 (New)

Proponents: Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com); Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org)

2024 International Residential Code

R106.1 Submittal documents. Submittal documents consisting of *construction documents*~~,~~ and other data shall be submitted in two or more sets, or in a digital format where allowed by the *building official*, with each application for a *permit.* The *construction documents* shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed. Where special conditions exist, the *building official* is authorized to require ~~additional~~ *supplemental* *construction documents* to be ~~prepared~~ provided to explain how the proposed design complies with this code. Where required by the laws of the jurisdiction, a *supplemental construction document* shall be prepared by a *registered design professional*.

> **Exception:** The *building official* is authorized to waive the submission of *construction documents* and other data ~~not required to be prepared by a *registered design professional*~~ if it is found that the nature of the work applied for is such that reviewing of the waived *construction documents* is not necessary to obtain compliance with this code.

Add new definition as follows:

SPECIAL CONDITION. An element of the construction site or design that is outside the parameters upon which the code is based or exceeds the prescriptive guidance found in the code and is unique to the project rather than generally applicable within the project area. A general project characteristic, such as size of the structure or the cost of construction, is not a special condition.

SUPPLEMENTAL CONSTRUCTION DOCUMENT. A construction document not normally provided as part of the standard *permit* application package for the type of work proposed that demonstrates how the proposed design addresses a *special condition* presented by the project so as to meet the intent of the code.

Attached Files

- **ICC Opinion email of 11-27-2023 (1).pdf**
  https://www.cdpaccess.com/proposal/11286/35361/files/download/9628/

Reason: The first proposed modification is to remove the serial comma after the first instance of 'construction documents', as there are only two items in the list. The first proposed substantive modification reflects the need to recognize the intent of the original term "additional construction documents," which is to demonstrate how the proposed design addresses the special conditions, by replacing "additional" with "supplemental." The verb 'prepared' is replaced with 'provided' in recognition that some supplemental documents, such as product certifications and manufacturer's installation instructions, are existing documents that only need to be supplied to the building official to satisfy the requirement. Two phrases are italicized in the modified section: *special conditions* and *supplemental construction documents*. This font notation reflects the related proposal of new definitions for these terms in order to remove ambiguity that is creating issues in multiple jurisdictions regarding the intent behind these phrases.

The revised wording in the Exception clause is intended to recognize that it is the nature of the proposed work, and not the person who might prepare an unnecessary construction document, that should determine whether a specific construction document is necessary for the contemplated project. For example, an interior modification may not need an exterior elevation, which, under the laws of the jurisdiction, might be prepared by anyone. A building official should be able to avoid the submission and subsequent review of any unnecessary construction documents in accordance with the nature of the proposed work.

Services of a registered design professional are often not required by the laws of the jurisdiction when the prescriptive guidance needed is found in the code or in the referenced standards on which that guidance is based and the laws of the jurisdiction provide an exemption for registration in order to prepare such submittals.

The new definitions proposed for supplemental construction document and special condition are needed to clarify the current intent related to the provisions of the sentence in Section R106.1 that says, "Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional." (A related proposed modification alters the wording of this section to be consistent with the proposed definition.) The intent of the subject sentence was confirmed in an advisory opinion provided to the proponent by ICC staff (see attachment). The proposed definitions seek to clarify the intent by removing ambiguity, which is leading some local jurisdictions to declare construction cost, livable space, or even just the project's presence within the jurisdiction as being a special condition, and then requiring that all construction documents be prepared by a registered design professional. Special conditions should only exist where design parameters or site conditions are outside those accommodated by the prescriptive guidance found in the code. Supplemental construction documents should not include the documents that are common for the proposed type of construction; they should address how the proposed design will meet the intent of the code relative to those special conditions. Replacing "additional" with "supplemental" will reinforce that intent.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed modification seeks to clarify the original intent of this subsection.

ADM43-25 Part II

ADM44-25

IPMC: 107, [A] 107.1, [A] 107.2, [A] 107.3, [A] 107.4, [A] 107.5

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Property Maintenance Code

SECTION 107
VIOLATIONS

[A] 107.1 Unlawful acts. It shall be unlawful for a *person*, firm or corporation to be in conflict with or in violation of any of the provisions of this code.

[A] 107.2 Notice of violation. The *code official* shall serve a notice of violation or order in accordance with Section 109.4.

Delete and substitute as follows:

~~**[A] 107.3 Prosecution of violation.** Any *person* failing to comply with a notice of violation or order served in accordance with Section 109.4 shall be deemed guilty of a misdemeanor or civil infraction as determined by the local municipality, and the violation shall be deemed a *strict liability offense*. If the notice of violation is not complied with, the *code official* shall institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful *occupancy* of the *structure* in violation of the provisions of this code or of the order or direction made pursuant thereto. Any action taken by the authority having jurisdiction on such *premises* shall be charged against the real estate upon which the *structure* is located and shall be a lien upon such real estate.~~

[A] 107.3 Prosecution of violation. Persons who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, repair or do work in violation of the approved construction documents or directive of the *code official*, or of a permit or certificate used under provisions of this code, shall be guilty of a **[specify offense]**, punishable by a fine of not more than **[amount]** dollars or by imprisonment not exceeding **[number of days]**, or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense.

Any action taken by the authority having jurisdiction on such *premises* shall be charged against the real estate upon which the *structure* is located and shall be a lien upon such real estate.

Delete without substitution:

~~**[A] 107.4 Violation penalties.** Any *person* who shall violate a provision of this code, or fail to comply therewith, or with any of the requirements thereof, shall be prosecuted within the limits provided by state or local laws. Each day that a violation continues after due notice has been served shall be deemed a separate offense.~~

Delete and substitute as follows:

~~**[A] 107.5 Abatement of violation.** The imposition of the penalties herein prescribed shall not preclude the legal officer of the jurisdiction from instituting appropriate action to restrain, correct or abate a violation, or to prevent illegal *occupancy* of a building, *structure* or *premises*, or to stop an illegal act, conduct, business or utilization of the building, *structure* or *premises*.~~

[A] 107.4 Abatement of violation.
In addition to the imposition of the penalties herein described, the code official is authorized to institute appropriate action to prevent unlawful construction or to restrain, correct or abate a violation; or to prevent illegal occupancy of a structure or premises; or to stop an illegal act, conduct of business or occupancy of a structure on or about any premises.

Reason: This code change coordinates langage between the International Fire Code and IPMC.

It removes the prescriptive classifications of offenses that were previously present in the model code and instead defers the responsibility of classifying these offenses to the respective jurisdictions. The approach allows for greater flexibility and adaptability, as acknowledges that the many different jurisdictional legal frameworks and enforcement priorities.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Impacted jurisdictions would have revised this section during adoption. This code change creates a simple fill-in-the-blank for easier adoption and to remove potential conflicts.

ADM44-25

ADM45-25 Part I

IBC: [A] 107.3.1; IEBC: [A] 106.3.1; IFC: [A] 106.2.4, [A] 106.4; IFGC: [A] 105.5.1, [A] 106.2; IMC®: [A] 105.4.1, [A] 106.2; IPC: [A] 105.5.1, [A] 106.2 (New); IPSDC: [A] 105.3.1, [A] 107.2 (New); ISPSC: [A] 105.4.1, [A] 107.2 (New); IWUIC: [A] 105.6, [A] 106.8

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 107.3.1 Approval of construction documents. When the *building official* issues a *permit*, the *construction documents* shall be *approved*, in writing or by stamp.~~, as "Reviewed for Code Compliance." One set of *construction documents* so reviewed shall be retained by the *building official*. The other set shall be returned to the applicant, shall be kept at the *site* of work and shall be open to inspection by the *building official* or a duly authorized representative.~~

2024 International Existing Building Code

Revise as follows:

[A] 106.3.1 Approval of construction documents. Where the *code official* issues a permit, the construction documents shall be *approved* in writing or by stamp. ~~as "Reviewed for Code Compliance." One set of construction documents so reviewed shall be retained by the *code official*. The other set shall be returned to the applicant, shall be kept at the site of work, and shall be open to inspection by the *code official* or a duly authorized representative.~~

2024 International Fire Code

Revise as follows:

[A] 106.2.4 Approved documents. Where the *fire code official* issues a permit, the *construction documents* shall be approved in writing or by stamp.~~*Construction documents approved* by the *fire code official* are *approved* with the intent that such *construction documents* comply in all respects with this code. Review and approval by the *fire code official* shall not relieve the applicant of the responsibility of compliance with this code.~~

[A] 106.4 Retention of construction documents. One set of *construction documents* shall be retained by the *fire code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws. ~~One set of *approved construction documents* shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.~~

2024 International Fuel Gas Code

Revise as follows:

[A] 105.5.1 Approved construction documents. ~~When~~ Where the code official issues the permit ~~where *construction documents* are required~~, the *construction documents* shall be ~~endorsed~~ approved in writing or by a stamp. ~~and stamped "APPROVED." Such *approved construction documents* shall not be changed, modified or altered without authorization from the code official.~~ Work shall be done in accordance with the *approved construction documents*.

The *code official* shall have the authority to issue a permit for the construction of part of an installation before the *construction documents* for the entire installation have been submitted or *approved*, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holder of such permit shall proceed at his or her own risk without assurance that the permit for the entire installation will be granted.

[A] 106.2 Retention of construction documents. One set of *approved construction documents* shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws. ~~One set of *approved construction documents* shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.~~

2024 International Mechanical Code

Revise as follows:

[A] 105.4.1 Approved construction documents. ~~When~~ Where the code official issues the permit ~~where *construction documents* are required~~, the *construction documents* shall be ~~endorsed~~ approved in writing or by a stamp. ~~and stamped "APPROVED." Such *approved construction documents* shall not be changed, modified or altered without authorization from the code official.~~ Work shall be done in accordance with the *approved construction documents*.

The code official shall have the authority to issue a permit for the construction of part of a mechanical system before the *construction documents* for the entire system have been submitted or *approved*, provided that adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holder of such permit shall proceed at his or her own risk without assurance that the permit for the entire mechanical system will be granted.

[A] 106.2 Retention of construction documents. One set of *approved construction documents* shall be retained by the code official for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws. ~~One set of *approved construction documents* shall be returned to the applicant, and said set shall be kept on the site of the *building* or job at all times during which the work authorized thereby is in progress.~~

2024 International Plumbing Code

Revise as follows:

[A] 105.5.1 Approved construction documents. ~~When~~ Where the code official issues the permit ~~where *construction documents* are required~~, the *construction documents* shall be ~~endorsed~~ approved in writing or by a stamp. ~~and stamped "APPROVED." Such *approved construction documents* shall not be changed, modified or altered without authorization from the code official.~~ Work shall be done in accordance with the *approved construction documents*.The code official shall have the authority to issue a permit for the construction of a part of a plumbing system before the entire construction documents for the whole system have been submitted or *approved*, provided that adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire plumbing system will be granted.

[A] 106.2 Retention of construction documents. One set of *approved* construction documents shall be retained by the code official for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~One set of *approved* construction documents shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.~~

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 105.3.1 Approved construction documents. ~~When~~ Where the code official issues the permit ~~where *construction documents* are required~~, the *construction documents* shall be ~~endorsed~~ approved in writing or by a stamp. ~~and stamped "APPROVED." Such *approved construction documents* shall not be changed, modified or altered without authorization from the code official.~~ Work shall be done in accordance with the *approved construction documents*.

The *code official* shall have the authority to issue a permit for the construction of a part of a *private sewage disposal system* before the *construction documents* for the whole system have been submitted or approved, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holder of such permit shall proceed at his or her own risk without assurance that the permit for the entire system will be granted.

[A] 107.2 Retention of construction documents. One set of approved *construction documents* shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws. ~~One set of approved *construction documents* shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.~~

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 105.4.1 Approved construction documents. ~~When~~ Where the code official issues the permit ~~where *construction documents* are required~~, the *construction documents* shall be ~~endorsed~~ approved in writing or by a stamp. ~~and stamped "APPROVED." Such *approved construction documents* shall not be changed, modified or altered without authorization from the code official.~~ Work shall be done in accordance with the *approved construction documents*.The *code official* shall have the authority to issue a permit for the construction of a part of a system before the entire construction documents for the whole system have been submitted or *approved*, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire system will be granted.

[A] 107.2 Retention of construction documents.

One set of approved *construction documents* shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws. ~~One set of approved *construction documents* shall be returned to the applicant, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.~~

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 105.6 Permit issuance. ~~When~~ Where the code official issues the permit ~~where *construction documents* are required~~, the *construction documents* shall be ~~endorsed~~ approved in writing or by a stamp. ~~and stamped "APPROVED." Such *approved construction documents* shall not be changed, modified or altered without authorization from the code official.~~ Work shall be done in accordance with the *approved construction documents*.

When the *code official* issues the permit, the *code official* shall endorse in writing or stamp the plans and specifications APPROVED. Such *approved* plans and specifications shall not be changed, modified or altered without authorization from the *code official*, and work regulated by this code shall be done in accordance with the *approved* plans.

[A] 106.8 Retention of plans. One set of *approved* plans, specifications and computations shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work or as required by state or local laws~~; and one set of *approved* plans and specifications shall be returned to the applicant, and said set shall be kept on the site of the building, use or work at all times during which the work authorized thereby is in progress.~~

ADM45-25 Part I

ADM45-25 Part II

IRC: R106.3.1

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

R106.3.1 Approval of construction documents. Where the *building official* issues a *permit*, the *construction documents* shall be *approved* in writing or by a stamp. ~~that states "REVIEWED FOR CODE COMPLIANCE." One set of *construction documents* so reviewed shall be retained by the *building official*. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the *building official* or a duly authorized representative.~~

Reason: This code change coordinates the language - but not placement - of construction document approval and removes prescriptive verbiage for how agencies must stamp plans.

The deletion of language in the IFC is done as editorial clean up. The intent of the language can already be found in IFC 105.3.6 and is satisfactory in all other codes.

The deletion of plan return and retention on site is deleted in observation increasingly prevalent digital capabilities. If necessary, a department could go so far as to issue a policy that construction documents are to be maintained on site and in what manner; but a prescriptive requirement in the code is not needed.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0 - This code change has limited cost impact in it's first part - removing prescriptive stamp verbiage. There is a decrease in cost associated deleting the requirement for physical sets of plans, their return, and availability on site.

Estimated Immediate Cost Impact Justification (methodology and variables):

The immediate cost decrease is appreciated in the reduction of printing costs.

ADM45-25 Part II

ADM46-25

IFC: 108.2.3 (New), 109.3 (New), SECTION 202 (New), NFPA Chapter 80 (New)

Proponents: Jason Webb, representing Potter Electric Signal (jasonw@pottersignal.com)

2024 International Fire Code

Add new text as follows:

108.2.3 Remote inspections and automated tests. Where remote inspections and tests, automated inspection and testing or distance monitoring are allowed by the *fire code official*, remote inspections and tests, automated inspection and testing, or distance monitoring shall be in accordance with NFPA 915 or other approved program.

109.3 Remote inspections and automated tests. Where remote inspections and tests, automated inspection and testing or distance monitoring are allowed by the fire code official, remote inspections and tests, automated inspection and testing, or distance monitoring shall be in accordance with NFPA 915 or other approved program.

Add new definition as follows:

REMOTE INSPECTION. The performance of an inspection or witnessing of a test conducted by *approved* agencies or individuals using audio-visual devices or other technologies where the *fire code official* is not physically present on site.

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

NFPA 915-2024 Standard for Remote Inspections and Tests

Reason: NFPA 915 – the Standard for Remote Inspections and Tests, is proposed to be referenced by chapter 1 as it contains guidance intended to provide the fire code official with tools to implement a remote inspection program, should they choose to do so. The standard is written in a manner which permits the code official to customize the remote inspection/automated testing program in ways that suit their need. Included in NFPA 915 are considerations such as what tools and methods of remote inspections and automated tests are permitted, responsibilities of the person performing the remote inspection, data transmission and ownership, among others. This proposal also gives the fire code official the option of allowing for other approved remote inspection programs.

This language is an important addition to the code for several reasons. No reference to remote inspections or automated tests appears in the code today, although many code official allow for the practice. NFPA 915 was developed with strong influence of building and fire code officials to help fill a gap in a fast-expanding practice which presently has little regulation by the fire code. Besides the guidance provided by NFPA 915 for routine remote inspections (one in which the code official is not physically present) it is important to recognize that many of the fire protection standards currently referenced by the fire code contain language permitting automated testing. Much of this language is coordinated in the various standards, but not all. By referencing NFPA 915 in the fire code, it gives the fire code official the have a standard, consistent practice in place for these inspections and tests.

It is also important to recall that this reference is proposed for what will be the 2027 edition of the fire code. Should it not be approved this cycle, the next edition will be the 2030, likely not adopted by a majority of jurisdictions until 2031 or 2032 at the earliest. The technology driving remote inspection and automated testing is already moving at a much faster pace that the codes can keep up with. Pushing out the reference, and therefore the attempt to standardize the regulations surrounding remote inspections and automated testing another 8 or 9 years for a practice that is already in common practice and increasing rapidly is inadvisable.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal allows for inspections and tests to be conducted remotely or using automated devices when acceptable to the AHJ and when a program is in place. It does not mandate any new inspections or tests and does not impact the cost of construction.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
NFPA 915-2024 Standard for Remote Inspections and Tests

ADM47-25 Part I

IBC: [A] 109.3; IEBC: [A] 108.3; IFC: 108.3; IFGC: [A] 108.3; IGCC: 107.3; IMC®: [A] 108.3; IPC: [A] 108.3; IPSDC: [A] 106.3; ISPSC: [A] 109.3; IWUIC: [A] 108.3

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 109.3 Permit valuations. The applicant for a *permit* shall provide an estimated value of the work for which the *permit* is being issued at time of application. Such estimated valuations shall include the total value of work, including materials and labor, for ~~which the *permit* is being issued~~ work, such as electrical, gas, mechanical, plumbing equipment and permanent systems. ~~Where, in the opinion of the *building official*, the valuation is underestimated, the *permit* shall be denied, unless the applicant can show detailed estimates acceptable to the *building official*. The building official shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the building official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the building official, the building official shall have the authority to adjust the final valuation used to determine permit fees. The building official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Existing Building Code

Revise as follows:

[A] 108.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include total value of work, including materials and labor for ~~which the permit is being issued~~ work, such as electrical, gas, mechanical, plumbing equipment and permanent systems. ~~Where, in the opinion of the *code official*, the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates acceptable to the *code official*. The code official shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the code official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the code official, the code official shall have the authority to adjust the final valuation used to determine permit fees. The code official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Fire Code

Revise as follows:

108.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at the time of application. Such estimated valuations shall include the total value of work, including materials and labor, for ~~which the permit is being issued~~ work, such as electrical, gas, mechanical, plumbing equipment and permanent systems. ~~Where , in the opinion of the *fire code official*, the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates acceptable to the *fire code official*. The *fire code official* shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the fire code official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the fire code official, the fire code official shall have the authority to adjust the final valuation used to determine permit fees. The fire code official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Fuel Gas Code

Revise as follows:

[A] 108.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include total value of work, including materials and labor, for ~~which the permit is being issued~~ work, such as plumbing *equipment* and permanent systems. ~~Where, in the opinion of the *code official*, the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates acceptable to the *code official*. The *code official* shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the code official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the code official, the code official shall have the authority to adjust the final valuation used to determine permit fees. The code official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Green Construction Code

Revise as follows:

107.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at the time of application. Such estimated valuations shall include the total value of work, including materials and labor, for ~~which the permit is being issued~~ work, such as electrical, gas, mechanical, and plumbing equipment and permanent systems. ~~In the opinion of the building official, where the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates acceptable to the building official. The building official shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the building official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the building official, the building official shall have the authority to adjust the final valuation used to determine permit fees. The building official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Mechanical Code

Revise as follows:

[A] 108.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at the time of application. Such estimated valuations shall include the total value of work, including materials and labor, for ~~which the permit is being issued~~ work, such as mechanical *equipment* and permanent systems. ~~Where, in the opinion of the code official, the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates to the code official. The code official shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the code official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the code official, the code official shall have the authority to adjust the final valuation used to determine permit fees. The code official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Plumbing Code

Revise as follows:

[A] 108.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include the total value of work, including materials and labor, for ~~which the permit is being issued~~ work, such as electrical, gas, mechanical, plumbing equipment and permanent systems. ~~Where, in the opinion of the building official, the valuation is underestimated, the permit shall be denied, unless the applicant can show detailed estimates acceptable to the building official. The building official shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the code official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the code official, the code official shall have the authority to adjust the final valuation used to determine permit fees. The code official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 106.3 Permit valuations. The applicant for a *permit* shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include the total value of work, including materials and labor, for ~~which the *permit* is being issued~~ work, such as electrical, gas, mechanical, plumbing equipment and permanent systems. ~~Where, in the opinion of the *building official*, the valuation is underestimated, the *permit* shall be denied, unless the applicant can show detailed estimates acceptable to the *building official*. The building official shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the building official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the building official, the building official shall have the authority to adjust the final valuation used to determine permit fees. The building official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 109.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include total value of work, including materials and labor, for ~~which the permit is being issued~~ work, such as mechanical equipment and permanent systems. ~~Where, in the opinion of the *code official*, the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates tothe *code official*. The code official shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the code official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the code official, the code official shall have the authority to adjust the final valuation used to determine permit fees. The code official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] 108.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include the total value of work, including materials and labor, for ~~which the permit is being issued~~ work. ~~Where, in the opinion of the applicable governing authority, the valuation is underestimated, the permit shall be denied, unless the applicant can show detailed estimates acceptable to the applicable governing authority. The applicable governing authority shall have the authority to adjust the final valuation for permit fees.~~ Where, in the opinion of the applicable governing authority, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the applicable governing authority, the applicable governing authority shall have the authority to adjust the final valuation used to determine permit fees. The applicable governing authority shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

ADM47-25 Part I

ADM47-25 Part II

IRC: R108.3, R108.6, R108.4, R108.5

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

R108.3 ~~Building permit~~ Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated ~~Building permit~~ valuations shall include the total value of work, including materials and labor, for work~~for which the permit is being issued~~, such as electrical, gas, mechanical, plumbing equipment and permanent systems, ~~including materials and labor~~. Where, in the opinion of the building official, the applicant underestimates the valuation of the work on the application, or the applicant fails to provide detailed estimates acceptable to the building official, the building official shall have the authority to adjust the final valuation used to determine permit fees. The building official shall notify the applicant in writing, stating the final valuation and the reasons why the valuation was altered.

~~R108.6~~ R108.4 Work commencing before permit issuance. Any *person* who commences work requiring a *permit* on a *building*, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary *permits* shall be subject to a fee established by the applicable governing authority that shall be in addition to the required *permit* fees.

~~R108.4~~ R108.5 Related fees. The payment of the fee for the construction, *alteration*, removal or demolition for work done in connection to or concurrently with the work authorized by a building *permit* shall not relieve the applicant or holder of the *permit* from the payment of other fees that are prescribed by law.

~~R108.5~~ R108.6 Refunds. The *building official* is authorized to establish a refund policy.

Reason:
To address concerns about the strict directive to deny a permit based on disagreement over a buildings valuation used for permit fees, this proposal replaces the last two sentences with clarifying text. Examples where the construction cost is different from the building valuation might be a volunteer organization where materials or labor were donated. The building valuation is used to determine the amount of work required by the building department for plan review and inspection costs.
This proposed language provides the building official the authority to set accurate building valuations as currently regulated within the I-codes. At the same time, it provides the applicant the documentation they are entitled to proceed with any potential appeals, the same as any other code section. This eliminates potential subjectivity from either party and ensures consistency in collecting the fees implemented by the locality.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This could affect the cost of the permit for buildings where the actual construction cost was different than the valuation of the building.

ADM47-25 Part II

ADM48-25 Part I

IBC: [A] 107.2.4, [A] 110.3.5 (New)

Proponents: Theresa Weston, The Holt Weston Consultancy, representing Air Barrier Association of America (ABAA) (holtweston88@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IBC-S CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 107.2.4 Exterior wall ~~envelope~~ assembly. *Construction documents* for all *buildings* shall describe the *exterior wall ~~envelope~~ assembly* in sufficient detail to determine compliance with this code. The *construction documents* shall provide details of the *exterior wall ~~envelope~~ assembly* as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, *water-resistive barrier* and details around openings.

The *construction documents* shall include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the *construction documents* maintain the weather resistance of the *exterior wall ~~envelope.~~ assembly*. The supporting documentation shall fully describe the *exterior wall* system that was tested, where applicable, as well as the test procedure used.

Add new text as follows:

[A] 110.3.5 Water-resistive barrier installation. Inspection is required for the *water-resistive barrier* material and installation in accordance with the construction documents. The inspection shall be conducted during construction while the water-resistive barrier is still accessible for inspection and repair.

Exception: Where *special inspections* are provided in accordance with Section 1705.1.1, Item 3.or Section 1705.21

ADM48-25 Part I

ADM48-25 Part II

IBC: 1705.21 (New), TABLE 1705.21 (New)

Proponents: Theresa Weston, The Holt Weston Consultancy, representing Air Barrier Association of America (ABAA) (holtweston88@gmail.com)

2024 International Building Code

Add new text as follows:

1705.21 Water-resistive barrier installation. Where required by the *building official*, a special inspection shall be conducted for the installation of the *water-resistive barrier* and the intersection of the water-resistive barrier with flashing in accordance with Sections 1704.2 and Table 1705.21. A statement of special inspections shall be included in the construction documents and shall include the proposed inspection schedule, the list of inspection items, and inspection documentation to be provided. The periodic inspection shall be conducted during construction while the water-resistive barrier is still accessible for inspection and repair.

TABLE 1705.21 REQUIRED SPECIAL INSPECTIONS FOR WATER-RESISTIVE BARRIER INSTALLATION

WATER-RESISTIVE BARRIER TYPE	INSPECTION ITEM	
All water-resistive barriers	Verify the water-resistive barrier is continuous to the top of walls.	
	Verify the water-resistive barrier is integrated with flashing installed at wall and roof intersections as described in section 1503.2.	
	Verify the water-resistive barrier is terminated at penetrations and building appendages in a manner to meet the requirements of the exterior wall envelope as described in Section 1402.2 and is integrated with flashings in accordance with Section 1404.4	
Applicable to specific types of water-resistive barriers.	No 15 felt, and water-resistive barriers complying with ASTM E2556	Verify the water-resistive barrier is applied shingle fashion with the upper layer lapped over the lower layer not less than 2 inches (51 mm).
		Verify vertical joints in the water-resistive barrier sheets are lapped not less than 6 inches (152 mm)
	Foam plastic insulating sheathing water-resistive barriers systems	Verify installation in accordance with manufacturer's installation instructions.
	Water-resistive barrier approved through ASTM E331 testing in accordance with Section 1402.2	Verify installation is in accordance with the installation specified in the testing report.
	Water-resistive barriers approved as alternative materials	Verify the water-resistive barrier is installed in accordance with the manufacturer’s installation instructions

Reason: This proposal updates the code sections on the specification and inspection of the e*xterior wall assembly* and *water-resistive barrier* installation, as follows:

1. Updates the terminology in Section 107.2.4 to include the revision of the term "exterior wall envelope" to "exterior wall assembly" that was made in the 2024 IBC Section 202: *exterior wall envelope* was replaced with *exterior wall assembly.*
2. Adds a new section with requirements for inspection of the *water-resistive barrier* installation (and renumbers subsequent sections). The section has an exception for special inspections.
3. Adds a new section in Chapter 17 with the *water-resistive barrier* special inspection criteria to be used when required by the building official.

Water-resistive barriers and their installation are critical to the weather resistance performance of the exterior wall assembly. It is estimated that 70% of construction claims are due to water and moisture issues in the enclosure. [2,5] According to a recent report on building enclosure damage, "Water intrusion... .dreaded by homeowners, contractors, and insurance adjusters alike. It is evident why, as it ranks as the second most common cause for property insurance claims and first for the most expensive type of claim. In addition, water intrusion accounts for 70% of construction litigation. On average, each incident costs $11,098; collectively, water intrusion costs over $20 billion annually throughout the United States.[6]Water-resistive barrier detailing is currently required in the construction documents. However, these details need to be installed correctly as data suggests these water intrusion issues are often a result of incorrect installation: A survey of "top 100" general contracting firms found the "53% of all defects of defects originate from poor workmanship, supervision and inspection of trade contractors during construction." [2] A third party quality assurance inspection firm lists several defects in water-resistive barrier and flashing integration among the "top 10 construction defects observed across the U.S. in 2018." [3] This proposal seeks to reduce water intrusion issues resulting from incorrect installation of the water-resistive barrier and/or integration of flashings with the water-resistive barrier through requiring a special inspection of water-resistive barrier installation.

The new Section 1705.21 was contains a table of inspection items which are based on the requirements in Sections 1403.2 and a survey of common errors in water-resistive barrier installation based on industry audit information, interviews with industry professionals, and internet searches.[2, 5, 7] The table aligns with requirements based on requirements for specific types of water-resistive barriers 1403.2. It should be noted that EIFS and EIFS water-resistive barriers already are subject to special inspections.

Bibliography: 1. ABAA, Air Barrier Quality Assurance Program, https://www.airbarrier.org/qap-overview/
2. Grosskopf, K. R. and D. E. Lucas, "Identifying the Causes of Moisture-Related Defect Litigation in U. S. Building Construction", COBRA 2008 – The Construction and Building Research Conference of the Royal Institution of Chartered Surveyors, Dublin, Sept 4-5, 2008
3. Hoch, Jeff, "The Top 10 Construction Defects Observed Across the U.S. in 2018, QualityBuilt, March 12, 2019; https://www.qualitybuilt.com/resources/top-10-construction-defects-2018/
4. Report of the Barrett Commission of Inquiry into the Quality of Condominium Construction in British Columbia, Vancouver BC, 1998.
5. Stroik, Brian, "Mock-ups: The Crash Test Dummy for Building Enclosures'" ABAA Conference, Norfolk, VA, March 26-27 2019. https://www.abaaconference.com/wp-content/uploads/2019/04/Mock-Ups-The-Crash-Test-Dummy-for-Building-Enclosures-Brian-Stroik.pdf
6. Swart, Amelia, "Damage Report: Water Intrusion", Forum Forensics, September 20, 2022, https://www.forumforensics.com/blog/damage-report-water-intrusion

Cost Impact: Increase

Estimated Immediate Cost Impact:

$.20 to .40 per square foot of opaque wall area for the case when special inspections were conducted.

Estimated Immediate Cost Impact Justification (methodology and variables):

This estimate was based on the cost of quality audits reported by the Air Barrier Association of America [1] and is likely a high estimate as an air barrier quality audit would cover more items than a special inspection of the water-resistive barrier and flashing alone. The increased immediate cost needs to be weighed against the liability for potential water intrusion damage if the water-resistive barrier and flashing are not installed correctly. Experience has shown that because of the relative inaccessibility of the water management components in the building enclosures, rebuilding a wall system can cost twice as much as the original wall cost per sq. ft. [4]

ADM48-25 Part II

ADM49-25

IBC: SECTION 111, [A] 111.1, [A] 111.2, [A] 111.3, [A] 111.4, [A] 111.5 (New), [A] 111.5.1 (New)

Proponents: Joseph Summers, Mashantucket Pequot Tribal Nation, representing Self

2024 International Building Code

SECTION 111
CERTIFICATE OF OCCUPANCY

Revise as follows:

[A] 111.1 ~~Change of~~ Use and occupancy. A *building* or *structure* shall not be used or occupied in whole or in part, and a *change of occupancy* of a *building* or *structure* or portion thereof shall not be made, until the *building official* has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the *jurisdiction*. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the *jurisdiction* shall not be valid.

~~Exception~~ Exceptions:

1. Certificates of occupancy are not required for work exempt from *permits* in accordance with Section 105.2.
2. Work for which a certificate of approval issued in accordance with Section 111.5.

[A] 111.2 Certificate issued. After the *building official* inspects the building or *structure* and does not find violations of the provisions of this code or other laws that are enforced by the department, the *building official* shall issue a certificate of occupancy that contains the following:

1. The *permit* number.
2. The address of the *structure*.
3. The name and address of the *owner* or the *owner*'s authorized agent.
4. A description of that portion of the *structure* for which the certificate is issued.
5. A statement that the described portion of the *structure* has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3.
9. The type of construction as defined in Chapter 6.
10. The design *occupant load*.
11. Where an *automatic sprinkler system* is provided, whether the sprinkler system is required.
12. Any special stipulations and conditions of the building *permit*.

[A] 111.3 Temporary occupancy. The *building official* is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the *permit*, provided that such portion or portions shall be occupied safely. The *building official* shall set a time period during which the temporary certificate of occupancy is valid.

[A] 111.4 Revocation. The *building official* is authorized to suspend or revoke a certificate of occupancy or completion issued under the provisions of this code, in writing, wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or *structure* or portion thereof is in violation of the provisions of this code or other ordinance of the *jurisdiction* .

Add new text as follows:

[A] 111.5 Certificate of approval. The *building official* shall issue a certificate of approval indicating substantial compliance with the requirements of this code for all completed work that requires a building *permit* but does not require a *certificate of occupancy*. Such work shall include, but not be limited to: fences greater than 7 feet (2134 mm) in height; retaining walls greater than 3 feet (914 mm) in height; decks; garages; *swimming pool*s; basements and attics converted to *habitable space*; electrical, plumbing, and mechanical *repairs* or *alterations*.

[A] 111.5.1 Certificate requirements. After the *building official* inspects the building or *structure* and does not find violations of the provisions of this code or other laws that are enforced by the department, the *building official* shall issue a certificate of approval that contains the following:

1. The *permit* number.
2. The address of the *structure*.
3. A description of that portion of the *structure* for which the certificate is issued.
4. A statement that the described portion of the *structure* has been inspected for compliance with the requirements of this code.
5. The name of the *building official*.
6. The edition of the code under which the *permit* was issued.
7. Any special stipulations and conditions of the building *permit*.

Reason: Currently as worded it can be viewed that a certificate of occupancy is required to be issued every time a permit is issued. This proposal provides a simplified path for the building official to issue a document without providing all of the information that is required on a certificate of occupancy.

Bibliography: The State of Connecticut has similar language as part of the State Building Code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This will not increase or decrease the cost of construction as it is an administrative matter for the building official.

Staff Analysis: Similar requirements for Certificate of Occupancy is also included in the IEBC Section 111 and IRC Sectin 110

ADM49-25

ADM50-25 Part I

IBC: SECTION 111, [A] 111.1, [A] 111.2, [A] 111.3, [A] 111.4; IEBC: SECTION 110, [A] 110.1, [A] 110.2, [A] 110.3, [A] 110.4; IGCC: , 109.1; IWUIC: SECTION 110, [A] 110.1, [A] 110.2, [A] 110.3, [A] 110.4

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

SECTION 111
CERTIFICATE OF OCCUPANCY AND CERTIFICATE OF COMPLETION

[A] 111.1 ~~Change of occupancy~~ Approval before use. A *building,* or *structure* shall not be used or occupied in whole or in part, and a *change of occupancy* of a *building* or *structure* or portion thereof shall not be made, until the *building official* has issued an approval in the form of a certificate of occupancy or certificate of completion therefor as provided herein. Issuance of a certificate of occupancy or certificate of completion shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the *jurisdiction*. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the *jurisdiction* shall not be valid.

Exception: Certificates of occupancy and certificates of completion are not required for work exempt from *permits* in accordance with Section 105.2.

[A] 111.2 Certificate issued. After the *building official* inspects the building or *structure* and does not find violations of the provisions of this code or other laws that are enforced by the department, the *building official* shall issue a certificate of occupancy or certificate of completion that contains the following:

1. The *permit* number.
2. The address of the *structure*.
3. The name and address of the *owner* or the *owner*'s authorized agent.
4. A description of that portion of the *structure* for which the certificate is issued.
5. A statement that the described portion of the *structure* has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3.
9. The type of construction as defined in Chapter 6.
10. The design *occupant load*.
11. Where an *automatic sprinkler system* is provided, whether the sprinkler system is required.
12. Any special stipulations and conditions of the building *permit*.

Exception: The building official is authorized to issue certificates of completion, without items 8 and 10, for *structures*.

[A] 111.3 Temporary ~~occupancy~~ certificates. The *building official* is authorized to issue a temporary certificate of occupancy or temporary certificate of completion before the completion of the entire work covered by the *permit*, provided that such portion or portions shall be occupied safely. The *building official* shall set a time period during which the temporary certificate of occupancy or temporary certificate of completion is valid.

[A] 111.4 Revocation. The *building official* is authorized to suspend or revoke a certificate of occupancy or <u>certificate of </u>completion issued under the provisions of this code, in writing, wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or *structure* or portion thereof is in violation of the provisions of this code or other ordinance of the *jurisdiction*.

2024 International Existing Building Code

Revise as follows:

SECTION 110
CERTIFICATE OF OCCUPANCY <u>AND CERTIFICATE OF COMPLETION</u>

[A] 110.1 ~~Change of occupancy~~ <u>Approval before use</u>. A <u>building or </u>structure shall not be used or occupied in whole or in part, and a *change of occupancy* of a structure or portion thereof shall not be made until the *code official* has issued <u>an approval in the form of </u>a certificate of occupancy <u>or certificate of completion</u> therefor as provided herein. Issuance of a certificate of occupancy <u>or certificate of completion </u>shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid.

Exception: Certificates of occupancy <u>and certificates of completion</u> are not required for work exempt from permits in accordance with Section 105.2.

[A] 110.2 Certificate issued. After the *code official* inspects the structure and does not find violations of the provisions of this code or other laws that are enforced by the department, the *code official* shall issue a certificate of occupancy <u>or certificate of completion</u> that contains the following:

1. The permit number.
2. The address of the structure.
3. The name and address of the owner or the owner’s authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The name of the *code official*.
7. The edition of the code under which the permit was issued.
8. The use and occupancy in accordance with the provisions of the *International Building Code*.
9. The type of construction as defined in the *International Building Code*.
10. The design occupant load and any impact the *alteration* has on the design occupant load of the area not within the scope of the work.
11. Where an automatic sprinkler system is provided, and whether an automatic sprinkler system is required.
12. Any special stipulations and conditions of the building permit.

<u>**Exception:** The code official is authorized to issue a certificate of completion, without items 8 and 10, for *structures*.</u>

[A] 110.3 Temporary ~~occupancy~~ <u>certificates</u>. The *code official* is authorized to issue a temporary certificate of occupancy <u>or temporary certificate of completion </u>before the completion of the entire work covered by the permit, provided that such portion or portions shall be occupied safely. The *code official* shall set a time period during which the temporary certificate of occupancy or <u>temporary certificate of completion</u> is valid.

[A] 110.4 Revocation. The *code official* is authorized to suspend or revoke a certificate of occupancy or <u>certificate of </u>completion issued under the provisions of this code, in writing, wherever the certificate is issued in error or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of the provisions of this code or other ordinance of the jurisdiction.

2024 International Green Construction Code

Revise as follows:

SECTION 109—CERTIFICATE OF OCCUPANCY AND CERTIFICATE OF COMPLETION

109.1 Violations. Issuance of a certificate of occupancy or certificate of completion shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.

2024 International Wildland Urban Interface Code

SECTION 110 CERTIFICATE OF COMPLETION

Revise as follows:

[A] 110.1 ~~General~~ Approval before use. A building, structure, ~~or~~ premises, or system thereof shall not be used or occupied, and a change in the existing use or occupancy classification of a building, structure, premise or portion thereof shall not be made until the *code official* has issued an approval in the form of a certificate of completion therefor as provided herein. ~~The certificate of occupancy shall not be issued until the certificate of completion indicating that the project is in compliance with this code has been issued by the *code official*.~~

[A] 110.2 Certificate of occupancy. Issuance of a certificate of completion ~~occupancy~~ shall not be construed as an approval of a violation of the provisions of this code or of other pertinent laws and ordinances of the jurisdiction. Certificates presuming to give authority to violate or cancel the provisions of this code or other laws or ordinances of the jurisdiction shall not be valid.

Exceptions:

1. Certificates of ~~occupancy~~ completion are not required for work exempt from permits under Section 105.3.
2. Accessory structures.

[A] 110.3 Temporary ~~occupancy~~ certificates. The *code official* is authorized to issue a temporary certificate of ~~occupancy~~ completion before the completion of the entire work covered by the permit, provided that such portion or portions shall be occupied safely. The *code official* shall set a time period during which the temporary certificate of ~~occupancy~~ completion is valid.

[A] 110.4 Revocation. The *code official* is authorized to, in writing, suspend or revoke a certificate of ~~occupancy or~~ completion issued under the provisions of this code wherever the certificate is issued in error, on the basis of incorrect information supplied, or where it is determined that the building or structure, premise or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

ADM50-25 Part I

ADM50-25 Part II

IRC: SECTION R110, R110.1, R110.2, R110.3, R110.4

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

SECTION R110
CERTIFICATE OF OCCUPANCY AND CERTIFICATE OF COMPLETION

R110.1 ~~Use and change of occupancy~~ Approval before use. A *building* or structure shall not be used or occupied in whole or in part, and a *change of occupancy* of a *building* or structure or portion thereof shall not be made, until the *building official* has issued an approval in the form of a certificate of occupancy or certificate of completion therefor as provided herein. Issuance of a certificate of occupancy or certificate of completion shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the *jurisdiction*. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the *jurisdiction* shall not be valid.

Exceptions:

1. Certificates of occupancy and certificates of completion are not required for work exempt from *permits* under Section R105.2.
2. Accessory *buildings* or structures.

R110.2 Certificate issued. After the *building official* inspects the building or structure and does not find violations of the provisions of this code or other laws that are enforced by the department, the *building official* shall issue a certificate of occupancy or certificate of completion containing the following:

1. The *permit* number.
2. The address of the structure.
3. The name and address of the *owner* or the *owner*'s authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. Where an automatic sprinkler system is provided and whether the sprinkler system is required.
9. Any special stipulations and conditions of the building *permit*.

R110.3 Temporary ~~occupancy~~ certificates. The *building official* is authorized to issue a temporary certificate of occupancy or temporary certificate of completion before the completion of the entire work covered by the *permit*, provided that such portion or portions shall be occupied safely. The *building official* shall set a time period during which the temporary certificate of occupancy or temporary certificate of completion is valid.

R110.4 Revocation. The *building official* is authorized to suspend or revoke a certificate of occupancy or temporary certificate of completion issued under the provisions of this code, in writing, wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of the provisions of this code or other ordinance of the *jurisdiction*.

Reason: Certificates of completion have been present in the code for some time, but their purpose has not been clearly defined. This code change aims to clarify their use by allowing certificates of completion to be issued in lieu of certificates of occupancy when the scope of work doesn't warrant occupancy or a change in occupancy.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change is administrative and does not any measurable cost impact.

ADM50-25 Part II

ADM51-25 Part I

IBC: [A] 111.2; IEBC: [A] 110.2

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] 111.2 Certificate issued. After the *building official* inspects the building or *structure* and does not find violations of the provisions of this code or other laws that are enforced by the department, the *building official* shall issue a certificate of occupancy that contains the following:

1. The *permit* number.
2. The address of the *structure*.
3. The name and address of the *owner* or the *owner*'s authorized agent.
4. A description of that portion of the *structure* for which the certificate is issued.
5. A statement that the described portion of the *structure* has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3.
9. The type of construction as defined in Chapter 6.
10. The design *occupant load*.
11. Where an *automatic sprinkler system* is provided, whether the sprinkler system is required.
12. For *buildings* and *structures* in *flood hazard areas*, a statement that documentation of the lowest floor elevation or documentation of the elevation of dry floodproofing, as applicable, has been provided and is retained in the records of the department.

~~12.~~ 13. Any special stipulations and conditions of the building *permit*.

2024 International Existing Building Code

Revise as follows:

[A] 110.2 Certificate issued. After the *code official* inspects the structure and does not find violations of the provisions of this code or other laws that are enforced by the department, the *code official* shall issue a certificate of occupancy that contains the following:

1. The permit number.
2. The address of the structure.
3. The name and address of the owner or the owner's authorized agent.
4. A description of that portion of the structure for which the certificate is issued.

5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.

6. The name of the *code official*.

7. The edition of the code under which the permit was issued.

8. The use and occupancy in accordance with the provisions of the *International Building Code*.

9. The type of construction as defined in the *International Building Code*.

10. The design occupant load and any impact the *alteration* has on the design occupant load of the area not within the scope of the work.

11. Where an automatic sprinkler system is provided, and whether an automatic sprinkler system is required.

12. For *buildings* and *structures* in *flood hazard areas*, a statement that documentation of the lowest floor elevation or documentation of the elevation of dry floodproofing, as applicable, has been provided and is retained in the records of the department.

~~12.~~ 13. Any special stipulations and conditions of the building permit.

ADM51-25 Part I

ADM51-25 Part II

IRC: R110.2

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

Revise as follows:

R110.2 Certificate issued. After the *building official* inspects the building or structure and does not find violations of the provisions of this code or other laws that are enforced by the department, the *building official* shall issue a certificate of occupancy containing the following:

1. The *permit* number.
2. The address of the structure.
3. The name and address of the *owner* or the *owner*'s authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. Where an automatic sprinkler system is provided and whether the sprinkler system is required.
9. For *buildings* and *structures* in *flood hazard areas*, a statement that documentation of the lowest floor elevation has been provided and is retained in the records of the department.

~~9.~~ 10. Any special stipulations and conditions of the building *permit*.

Reason:
The IBC, IRC, and IEBC all require submission of documentation of the elevation of the lowest floor, or elevation of dry floodproofing, if applicable, before the final inspection of buildings and structures in in flood hazard areas (see IBC Sec. 110.3.12.1, IRC Sec. R109.1.6.1, and IEBC Sec. 109.3.10). This proposal adds a statement regarding that documentation to the other building- and permit-specific information that must be contained in the Certificate of Occupancy. The Florida Building Code has included a similar requirement since 2014.

There are a number of benefits to adding the proposed note to the list of what is required to be included in Certificates of Occupancy. It is beneficial for property owners, local governments, future buyers, attorneys, contractors, design professionals, realtors, and insurance companies and lenders. Anyone who requests a copy of the certificate will see the statement and know that they can request copies of the documentation on file to validate that the lowest floor or dry floodproofing elevation was compliant at the time of construction.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no impact on the cost of construction. Implementation of the proposed change requires changing Certificate of Occupancy forms, which is a minimal one-time cost for communities, but does not impact the overall cost of construction. Certificates of Occupancy forms are completed for each property when permits are issued. The Florida Building Code has had a similar requirement for 15 years; a number of Florida communities confirmed that checking a box to confirm the required documentation is on record does not add any cost.

ADM51-25 Part II

ADM52-25

IMC®: SECTION 113, [A] 113.1; IPC: SECTION 113, [A] 113.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Mechanical Code

Delete without substitution:

~~SECTION 113~~
~~BOARD OF APPEALS~~

~~**[A] 113.1 Membership of board.**~~ ~~The board of appeals shall consist of five members appointed by the chief appointing authority as follows: one for 5 years; one for 4 years; one for 3 years; one for 2 years; and one for 1 year. Thereafter, each new member shall serve for 5 years or until a successor has been appointed.~~

2024 International Plumbing Code

Delete without substitution:

~~SECTION 113~~
~~BOARD OF APPEALS~~

~~**[A] 113.1 Membership of board.**~~ ~~The board of appeals shall consist of five members appointed by the chief appointing authority as follows: one for 5 years; one for 4 years; one for 3 years; one for 2 years; and one for 1 year. Thereafter, each new member shall serve for 5 years or until a successor has been appointed.~~

Reason: ADM43-19 added and/or coordinated the appendix with the criteria for the Board of Appeals to all the codes. The makeup of the Board should be an administrative item and not part of the codes. This section was revised in that proposal. Rather than make this an errata, this proposal is to delete this information at this time.
This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination item with no change to construction requirements.

ADM52-25

ADM53-25

IFC: [A] 113.3

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Fire Code

Delete and substitute as follows:

~~**[A] 113.3 Notice of violation.** Where the *fire code official* finds a building, premises, vehicle, storage facility or outdoor area that is in violation of this code, the *fire code official* is authorized to prepare a written notice of violation describing the conditions deemed unsafe and, where compliance is not immediate, specifying a time for reinspection.~~

[A] 113.3 Notice of violation. The *fire code official* is authorized to serve a notice of violation or order on the *person* responsible for a building or structure, premises, vehicle, storage facility or outdoor area in violation of the provisions of this code, or in violation of a permit or certificate issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

Reason: This code change aligns the NOV provisions of the IFC with the IBC while maintaining the scope of the IFC.

For reference; the IBC's language is as follows: The building official is authorized to serve a notice of violation or order on the person responsible for the erection, construction, alteration, extension, repair, moving, removal, demolition or occupancy of a building or structure [...] in violation of the provisions of this code, or in violation of a permit or certificate issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This langage coordinates sections while maintaining the intent of the language. There are no realistic cost impacts.

ADM53-25

ADM54-25

IBC: [A] 116.1

Proponents: John-Jozef Proczka, representing City of Phoenix Planning and Development Department (john-jozef.proczka@phoenix.gov)

2024 International Building Code

Revise as follows:

[A] 116.1 Unsafe conditions. *Structures* or ~~existing~~ equipment that are or hereafter become unsafe, insanitary or deficient ~~because of inadequate *means of egress facilities*, inadequate light and *ventilation*, or that constitute a fire hazard, or are otherwise *dangerous* to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance,~~ shall be deemed an unsafe condition.
An unsafe condition is any condition that, as deemed by the *building official*, poses a danger to human life or the public welfare, including, but not limited to, the following:

1. Inadequate structural performance.
2. Inadequate sanity system performance.
3. Inadequate *means of egress* facilities.
4. Inadequate light.
5. Inadequate ventilation.
6. Constituting an explosion hazard.
7. Constituting a fire hazard.
8. Constituting a shock hazard.
9. Constituting a toxicity hazard.
10. Involve occupancy of a higher relative hazard than the structure is built to support or shelter.

Unsafe *structures* shall be taken down and removed or made safe, as the *building official* deems necessary and as provided for in this section. A vacant *structure* that is not secured against unauthorized entry shall be deemed unsafe.

Reason: This change is intended only to clarify the provisions in this section. The current run on sentence is very difficult to follow, so a list is introduced for the types of reasons that may constitute an unsafe condition. Some new possible reasons are included to help guide the code user, but some of them are obviously already intended to be included, such as structural performance.

The one possible intent change here has to do with the "illegal or improper occupancy" being replaced with the higher relative hazard occupancy. This is a concept that is most easily seen in the IEBC Section 1011 change of occupancy classification provisions.

The user of this section is cautioned that not all instances of inadequate performance are intended to be unsafe conditions. Only those that are sufficiently deficient are intended to be considered unsafe conditions, as determined by the building official. For instance, a non-draining shower would not be an unsafe condition, however sewage backing up into a building could be an unsafe condition.

Depending on the functioning of the building department with respect to neighborhood blight, it may be appropriate to amend out the provision for vacant structures being considered unsafe conditions, as they do not appear to be dangerous just by being vacant. If the department does regulate neighborhood blight, it may also be appropriate to re-introduce illegal occupancy as a condition that wishes to be enforced for these purposes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is only a reorganization and clarification of this section.

ADM55-25

IEBC: SECTION 116, [A] 116.1, [A] 116.2, [A] 116.3, [A] 116.4, [A] 116.5, [A] 116.6, SECTION 202 (New); IPMC: 110, 110.1, 110.2, 110.3, 110.4, 110.5, 110.6, SECTION 202 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

SECTION 116
EMERGENCY MEASURES

[A] 116.1 Imminent danger. Where, in the opinion of the *code official*, there is imminent danger of failure or collapse of a building that endangers life, or where any building or part of a building has fallen and life is endangered by the occupation of the building, or where there is actual or potential danger to the building occupants or those in the proximity of any ~~structure~~ building because of explosives, explosive fumes or vapors, or the presence of toxic fumes, gases, or materials, or operation of defective or dangerous equipment, the *code official* is hereby authorized and empowered to order and require the occupants to vacate the premises forthwith. The *code official* shall cause to be posted at each entrance to such ~~structure~~ building a notice reading as follows: "This ~~Structure~~ Building Is Unsafe and Its Occupancy Has Been Prohibited by the Code Official." It shall be unlawful for any person to enter such ~~structure~~ building except for the purpose of securing the ~~structure~~ building , making the required *repairs*, removing the hazardous condition, or of demolishing the same.

[A] 116.2 Temporary safeguards. Notwithstanding other provisions of this code, whenever, in the opinion of the *code official*, there is imminent danger due to an *unsafe* condition, the *code official* shall order the necessary work to be done, including the boarding up of openings, to render such ~~structure~~ building temporarily safe whether or not the legal procedure herein described has been instituted; and shall cause such other action to be taken as the *code official* deems necessary to meet such emergency.

[A] 116.3 Closing streets. Where necessary for public safety, the *code official* shall temporarily close ~~structures~~buildings and close or order the authority having jurisdiction to close sidewalks, streets, public ways and places adjacent to *unsafe* ~~structures~~buildings , and prohibit the same from being utilized.

[A] 116.4 Emergency repairs. For the purposes of this section, the *code official* shall employ the necessary labor and materials to perform the required work as expeditiously as possible.

[A] 116.5 Costs of emergency repairs. Costs incurred in the performance of emergency work shall be paid by the jurisdiction. The legal counsel of the jurisdiction shall institute appropriate action against the owner of the premises or the owner's authorized agent where the *unsafe* ~~structure~~ building is or was located for the recovery of such costs.

[A] 116.6 Hearing. Any person ordered to take emergency measures shall comply with such order forthwith. Any affected person shall thereafter, on petition directed to the appeals board, be afforded a hearing as described in this code.

Add new definition as follows:

IMMINENT DANGER. A condition that could cause serious or life-threatening injury or death at any time.

2024 International Property Maintenance Code

SECTION 110
EMERGENCY MEASURES

110.1 Imminent danger. When, in the opinion of the *code official*, there is *imminent danger* of failure or collapse of a building ~~or *structure*~~ that endangers life, or ~~when~~ where any ~~structure~~ building or part of a ~~structure~~ building has fallen and life is endangered by the occupation of the ~~structure~~ building , or ~~when~~ wherethere is actual or potential danger to the building *occupants* or those in the proximity of any ~~structure~~ building because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials, or operation of defective or *dangerous* equipment, the *code official* is hereby authorized and empowered to order and require the *occupants* to vacate the *premises* forthwith. The *code official* shall cause to be posted at each entrance to such *structure* a notice reading as follows: "This ~~Structure~~ Building Is Unsafe and Its *Occupancy* Has Been Prohibited by the *Code Official*." It shall be unlawful for any *person* to enter such ~~structure~~ building except for the purpose of securing the ~~structure~~ building , making the required repairs, removing the hazardous condition or of demolishing the same.

110.2 Temporary safeguards. Notwithstanding other provisions of this code, whenever, in the opinion of the *code official*, there is *imminent danger* due to an unsafe condition, the *code official* shall order the necessary work to be done, including the boarding up of openings, to render such ~~structure~~ building temporarily safe whether or not the legal procedure herein described has been instituted; and shall cause such other action to be taken as the *code official* deems necessary to meet such emergency.

110.3 Closing streets. When necessary for public safety, the *code official* shall temporarily close ~~structures~~buildingsand close, or order the authority having jurisdiction to close, sidewalks, streets, *public ways* and places adjacent to unsafe ~~structures~~buildings, and prohibit the same from being utilized.

110.4 Emergency repairs. For the purposes of this section, the *code official* shall employ the necessary labor and materials to perform the required work as expeditiously as possible.

110.5 Costs of emergency repairs. Costs incurred in the performance of emergency work shall be paid by the jurisdiction. The legal counsel of the jurisdiction shall institute appropriate action against the *owner* of the *premises*~~structure~~ buildingor *owner*'s authorized agent where the unsafe *structure* is or was located for the recovery of such costs.

110.6 Hearing. Any *person* ordered to take emergency measures shall comply with such order forthwith. Any affected *person* shall thereafter, upon petition directed to the appeals board, be afforded a hearing as described in this code.

Add new definition as follows:

[A] BUILDING. Any structure utilized or intended for supporting or sheltering any occupancy.
UNSAFE. Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "Dangerous," or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed unsafe. A vacant structure that is not secured against entry shall be deemed unsafe.

Reason: The intent of this proposal is to coordinate the sections for Emergency Measures in IPMC and IEBC. The current text uses 'building', 'structure' or sometimes both. The text is not consistent. Given the definitions, 'building' seems more appropriate where you are talking about vacating and placarding for safety of occupants.

Currently, the relevant definitions are only in one of the two codes.

IEBC only - **BUILDING.** Any structure utilized or intended for supporting or sheltering any occupancy.

IPMC only - **IMMINENT DANGER.** A condition that could cause serious or life-threatening injury or death at any time.

IPMC only - [A] **STRUCTURE.** That which is built or constructed.

IEBC only - **UNSAFE.** Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "Dangerous," or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed unsafe. A vacant structure that is not secured against entry shall be deemed unsafe.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In

addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial correlation between the administrative provisions in the I-codes. There is no change to constructions requirements.

ADM55-25

ADM56-25 Part I

IBC: SECTION 117 (New), [A] 117.1 (New), [A] 117.2 (New); IEBC: SECTION 118 (New), [A] 118.1 (New), [A] 118.2 (New); IFC: SECTION 116 (New), [A] 116.1 (New), [A] 116.2 (New); IFGC: SECTION 115 (New), [A] 115.1 (New), [A] 115.2 (New); IGCC: SECTION 111 (New), 111.1 (New), 111.2 (New); IMC®: SECTION 116 (New), [A] 116.1 (New), [A] 116.2 (New); IPC: SECTION 116 (New), [A] 116.1 (New), [A] 116.2 (New); IPSDC: SECTION 115 (New), [A] 115.1 (New), [A] 115.2 (New); IPMC: SECTION 112 (New), [A] 112.1 (New), 112.2 (New); ISPSC: SECTION 115 (New), [A] 115.1 (New), [A] 115.2 (New)

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new text as follows:

SECTION 117 EMERGENCY MEASURES

[A] 117.1 Imminent danger. The occupants shall vacate premises when any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

[A] 117.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: “This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official.” It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Existing Building Code

Add new text as follows:

SECTION 118 EMERGENCY MEASURES

[A] 118.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

[A] 118.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: "This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Fire Code

Add new text as follows:

SECTION 116
EMERGENCY MEASURES

[A] 116.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

[A] 116.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: "This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Fuel Gas Code

Add new text as follows:

SECTION 115
EMERGENCY MEASURES

[A] 115.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

[A] 115.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: "This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Green Construction Code

Add new text as follows:

SECTION 111
EMERGENCY MEASURES

111.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

111.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: "This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Mechanical Code

Add new text as follows:

SECTION 116
EMERGENCY MEASURES

[A] 116.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

[A] 116.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: “This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official.” It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Plumbing Code

Add new text as follows:

SECTION 116
EMERGENCY MEASURES

[A] 116.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

[A] 116.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: "This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Private Sewage Disposal Code

Add new text as follows:

SECTION 115 EMERGENCY MEASURES

[A] 115.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

[A] 115.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: "This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Property Maintenance Code

Add new text as follows:

SECTION 112 EMERGENCY MEASURES

[A] 112.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.

4. Operation of defective or dangerous equipment.

112.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: “This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official.” It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

2024 International Swimming Pool and Spa Code

Add new text as follows:

SECTION 115
EMERGENCY MEASURES

[A] 115.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

[A] 115.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: “This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official.” It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

ADM56-25 Part I

ADM56-25 Part II

IRC: SECTION R115 (New), R115.1 (New), R115.2 (New)

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

2024 International Residential Code

Add new text as follows:

SECTION R115 EMERGENCY MEASURES

R115.1 Imminent danger. The occupants shall vacate premises where any of the following exists:

1. Imminent danger of failure or collapse of a building or structure which endangers life.
2. A structure where the entire structure, or part of the structure, has fallen and life is endangered by the occupation of the structure.
3. Actual or potential danger to the building occupants or those in the proximity of any structure because of explosives, explosive fumes or vapors or the presence of toxic fumes, gases or materials.
4. Operation of defective or dangerous equipment.

R115.2 Notice. There shall be posted at each entrance to such structure a notice reading as follows: "This Structure is Unsafe and its Occupancy Has Been Prohibited by the Fire Code Official." It shall be unlawful for any person to enter such structure except for the purpose of securing the structure, making the required repairs, removing the hazardous condition or demolishing the structure.

Reason: This code proposal is suggesting adding language for vacating when imminent danger is present, as well as posting a notice on premises.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact, as the changes suggested are editorial and only add language that do not change any intent of the code.

ADM56-25 Part II

ADM57-25

IEBC: [A] 117.1

Proponents: Sean Denniston, Heritage Green Consulting, representing Association for Preservation Technology (sean@heritagegreenconsulting.com); James Lindberg, representing National Trust for Historic Preservation (jlindberg@savingplaces.org)

2024 International Existing Building Code

Revise as follows:

[A] 117.1 General. When the *code official* determines any structure is so old, dilapidated or has become so out of repair and is dangerous, unsafe, insanitary and otherwise unfit for human habitation or occupancy the *code official* can order either of the following:

1. The code official is permitted to authorize the owner or owner's authorized agent to make the structure safe by *repairs* in order to make the structure safe and sanitary. Where there has been a cessation of construction repairs of any structure for a period of more than 2 years, the structure will be ordered demolished and removed.
2. The code official is permitted to order the owner or owner's authorized agent to demolish and remove any such structure.

Exception: A *historic building* shall only be ordered demolished by the *code official* where it poses an imminent danger to public safety that cannot be remedied through means other than demolition.

Attached Files

- **Support for amendments to IEBC.pdf**
  https://www.cdpaccess.com/proposal/11776/35734/files/download/9280/

Reason: Many jurisdictions have historic preservation requirements in their municipal or building codes intended to protect the historic character and integrity of historic buildings. These regulations typically include restrictions on the demolition of historic buildings. These vary in stringency, but generally make demolishing a historic building more difficult than demolishing non-historic buildings. These restrictions generally require the owner to demonstrate that the historic building meets some criteria for technical or financial infeasibility before the historic building can be demolished. However, these restrictions also typically include an exception for buildings that have been found unsafe/unfit and ordered demolished by the building official. Here is an example from Vancouver, WA (VMC 20.510.050(A)(3)):

> "A structure as identified above (ed: a historic building) shall not be demolished except in the following manner:
>
> a. Demolition of Unsafe Buildings. If the City Building Official has found the structure to be unsafe under the provisions of Chapter 17.32 VMC, Unfit Buildings and Premises Code, and has ordered that the structure be demolished."

Or this example from the City of Milwaukee's historic preservation regulations (320-21-16):

> "EMERGENCY RAZING NOT PROHIBITED. Nothing contained in this section shall prohibit the demolition of a structure for which a court order has been issued or for which the commissioner of neighborhood services has issued an emergency raze order under s. 218-4.5."

These kinds of exceptions to historic building demolition restrictions make sense, as we do not want preservation requirements in the code to create a barrier to the jurisdiction protecting public safety. However, they also create significant problems. The historic building owner who knows that their building doesn't meet the requirements for demolition under the jurisdiction's preservation regulation is incentivized to try to get the jurisdiction to order demolition in order to avoid those restrictions. In fact, they are even incentivized to allow their building to deteriorate to the point that it will qualify as unsafe. This creates very significant problems for preservation, for public safety and for code officials.

The first problem is for preservation. Communities enact historic preservation ordinances to protect their local cultural heritage. One of the most important protections is the one against the loss of historic buildings to demolition. If there is an end-run around these demolition restrictions, particularly a path that does not require engagement with preservation authorities, then those protections are significantly weakened. Any building owner that wants to demolish a historic building can just allow their building to deteriorate to the point of unsafeness and negate the protections on their building. This "demolition by neglect" is a long-established issue faced by preservationists.

The second problem is for public safety. The potential end-run around preservation regulations creates an incentive for owners to allow their buildings to become unsafe. That building will likely pose risks to public safety long before it reaches the state where they can be considered unsafe or where they come to the attention of the code official. Disinvestment in the building also then creates a drag on the value of neighboring buildings and economic viability of the neighborhood.

The third problem is for code officials. This path around preservation requirements goes straight through the code official. Code officials can be pressured by building owners to condemn their buildings. They may even find themselves being accused of neglecting public safety if they don't, in an effort to shift the blame for the hazard from the owner to the building official. This is exactly what is happening in Vancouver, WA. In Vancouver, permits for the demolition of certain historic buildings requires meeting a set of requirements to determine financial infeasibility of preservation (VMC 20.510.050(A)(3)). These are substantially more stringent than the standards for a demolition order for an unsafe building. Since 2020, the owners of four historic buildings with demolition restrictions on them have requested that the code official find these buildings unfit and order their demolition, which has created significant backlash from the preservation community (as seen in the discussions at Historic Preservation Commission meetings).

This proposal addresses these issues through a simple modification to Section 117. Section 117 gives the code official two options for an unsafe building: order repair or order demolition. The exception makes it clear that the code official can only order demolition of a historic building (a defined term in the I-Codes) if the historic building poses an immanent danger to public safety that cannot be remedied through means other than demolition. This eliminates the potential conflict between this code section and local preservation regulations, and the likelihood of the code official getting caught between preservation regulations/authorities and an owner seeking to circumvent them. The proposed wording ensures that the code official does not lose the authority to protect public safety. If an unsafe historic building poses an immanent threat to public safety, the code official can still order demolition if that is the only means of remedying the danger.

This proposal is submitted by the Association for Preservation Technology and the National Trust for Historic Preservation and further supported by Main Street America, National Trust Community Investment Corporation and RePurpose Capital (see attached letter of support), which represent a significant portion of national historic preservation organizations.

Bibliography:

1. Ellenbecker, L. (2022, November 17). "Vancouver's historic Providence Academy smokestack to be removed." *The Columbian.* https://www.columbian.com/news/2021/oct/18/providence-academy-smokestack-to-be-removed/
2. Goldwyn, A. M. (1995). *Demolition by Neglect: A Loophole in Preservation Policy*. University of Pennsylvania, 1995, Philadelphia.
3. "Minutes of the Clark County Historic Preservation Commission Meeting." Clark County, 11/4/2020, Vancouver, WA.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal impacts procedure. It may decrease the cost of enforcement.

ADM57-25

ADM58-25

IBC: SECTION 202, SECTION 202 (New); IEBC: SECTION 202 (New), RESOURCE A, ; IFC: SECTION 202; IGCC: 107.3, 107.4, 107.6; IMC®: [A] 106.1, [F] 512.12.1; IPC: [A] 108.3; IPMC: SECTION 202 (New), [A] 105.2.2.5, [A] 105.2.2.5.1, [A] 105.2.2.6.2; IPSDC: [A] 106.3, [A] 107.1; IWUIC: SECTION 202, SECTION 202 (New); IZC: 1008.2.2

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Building Code

Revise as follows:

[A] ~~BUILDING~~ CODE OFFICIAL. The ~~officer or other~~ designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

Add new definition as follows:

FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the *International Fire Code*, or a duly authorized representative.

2024 International Existing Building Code

Add new definition as follows:

FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the *International Fire Code*, or a duly authorized representative.

RESOURCE A
GUIDELINES ON FIRE RATINGS OF ARCHAIC MATERIALS AND ASSEMBLIES

Revise as follows:

2.1 PRELIMINARY EVALUATION. A preliminary evaluation should begin with a building survey to determine the existing materials, the general arrangement of the structure and the use of the occupied spaces, and the details of construction. The designer needs to know "what is there" before a decision can be reached about what to keep and what to remove during the rehabilitation process. This preliminary evaluation should be as detailed as necessary to make initial plans. The fire-related properties need to be determined from the applicable building or rehabilitation code, and the materials and assemblies existing in the building then need to be evaluated for these properties. Two worksheets are shown below to facilitate the preliminary evaluation.

Two possible sources of information helpful in the preliminary evaluation are the original building plans and the building code in effect at the time of original construction. Plans may be on file with the local building department or in the offices of the original designers (e.g., architect, engineer) or their successors. If plans are available, the investigator should verify that the building was actually constructed as called for in the plans, as well as incorporate any later alterations or changes to the building. Earlier editions of the local building code should be on file with the ~~building~~ code official. The code in effect at the time of construction will contain fire performance criteria. While this is no guarantee that the required performance was actually provided, it does give the investigator some guidance as to the level of performance which may be expected. Under some code administration and enforcement systems, the code in effect at the time of construction also defines the level of performance that must be provided at the time of rehabilitation.

Table 2.1(1) illustrates one method for organizing preliminary field notes. Space is provided for the materials, dimensions and condition of the principal building elements. Each floor of the structure should be visited and the appropriate information obtained. In practice, there will often be identical materials and construction on every floor, but the exception may be of vital importance. A schematic diagram should be prepared of each floor showing the layout of exits and hallways and indicating where each element described in the field notes fits into the structure as a whole. The exact arrangement of interior walls within apartments is of secondary importance from a fire safety point of view and need not be shown on the drawings unless these walls are required by code to have a fire-resistance rating.

The location of stairways and elevators should be clearly marked on the drawings. All exterior means of escape (e.g., fire escapes) should be identified. (Note: Problems providing adequate exiting are discussed at length in the *Egress Guideline for Residential Rehabilitation.*)

The following notes explain the entries in Table 2.1(1).

Exterior Bearing Walls. Many old buildings utilize heavily constructed walls to support the floor/ceiling assemblies at the exterior of the building. There may be columns and/or interior bearing walls within the structure, but the exterior walls are an important factor in assessing the fire safety of a building.

The field investigator should note how the floor/ceiling assemblies are supported at the exterior of the building. If columns are incorporated in the exterior walls, the walls may be considered nonbearing.

Interior Bearing Walls. It may be difficult to determine whether or not an interior wall is load bearing, but the field investigator should attempt to make this determination. At a later stage of the rehabilitation process, this question will need to be determined exactly. Therefore, the field notes should be as accurate as possible.*Exterior Nonbearing Walls*. The fire resistance of the exterior walls is important for two reasons. These walls (both bearing and nonbearing) are depended upon to: a) contain a fire within the building of origin; or b) keep an exterior fire *outside* the building. It is therefore important to indicate on the drawings where any openings are located as well as the materials and construction of all doors or shutters. The drawings should indicate the presence of wired glass, its thickness and framing, and identify the materials used for windows and door frames. The protection of openings adjacent to exterior means of escape (e.g., exterior stairways, fire escapes) is particularly important. The ground floor drawing should locate the building on the property and indicate the precise distances to adjacent buildings.*Interior Nonbearing Walls (Partitions)*. A partition is a “wall that extends from floor to ceiling and subdivides space within any story of a building” (see Bibliography entry 35). Table 2.1(1) has two categories (A & B) for Interior Nonbearing Walls (Partitions) which can be used for different walls, such as hallway walls as compared to inter-apartment walls. Under some circumstances there may be only one type of wall construction; in others, three or more types of wall construction may occur.

The field investigator should be alert for differences in function as well as in materials and construction details. In general, the details within apartments are not as important as the major exit paths and exit stairways. The preliminary field investigation should attempt to determine the thickness of all walls. A term introduced below called “thickness design” will depend on an accurate (± $^1/_4$ inch) determination. Even though this initial field survey is called “preliminary,” the data generated should be as accurate and complete as possible.

The field investigator should note the exact location from which observations are recorded. For instance, if a hole is found through a wall enclosing an exit stairway which allows a cataloguing of the construction details, the field investigation notes should reflect the location of the “find.” At the preliminary stage it is not necessary to core every wall; the interior details of construction can usually be determined at some location.

Structural Frame. There may or may not be a complete skeletal frame, but usually there are columns, beams, trusses or other like elements. The dimensions and spacing of the structural elements should be measured and indicated on the drawings. For instance, if there are 10-inch-square columns located on a 30-foot-square grid throughout the building, this should be noted. The structural material and cover or protective materials should be identified wherever possible. The thickness of the cover materials should be determined to an accuracy of ± $^1/_4$ inch. As discussed above, the preliminary field survey usually relies on accidental openings in the cover materials rather than a systematic coring technique.*Floor/Ceiling Structural Systems*. The span between supports should be measured. If possible, a sketch of the cross-section of the system should be made. If there is no location where accidental damage has opened the floor/ceiling construction to visual inspection, it is necessary to make such an opening. An evaluation of the fire resistance of a floor/ceiling assembly requires detailed knowledge of the materials and their arrangement. Special attention should be paid to the cover on structural steel elements and the condition of suspended ceilings and similar membranes.*Roofs*. The preliminary field survey of the roof system is initially concerned with watertightness. However, once it is apparent that the roof is sound for ordinary use and can be retained in the rehabilitated building, it becomes necessary to evaluate the fire performance. The field investigator must measure the thickness and identify the types of materials which have been used. Be aware that there may be several layers of roof materials.*Doors*. Doors to stairways and hallways represent some of the most important fire elements to be considered within a building. The uses of the spaces separated largely controls the level of fire performance necessary. Walls and doors enclosing stairways or elevator shafts would normally require a higher level of performance than between the bedroom and bath. The various uses are differentiated in Table 2.1(1).

Careful measurements of the thickness of door panels must be made, and the type of core material within each door must be determined. It should be noted whether doors have self-closing devices; the general operation of the doors should be checked. The latch should engage and the door should fit tightly in the frame. The hinges should be in good condition. If glass is used in the doors, it should be identified as either plain glass or wired glass mounted in either a wood or steel frame.

Materials. The field investigator should be able to identify ordinary building materials. In situations where an unfamiliar material is found, a sample should be obtained. This sample should measure at least 10 cubic inches so that an ASTM E136 fire test can be conducted to determine if it is combustible.*Thickness*. The thickness of all materials should be measured accurately since, under certain circumstances, the level of fire resistance is very sensitive to the material thickness.*Condition*. The method of attaching the various layers and facings to one another or to the supporting structural element should be noted under the appropriate building element. The "secureness" of the attachment and the general condition of the layers and facings should be noted here.*Notes*. The "Notes" column can be used for many purposes, but it might be a good idea to make specific references to other field notes or drawings.

After the building survey is completed, the data collected must be analyzed. A suggested work sheet for organizing this information is given as Table 2.1(2).

The required fire resistance and flame spread for each building element are normally established by the local building or rehabilitation code. The fire performance of the existing materials and assemblies should then be estimated, using one of the techniques described below. If the fire performance of the *existing building* element(s) is equal to or greater than that required, the materials and assemblies may remain. If the fire performance is less than required, then corrective measures must be taken.

The most common methods of upgrading the level of protection are to either remove and replace the *existing building* element(s) or to *repair* and upgrade the existing materials and assemblies. Other fire protection measures, such as automatic sprinklers or detection and alarm systems, also could be considered, though they are beyond the scope of this guideline. If the upgraded protection is still less than that required or deemed to be acceptable, additional corrective measures must be taken. This process must continue until an acceptable level of performance is obtained.

2.2 FIRE RESISTANCE OF EXISTING BUILDING ELEMENTS. The fire resistance of the *existing building* elements can be estimated from the tables and histograms contained in the Appendix. The Appendix is organized first by type of building element: walls, columns, floor/ceiling assemblies, beams and doors. Within each building element, the tables are organized by type of construction (e.g., masonry, metal, wood frame) and then further divided by minimum dimensions or thickness of the building element.

A histogram precedes every table that has 10 or more entries. The X-axis measures fire resistance in hours; the Y-axis shows the number of entries in that table having a given level of fire resistance. The histograms also contain the location of each entry within that table for easy cross-referencing.

The histograms, because they are keyed to the tables, can speed the preliminary investigation. For example, Table 1.3.2, *Wood Frame Walls 4" to Less Than 6" Thick*, contains 96 entries. Rather than study each table entry, the histogram shows that every wall assembly listed in that table has a fire resistance of less than 2 hours. If the building code required the wall to have 2-hour fire resistance, the designer, with a minimum of effort, is made aware of a problem that requires closer study.

Suppose the code had only required a wall of 1-hour fire resistance. The histogram shows far fewer complying elements (19) than noncomplying ones (77). If the existing assembly is not one of the 19 complying entries, there is a strong possibility the existing assembly is deficient. The histograms can also be used in the converse situation. If the existing assembly is not one of the smaller number of entries with a lower than required fire resistance, there is a strong possibility the existing assembly will be acceptable.

At some point, the *existing building* component or assembly must be located within the tables. Otherwise, the fire resistance must be determined through one of the other techniques presented in the guideline. Locating the building component in the Appendix tables not only guarantees the accuracy of the fire-resistance rating, but also provides a source of documentation for the ~~building~~ code official.

3.1 THE EXPERIMENTAL APPROACH. If a material or assembly found in a building is not listed in the Appendix tables, there are several other ways to evaluate fire performance. One approach is to conduct the appropriate fire test(s) and thereby determine the fire-related properties directly. There are a number of laboratories in the United States which routinely conduct the various fire tests.

The contract with any of these testing laboratories should require their observation of specimen preparation as well as the testing of the specimen. A complete description of where and how the specimen was obtained from the building, the transportation of the specimen, and its preparation for testing should be noted in detail so that the ~~building~~ code official can be satisfied that the fire test is representative of the actual use.

The test report should describe the fire test procedure and the response of the material or assembly. The laboratory usually submits a cover letter with the report to describe the provisions of the fire test that were satisfied by the material or assembly under investigation. A building official will generally require this cover letter but will also read the report to confirm that the material or assembly complies with the code requirements. Local code officials should be involved in all phases of the testing process.

The experimental approach can be costly and time consuming because specimens must be taken from the building and transported to the testing laboratory. When a load-bearing assembly has continuous reinforcement, the test specimen must be removed from the building, transported and tested in one piece. However, when the fire performance cannot be determined by other means, there may be no alternative to a full-scale test.

A “nonstandard” small-scale test can be used in special cases. Sample sizes need only be 10–25 square feet (0.93–2.3 m^2), while full-scale tests require test samples of either 100 or 180 square feet (9.3 or 17 m^2) in size. This small-scale test is best suited for testing nonload-bearing assemblies against thermal transmission only.

2024 International Fire Code

[A] BUILDING CODE OFFICIAL. The ~~officer or other~~ designated authority charged with the administration and enforcement of the *International Building Code*~~, or a duly authorized representative~~.

2024 International Green Construction Code

Revise as follows:

107.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at the time of application. Such estimated valuations shall include the total value of work, including materials and labor, for which the permit is being issued, such as electrical, gas, mechanical, and plumbing equipment and permanent systems. In the opinion of the ~~building~~ code official, where the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates acceptable to the ~~building~~ code official. The ~~building~~ code official shall have the authority to adjust the final valuation for permit fees.

107.4 Work commencing before permit issuance. Any person who commences any work before obtaining the necessary permits shall be subject to a fee established by the ~~building~~ code official that shall be in addition to the required permit fees.

107.6 Refunds. The ~~building~~ code official is authorized to establish a refund policy.

2024 International Mechanical Code

Revise as follows:

[A] 106.1 Construction documents. *Construction documents*, engineering calculations, diagrams and other data shall be submitted in two or more sets, or in a digital format where allowed by the ~~building~~ code official, with each application for a permit. The code official shall require *construction documents*, computations and specifications to be prepared and designed by a *registered design professional* where required by state law. Where special conditions exist, the code official is authorized to require additional *construction documents* to be prepared by a *registered design professional*. *Construction documents* shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code. *Construction documents* for *buildings* more than two stories in height shall indicate where penetrations will be made for mechanical systems, and the materials and methods for maintaining required structural safety, fire-resistance rating and fireblocking.

Exception: The code official shall have the authority to waive the submission of *construction documents*, calculations or other data if the nature of the work applied for is such that reviewing of *construction documents* is not necessary to determine compliance with this code.

[F] 512.12.1 Verification. Control systems for mechanical smoke control systems shall include provisions for verification. Verification shall include positive confirmation of actuation, testing, manual override and the presence of power downstream of all disconnects. A preprogrammed weekly test sequence shall report abnormal conditions audibly, visually and by printed report. The preprogrammed weekly test shall operate all devices, *equipment* and components used for smoke control.

Exception: Where verification of individual components tested through the preprogrammed weekly testing sequence will interfere with, and produce unwanted effects to, normal *building* operation, such individual components are permitted to be bypassed from the preprogrammed weekly testing, where *approved* by the ~~building~~ code official and in accordance with both of the following:

1. Where the operation of components is bypassed from the preprogrammed weekly test, presence of power downstream of all disconnects shall be verified weekly by a *listed* control unit.
2. Testing of all components bypassed from the preprogrammed weekly test shall be in accordance with Section 909.20.5 of the *International Fire Code*.

2024 International Plumbing Code

Revise as follows:

[A] 108.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include the total value of work, including materials and labor, for which the permit is being issued, such as electrical, gas, mechanical, plumbing equipment and permanent systems. Where, in the opinion of the ~~building~~ code official, the valuation is underestimated, the permit shall be denied, unless the applicant can show detailed estimates acceptable to the ~~building~~ code official. The building official shall have the authority to adjust the final valuation for permit fees.

2024 International Property Maintenance Code

Add new definition as follows:

FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the *International Fire Code*, or a duly authorized representative.

[A] 105.2.2.5 Tests. Tests conducted to demonstrate equivalency in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict performance of the end use configuration. Tests shall be performed by a party acceptable to the code official.

Revise as follows:

[A] 105.2.2.5.1 Fire tests. Tests conducted to demonstrate equivalent fire safety in support of an alternative material, design or method of construction application shall be of a scale that is sufficient to predict fire safety performance of the end use configuration. Tests shall be performed by a party acceptable to the ~~building~~ code official.

[A] 105.2.2.6.2 Other reports. Reports not complying with Section 105.2.2.6.1 shall describe criteria, including but not limited to any referenced testing or analysis, used to determine compliance with code intent and justify code equivalence. The report shall be prepared by a qualified engineer, specialist, laboratory or specialty organization acceptable to the ~~building~~ code official. The code official is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

2024 International Private Sewage Disposal Code

Revise as follows:

[A] 106.3 Permit valuations. The applicant for a *permit* shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include the total value of work, including materials and labor, for which the *permit* is being issued, such as electrical, gas, mechanical, plumbing equipment and permanent systems. Where, in the opinion of the ~~*building*~~ *code official*, the valuation is underestimated, the *permit* shall be denied, unless the applicant can show detailed estimates acceptable to the *building official*. The building official shall have the authority to adjust the final valuation for permit fees.

[A] 107.1 Construction documents. An application for a permit shall be accompanied by not less than two copies of *construction documents* drawn to scale, or in a digital format where allowed by the ~~building~~ code official, with sufficient clarity and detail dimensions showing the nature and character of the work to be performed. Specifications shall include pumps and controls, dose volume, elevation differences (vertical lift), pipe friction loss, pump performance curve, pump model and pump manufacturer. The *code official* is permitted to waive the requirements for filing *construction documents* where the work involved is of a minor nature. Where the quality of the materials is essential for conformity to this code, specific information shall be given to establish such quality, and this code shall not be cited, or the term “legal” or its equivalent used as a substitute for specific information.

2024 International Wildland Urban Interface Code

Revise as follows:

[A] BUILDING CODE OFFICIAL. The ~~officer or other~~ designated authority charged with the administration and enforcement of the *International Building Code*~~, or a duly authorized representative~~.

Add new definition as follows:

FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the *International Fire Code*, or a duly authorized representative.

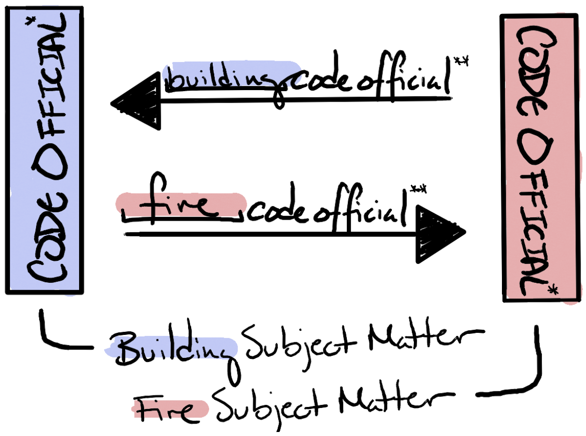
2024 International Zoning Code

Revise as follows:

1008.2.2 Development and construction signs. *Signs* temporarily erected during construction to inform the public of the developer, contractors, architects, engineers, the nature of the project or anticipated completion dates, shall be permitted in all zoning districts, subject to the following limitations:

1. Such *signs* on a single residential *lot* shall be limited to one *sign*, not greater than **[JURISDICTION TO INSERT NUMBER]**feet in height and**[JURISDICTION TO INSERT NUMBER]**square feet in area.
2. Such *signs* for a residential *subdivision* or multiple residential *lots* shall be limited to one *sign*, at each entrance to the *subdivision* or on one of the *lots* to be built on, and shall be not greater than **[JURISDICTION TO INSERT NUMBER]**feet in height and**[JURISDICTION TO INSERT NUMBER]**square feet in area.
3. Such *signs* for nonresidential *uses* in residential districts shall be limited to one *sign*, and shall be not greater than **[JURISDICTION TO INSERT NUMBER]**feet in height and**[JURISDICTION TO INSERT NUMBER]**square feet in area.
4. Such *signs* for commercial or *industrial* projects shall be limited to one *sign* per *street* front, not to exceed **[JURISDICTION TO INSERT NUMBER]**feet in height and**[JURISDICTION TO INSERT NUMBER]**square feet for projects on parcels 5 acres (20 235 m^2) or less in size, and not to exceed**[JURISDICTION TO INSERT NUMBER]**feet in height and**[JURISDICTION TO INSERT NUMBER]**square feet for projects on parcels larger than 5 acres (20 235 m^2).
5. Development and construction *signs* shall not be displayed until after the issuance of construction permits by the building code official, and must be removed not later than 24 hours following issuance of an occupancy permit for any or all portions of the project.

Reason: To harmonize terminology across all model codes, this code change modifies "building official" and "fire code official" to "code official" within their respective codes and revises "building official" to "building code official" where necessary to cross reference from one code, such as the IFC and IWUIC.



* Within a subject matter, the official having jurisdiction would be referred to as "code official"

** Outside a subject matter, the official having jurisdiction would be referred to as "[subject matter] code official", indicating which subject matter to refer to

Various editorial changes and additions are also included. This change aligns with language in the IEBC, IFGC, IMC, IPC, IPSDC, IPMC, ISPSC, IWUIC and IZC, will make code writing simpler and easier to coordinate (especially in administrative provisions), and a similar code change is being presented to the IRC.

The purpose of this code change is to replace every instance of "building official" with "code official" in the IBC and every instance of "building official" in the IFC and IWUIC with "building code official". Additionally every instance of "fire code official" in the IFC is intended to be changed to "code official". In the interest of reciting hundreds of instances of the occurrence across the IBC and IFC/IWUIC the proponent respectfully asks staff to make these changes administratively.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change a terminology change that will have no effect on construction costs.

Staff Analysis: The proposed definition of **FIRE CODE OFFICIAL** is from the IFC and is scoped to the IFC committee. The same definition is being proposed to be added to the other codes as shown.

ADM58-25

ADM59-25

IBC: APPENDIX A, SECTION A101, [A] A101.1, [A] A101.2, [A] A101.3, [A] A101.4

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Building Code

APPENDIX A
EMPLOYEE QUALIFICATIONS

SECTION A101
BUILDING OFFICIAL QUALIFICATIONS

[A] A101.1 Building official. The *building official* shall have not fewer than 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been supervisory experience. The *building official* should be certified as a *building official* through a recognized certification program. The *building official* shall be appointed or hired by the applicable governing authority.

[A] A101.2 Chief inspector. The *building official* can designate supervisors to administer the provisions of this code and the *International Mechanical Code*, *International Plumbing Code* and International Fuel Gas Code. Each supervisor shall have not fewer than 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been in a supervisory capacity. They shall be certified through a recognized certification program for the appropriate trade.

[A] A101.3 Inspector and plans examiner. The *building official* shall appoint or hire such number of officers, inspectors, assistants and other employees as shall be authorized by the *jurisdiction*. A *person* who has fewer than 5 years of experience as a contractor, engineer, architect, or as a superintendent, foreman or competent mechanic in charge of construction shall not be appointed or hired as inspector of construction or plans examiner. The inspector or plans examiner shall be certified through a recognized certification program for the appropriate trade.

Delete without substitution:

~~**[A] A101.4 Termination of employment.** Employees in the position of *building official*, chief inspector or inspector shall not be removed from office except for cause after full opportunity has been given to be heard on specific charges before such applicable governing authority.~~

Reason: Termination provisions exceeds the appendix's stated purpose of providing optional qualification criteria for code officials.
By addressing employment termination procedures, this section inappropriately delves into employment law and due process, matters that are better suited to be regulated by existing state and local labor laws.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change is editorial in nature and removes potential conflicts.

ADM59-25

ADM60-25

IBC: APPENDIX A, SECTION A101, [A] A101.1, [A] A101.2, [A] A101.3, [A] A101.4, SECTION A102, [A] A102.1, TABLE A102.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

Delete without substitution:

~~APPENDIX A~~
~~EMPLOYEE QUALIFICATIONS~~

~~SECTION A101~~
~~BUILDING OFFICIAL QUALIFICATIONS~~

~~**[A] A101.1 Building official.** The *building official* shall have not fewer than 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been supervisory experience. The *building official* should be certified as a *building official* through a recognized certification program. The *building official* shall be appointed or hired by the applicable governing authority.~~

~~**[A] A101.2 Chief inspector.** The *building official* can designate supervisors to administer the provisions of this code and the *International Mechanical Code*, *International Plumbing Code* and International Fuel Gas Code. Each supervisor shall have not fewer than 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been in a supervisory capacity. They shall be certified through a recognized certification program for the appropriate trade.~~

~~**[A] A101.3 Inspector and plans examiner.** The *building official* shall appoint or hire such number of officers, inspectors, assistants and other employees as shall be authorized by the *jurisdiction*. A *person* who has fewer than 5 years of experience as a contractor, engineer, architect, or as a superintendent, foreman or competent mechanic in charge of construction shall not be appointed or hired as inspector of construction or plans examiner. The inspector or plans examiner shall be certified through a recognized certification program for the appropriate trade.~~

~~**[A] A101.4 Termination of employment.** Employees in the position of *building official*, chief inspector or inspector shall not be removed from office except for cause after full opportunity has been given to be heard on specific charges before such applicable governing authority.~~

~~SECTION A102~~
~~REFERENCED STANDARDS~~

~~**[A] A102.1 General.** See Table A102.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix that reference the standard.~~

~~TABLE A102.1 REFERENCED STANDARDS~~

~~STANDARD ACRONYM~~	~~STANDARD NAME~~	~~SECTIONS HEREIN REFERENCED~~
~~IBC—24~~	~~*International Building Code*~~	~~A101.2~~
~~IMC—24~~	~~*International Mechanical Code*~~	~~A101.2~~
~~IPC—24~~	~~*International Plumbing Code*~~	~~A101.2~~
~~IFGC—24~~	~~*International Fuel Gas Code*~~	~~A101.2~~

Reason: This appendix is only in the IBC. Employee qualification is a jurisdictional decision. This is not something that should be in the code, even as guidance material. Definitely not as an adoptable appendix.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This appendix does not include any construction requirements.

ADM60-25

ADM61-25

AA — Aluminum Association

Standard Reference Number	Title	Referenced in Code(s):							
ADM-~~2020~~ 2026, Part I	~~Aluminum Design Manual~~ Specification for Aluminum Structures	IBC							
~~ASM 35-00~~ ADM—2026, Part VIII	~~Aluminum Sheet Metal Work in Building Construction (Fourth Edition)~~ Guidelines for Aluminum Sheet Metal Work in Building Construction	IBC							

AAMA — American Architectural Manufacturers Association

Standard Reference Number	Title	Referenced in Code(s):							
FGIA AAMA 2502-~~19~~ 24	Comparative Analysis Procedure for Window and Door Products	IBC							

ABTG — Applied Building Technology Group LLC

Standard Reference Number	Title	Referenced in Code(s):							
ANSI/ABTG FS 100~~—2012 (R2018)~~ (2025)	Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulation Sheathing Used in Exterior Wall Covering Assemblies	IBC	IRC						

ACCA — Air Conditioning Contractors of America

Standard Reference Number	Title	Referenced in Code(s):							
ANSI/ACCA 1 Manual D-~~2023~~ 2025	Residential Duct Systems	IECC	IMC	IRC					
ANSI/ACCA 2 Manual J-~~2016~~ 2026	Residential Load Calculation	IECC	IRC						
ANSI/ACCA 3 Manual S-2023 Addendum A & B-2024	Residential Equipment Selection	IECC	IRC						

ANSI/ACCA 5 QI-~~2010~~ 2026	HVAC Quality Installation Specification	IECC	IRC						
ACI	**American Concrete Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
117—~~10~~ 26	Specification for Tolerances for Concrete Construction and Materials	IBC							
216.1—~~14~~ 26	~~for~~ Determining Fire Resistance of Concrete and Masonry Construction Assemblies--Code Requirements and Commentary	IBC							
318—~~19~~ 25	Building Code Requirements for Structural Concrete	IBC	IRC	ISPSC					
332—~~20~~ 26	Residential Concrete--Code Requirements ~~for Structural~~ and Commentary	IRC							
440.11—22	Structural Concrete Buildings Reinforced Internally with Fiber Reinforced Polymer (FRP) Bars – Code Requirements and Commentary	IBC							
550.5—18	~~for the~~ Design of Precast Concrete Diaphragms for Earthquake Motions--Code Requirements and Commentary	IBC							
562—~~21~~ 25	Assessment, Repair, and Rehabilitation of Existing Concrete Structures—Code Requirements and Commentary	IEBC							

AHRI	Air-Conditioning, Heating, & Refrigeration Institute								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
210/240- ~~2023 (2020).~~ 2024 (I-P)	Performance Rating of Unitary Air-conditioning and Air-source Heat Pump Equipment	ICCPC	IECC						
310/380-~~2017~~ (SI/I-P) ~~(CSA-C744-17)~~ (CSA C744-25)	Packaged Terminal Air Conditioners and Heat Pumps	IECC							
340/360-2022 (I-P)	Performance Rating of Commercial and Industrial Unitary Air-conditioning and Heat Pump Equipment	ICCPC	IECC						
365-2024 (SI/I-P) ~~(I-P)-2009.~~	Commercial and Industrial Unitary Air-conditioning Condensing Units	ICCPC	IECC						
365 (I-P)-2009	Commercial and Industrial Unitary Air-conditioning Condensing Units	IECC							
390 ~~(I-P)-2003~~ 2021 (I-P)	Performance Rating of Single Package Vertical Air-conditioners and Heat Pumps	IECC							
400-2025 (I-P) ~~(I-P)-2015~~	Performance Rating of Liquid to Liquid Heat Exchangers	IECC	ISPSC						
440-2019 (R2024) (SI/I-P) ~~(IP)-2019~~	Performance Rating of Fan Coils	IECC							
460-2005 (R2024) (SI/I-P)	Performance Rating of Remote Mechanical-draft Air- cooled Refrigerant Condensers	IECC							
550/590-2023 (I-P) ~~(I-P)-2022.~~	Performance Rating of Water-chilling and Heat Pump Water-heating Packages Using the Vapor Compression Cycle	ICCPC							
560-~~2000.~~ 2023 (I-P)	Absorption Water Chilling and Water Heating Packages	ICCPC	IECC						
700-~~- 2019~~ 2024 (SI)	Specifications for Refrigerants	IMC							

910 ~~(I-P)~~-2014 (R2023) (I-P)	Performance Rating of Indoor Pool Dehumidifiers	IECC							
920-2025 (SI/I-P) ~~(I-P) 2020:~~	Performance Rating ~~of DX Dedicated Outdoor Air System Units~~ of Direct Expansion-Dedicated Outdoor Air System Units	ICCPC	IECC						
1160-2026 (SI/I-P) ~~(I-P) 2022~~	Performance Rating of Heat Pump Pool Heaters~~—(with Addendum 1)~~	ISPSC							
1200-2023 (I-P) ~~(I-P) 2022~~	Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets	IECC							
1230-~~2021~~ 2023 (I-P)	Performance Rating of Variable Refrigerant Flow (VRF) Multi-split Air-Conditioning and Heat Pump Equipment	IECC							
1250-2025 (I-P) ~~(I-P) 202020~~	Standard for Performance Rating in Walk-in Coolers and Freezers	IECC							
1360-2022 (I-P) ~~(I-P) 2017~~	Performance Rating of Computer and Data Processing Room Air Conditioners	IECC							
1380-2019 (I-P)	Demand Response through Variable Capacity HVAC Systems in Residential and Small Commercial Applications	ICCPC	IECC						
AHRI 1380-2019	Demand Response through Variable Capacity HVAC Systems in Residential and Small Commercial Applications	IRC							
840-2021 (I-P) ~~(I-P) 1998~~	Performance Rating of Unit Ventilators	IECC							

AISC	American Institute of Steel								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/AISC 370-~~21~~ 25	Specification for Structural Stainless Steel Buildings	IBC							

ALI	Automotive Lift Institute, Inc.								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ALI ALCTV-~~2017~~ 2026	Standard for Automotive Lifts —Safety Requirements for Construction, Testing and Validation (ANSI)	IBC	IRC						

AMCA	Air Movement and Control Association International								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
500~~D-18:~~ -D-26	Laboratory Methods for Testing Dampers for Rating	ICCPC	IECC						
ANSI/AMCA Standard 210-~~23~~ 25/ANSI/ASHRAE 51-~~23~~ 25	Laboratory Methods of Testing Fans for Aerodynamic Performance Rating	IECC	IMC	IRC					
ANSI/AMCA 230-~~-22~~ 23 (with errata)	Laboratory Methods of Testing Air Circulating Fans for Rating and Certification	IECC	IMC						
ANSI/AMCA 540-23	Test Method for Louvers Impacted by Wind Borne Debris	IBC							

ANSI	American National Standards Institute								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
A108/A118/A136.1-~~2019~~ 2024	Specifications for Installation of Ceramic Tile: Material and Installation Standards	ISPSC							

A108.1A-~~17~~ 23	Installation of Ceramic Tile in the Wet-set Method, with Portland Cement Mortar	IBC	IRC						
A108.1B-~~17~~ 23	Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry- set, Modified Dry-Set or ~~Latex-Portland~~ Improved Modified Dry-Set Cement Mortar	IBC	IRC						
A108.4-~~19~~ 23	Installation of Ceramic Tile with Organic Adhesives or Water-cleanable Tile-setting Epoxy Adhesive	IBC	IRC						
A108.5-~~21~~ 23	Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar	IBC	IRC						
A108.6-~~99 (R2019)~~ 23	Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy	IBC	IRC						
A108.8-99 (Reaffirmed ~~2019~~ 2024)	Installation of Ceramic Tile with Chemical-resistant Furan Resin Mortar and Grout	IBC							
A108.9-~~99 (Reaffirmed 2019)~~ 23	Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout	IBC							
A108.10-17(Reaffirmed 2022)	Installation of Grout in Tilework	IBC							
A108.11-~~18~~ 23	Interior Installation of Cementitious Backer Units	IRC							
A118.1-~~19~~ 23	American National Standard Specifications for Dry-Set Cement Mortar	IBC	IRC						

A118.4-~~19~~ 23	American National Standard Specifications for Modified Dry-set Cement Mortar	IBC	IRC						
A118.5-99 (Reaffirmed 2021)	American National Standard Specifications for Chemical Resistant Furan Mortars and Grouts for Tile Installation	IBC							
A118.6-19	American National Standard Specifications for Standard Cement Grouts for Tile Installation	IBC							
A118.8-99(Reaffirmed 2021)	American National Standard Specifications for Modified Epoxy Emulsion Mortar/Grout	IBC							
A118.10-~~14 (2019)~~ 23	Standard Specification for Load-Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation	IPC	IRC						
ANSI	**American National Standards Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
CSA ~~ANSI~~ Z21.8-1994 ~~(R2017)~~ (R2022)	Installation of Domestic Gas Conversion Burners	IFGC	IMC	IRC					
CSA ~~ANSI~~ Z21.11.2-2019:	Gas-fired room heaters, volume II, unvented room heaters	IFGC	IRC						
CSA ~~ANSI~~ Z21.13:~~-2017/CSA 4.9-17~~ 22/CSA 4.9:22	Gas-Fired Low-Pressure Steam and Hot Water Boilers	IFGC	IRC						
CSA ~~ANSI~~ Z21.22-2015 ~~(R2020)/CSA 4.4-15 (R2020)~~ (R2025)/CSA 4.4-2015(R2025)	Relief Valves for Hot Water Supply Systems	IPC	IRC						
CSA ~~ANSI~~ Z21.24:~~-2015 (R2020)/CSA 6.10-15 (R2020)~~ 22/CSA 6.10:22	Connectors for Gas Appliances	IFGC	IRC						

CSA ~~ANSI~~ Z21.40.1-1996 ~~(R2017)/CGA 2.91-M96 (R2017)~~ (R2022)/CGA 2.91-M96 (R2022)	Gas-Fired, Heat-Activated Air-Conditioning and Heat Pump Appliances	IFGC	IRC						
CSA ~~ANSI~~ Z21.40.2-1996 ~~(R2017)/CGA 2.92-M96 (R2019)~~ (R2022)/CGA 2.92-M96 (R2022)	Gas-Fired Work Activated Air Conditioning and Heat Pump Appliances (Internal Combustion)	IFGC	IRC						
CSA ~~ANSI~~ Z21.41:~~-(R2019)/CSA 6.9-(R2019)~~ 23/CSA 6.9:23	Quick-Disconnect Devices for Use with Gas Fuel Appliances	IFGC	IRC						
CSA ~~ANSI~~ Z21.47:~~-2016/CSA 2.3-2021~~ 21/CSA 2.3:21	Gas-Fired Central Furnaces	IECC	IFGC	IRC					
CSA ~~ANSI~~ Z21.50:~~-2019/CSA 2.22-19~~ (R2024)/CSA 2.22.19 (R2024)	Vented Decorative Gas Fireplaces	IECC	IFGC	IRC					
CSA ~~ANSI~~ Z21.60-2017(R2021)/CSA 2.26-~~17~~ 2017 (R2021)	Decorative Gas Appliances for Installation in Solid-Fuel-Burning Fireplaces	IRC							
CSA ~~ANSI~~ Z21.75-2016(R2020)/CSA 6.27-2016 ~~(R2020)~~ (R2021)	Connectors for Outdoor Gas Appliances and Manufactured Homes	IFGC	IRC						
CSA ~~ANSI~~ Z21.93-2017(R2022)/CSA 6.30-17 (R2022)	Excess Flow Valves for Natural Gas and Propane Gas with Pressures up to 5 Psig	IFGC	IRC						
CSA ~~ANSI~~ Z21.97-2017(R2022)/CSA 2.41-2017 (R2022)	Outdoor Decorative Appliances	IFGC	IRC						
CSA ~~ANSI~~ Z83.4-2017(R2022) /CSA 3.7-~~17~~ 2017 (R2022)	Non-Recirculating Direct Gas- Fired Heating and Forced Ventilation Appliances for Commercial and Industrial Application	IFGC							
CSA ~~ANSI~~ Z83.8-2016 (R2021)/CSA 2.6-16 (R2021)	Gas Unit Heater, Gas Packaged Heaters, Gas Utility Heaters and Gas-Fired Duct Furnaces	IECC	IFGC	IRC					

CSA ANSI Z83.11-2016(R2021)/CSA 1.8-16(R2021)	Gas Food Service Equipment	IFGC							
CSA ~~ANSI~~ Z83.18-17(R2021)	Recirculating Direct Gas-Fired Heating and Forced Ventilation Appliances for Commercial and Industrial Applications	IFGC							
CSA ~~ANSI~~ Z83.20-2016 (R2021) /CSA 2.34~~-16~~ 2016 (R2021)	Gas-Fired Tubular and Low-Intensity Infrared Heaters	IRC							
CSA/~~ANSI~~ Z21.80: ~~-19/CSA 6.22-19~~ 19(R2024)/CSA 6.22:19 (R2024)	Line Pressure Regulators	IFGC	IRC						
CSA/~~ANSI~~ Z21.88-19 (R2024) /CSA 2.33-19 (R2024)	Vented Gas Fireplace Heaters	IECC	IFGC	IRC					
CSA/~~ANSI~~ Z21.90-19 (R2024)/CSA 6.24-19 (R2024)	Gas Convenience Outlets and Optional Enclosures	IFGC	IRC						
CSA/~~ANSI~~ Z21.91:~~-~~20	Ventless Firebox Enclosures for Gas-Fired Unvented Decorative Room Heaters	IFGC	IRC						
ES1.7~~-2021~~ 2026	Event Safety Requirements - Weather Preparedness	IBC							
APA	**APA - Engineered Wood Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI 117~~-2020~~ 2025	Standard Specification for Structural Glued Laminated Timber of Softwood Species	IBC							
ANSI/APA PRG 320~~-2019~~ 2025	Standard for Performance- rated Cross-laminated Timber	IBC	IRC						
ANSI/APA PRP 210~~-2019~~ 2024	Standard for Performance-Rated Engineered Wood Siding	IBC	IRC						
APA E30~~-19~~ 26	Engineered Wood Construction Guide	IRC							

APA PDS-~~20~~ 26	Panel Design Specification	IBC							
APA R540-~~19~~ 26	Builder Tips: Proper Storage and Handling of Glulam Beams	IBC							
APA S475-~~20~~ 26	Glued Laminated Beam Design Tables	IBC							
APA S560-~~20~~ 26	Technical Note: Field Notching and Drilling of Glued Laminated Timber Beams	IBC							
API	**American Petroleum Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
~~Publ~~ RP 2201-6th Edition ~~(2023)~~ 2025	~~Procedures for Welding or Hot Tapping on Equipment in Service~~ Safe Hot Tapping Practices in the Petroleum and Petrochemical Industries	IFC							
RP 2001- Addendum 1 to 10th Edition published 10/24/2024 ~~(2019)~~	Fire Protection in Refineries	IFC							
RP 2003-9th Edition (2023)	Protection Against Ignitions Arising out of Static, Lightning and Stray Currents	IFC							
RP 2009-8th Edition (2022)	Safe Welding and Cutting Practices in Refineries, Gas Plants and Petrochemical Plants	IFC							
RP 2028 4th Edition ~~(2024)~~ (2026)	Flame Arrestors in Piping Systems	IFC							
Std 653 ~~Addendum 3-5th Edition (2022)~~ 5th edition.	Tank Inspection, Repair, Alteration and Reconstruction including Addendum 1, April 2018, Addendum 2, May 2020 and Addendum 3, November 2023	IFC							

Std 2000-8th Edition ~~(2023)~~ 2026	Venting Atmosphere and Low-Pressure Storage Tanks~~:~~ ~~Nonrefrigerated and Refrigerated~~	IFC							
Std 2350-5th Edition including Errata 1 (issued April 2021)	Overfill Protection for Storage Tanks in Petroleum Facilities	IFC							
ASABE	**American Society of Agricultural and Biological Engineers**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
EP 486.3 SEP2017 ~~(R2021)~~ R2026	Shallow-post and Pier Foundation Design	IBC							
EP ~~559.1 AUG2010 (R2019)~~ 559.2 FEB2023	Design Requirements and ~~Bending~~ Engineering Properties for Mechanically Laminated Wood (Mechlam) Assemblies	IBC							
ASCE/SEI	**American Society of Civil Engineers Structural Engineering Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ASCE/SEI 7~~—20~~22 with Supplement No.1, No.2, No.3	Minimum Design Loads for ~~and Associated Criteria for~~ Buildings and Other Structures with Supplement No.1, No.2, No.3	IBC	IEBC	IRC					
19-~~22~~ 16	Structural Applications of Steel Cables for Buildings	IBC							
24-~~14~~ 24	Flood Resistant Design and Construction	IBC	IFC	IRC	ISPSC				
32-01R25	Design and Construction of Frost-Protected Shallow Foundations	IBC	IRC						
41-~~2017~~ 23	Seismic Evaluation and Retrofit of Existing Buildings	IEBC							
55-~~22~~ 16	Tensile Membrane Structures	IBC							

ASHRAE	ASHRAE								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
15- ~~2022~~ 2024	Safety Standard for Refrigeration Systems	IMC							
34- ~~2022~~ 2024	Designation and Safety Classification of Refrigerants	IMC							
55-~~2020:~~ 2023	Thermal Environmental Conditions for Human Occupancy	ICCPC	IECC						
62.1- ~~2022~~ 2025	Ventilation ~~for~~ and Acceptable Indoor Air Quality	IEBC	IECC	IMC	ISPSC				
90.1-~~2022~~ 2025	Energy Standard for Sites and Buildings Except Low-rise Residential Buildings	IBC	IECC						
90.4-~~2022~~ 2025	Energy Standard for Data Centers	IECC							
170-~~2021~~ 2024	Ventilation of Health Care Facilities	IBC	IECC	IFC	IMC				
ANSI/ASHRAE/ACCA ~~183-2007 (RA 2020)~~ 183-2024	Peak Cooling and Heating Load Calculations in Buildings Except Low-rise Residential Buildings	IECC	IMC						
ASHRAE-~~2020:~~ 2024	HVAC Systems and Equipment Handbook ~~—2020~~ 2024	ICCPC	IECC						
ASHRAE-~~2021~~ 2024	ASHRAE Handbook of Fundamentals	IECC	IMC	IRC					

ASME	American Society of Mechanical Engineers								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
A13.1-~~2020~~ 2023	Scheme for the Identification of Piping Systems	IBC	IFC	IFGC					

A17.1-~~2022~~ 2025/CSA B44-~~22~~ 25	Safety Code for Elevators and Escalators	IBC	IEBC	IECC	IFC	IPMC	IRC		
A17.7-2007 (R2022)/CSA B44-07~~(R2019)~~ (R2022)	Performance-based Safety Code for Elevators and Escalators	IBC							
A18.1-~~2023~~ 2026	Safety Standard for Platform Lifts and Stairway Chair Lifts	IBC	IEBC	IRC					
A90.1-~~2020~~ 2023	Safety Standard for Belt Manlifts	IBC							
A112.1.3- ~~2000 (R2024)~~ 2025	Air Gap Fittings for Use with Plumbing Fixtures, Appliances and Appurtenances	IPC	IRC						
A112.3.1-2007 ~~(R2017)~~ (R2022)	Stainless Steel Drainage Systems for Sanitary, DWV, Storm and Vacuum Applications Above and Below Ground	IPC	IRC						
A112.3.4-~~2022/CSA B45.9-2022~~ 2018(R2023)/CSA B45.9-2018(R2023)	Macerating Toilet Systems and ~~Related Components~~ Waste Pumping Systems for Plumbing Fixtures	IPC	IRC						
A112.4.1-~~2024~~ 2018(R2024)	Water Heater Relief Valve Drain Tubes	IMC	IPC	IRC					
A112.4.2-~~2021/CSA B45.16-2021~~ 2026/CSA B45.16-2026	Water Closet Personal Hygiene Devices	IPC	IRC						
A112.4.3-~~-2024~~ 1999(R2024)	Plastic Fittings for Connecting Water Closets to the Sanitary Drainage System	IPC	IRC						
A112.4.4-~~2022~~ 2025	Plastic Push-Fit Drain, Waste, and Vent (DWV) Fittings	IPC	IRC						
A112.6.3-~~2022~~ 2025	Floor and Trench Drains	IPC	IRC						
A112.6.4-~~2003 (R2020)~~ 2025	Roof, Deck, and Balcony Drains	IPC							
A112.6.7-~~2010 (R2024)~~ 2025	Sanitary Floor Sinks	IPC							
A112.6.9-~~2005 (R2024)~~ 2025	Siphonic Roof Drains	IPC							

A112.14.3/CSA B481.1~~-2023~~ 2025	Hydromechanical Grease Interceptors	IPC							
A112.14.4/CSA B125.4~~-2001 (2022)~~ 2025	Grease Removal Devices	IPC							
A112.18.1~~-2023/CSA B125.1-2023~~ 2024/CSA B125.1-2024	Plumbing Supply Fittings	IPC	IRC						
A112.18.2~~-2023/CSA B125.2-2023~~ 2025/CSA B125.2-2025	Plumbing Waste Fittings	IPC	IRC						
A112.18.6~~-2021/CSA B125.6-21~~ 2025/CSA B125.6-25	Flexible Water Connectors	IPC	IRC						
A112.18.9-2011 ~~(2017)~~ 2022	Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures	IPC							
A112.19.1~~-2022/CSA B45.2-2022~~ 2024/CSA B45.2-2024	Enameled Cast-iron and Enameled Steel Plumbing Fixtures	IPC	IRC						
A112.19.2~~-2021/CSA B45.1-2021~~ 2024/CSA B45.1-2024	Ceramic Plumbing Fixtures	IPC	IRC						
A112.19.3~~-2021/CSA B45.4-2021~~ 2022/CSA B45.4-2022	Stainless Steel Plumbing Fixtures	IPC	IRC						
A112.19.7~~-2023/CSA B45.10-2023~~ 2020 (R2025)/CSA B45.10-2020(R2025)	Hydromassage Bathtub Systems	IPC	IRC						
A112.19.12~~-2024~~ 2014(R2024)	Wall Mounted and Pedestal Mounted, Adjustable, Elevating, Tilting and Pivoting Lavatory, Sink and Shampoo Bowl Carrier Systems and Drain Waste Systems	IPC	IRC						
A112.19.14-2013 ~~(R2023)~~ (R2025)	Six-Liter Water Closets Equipped with Dual Flushing Device	IPC	IRC						
A112.19.19~~-2021~~ 2026	Vitreous China Nonwater Urinals	IPC							
A112.21.3~~-2022~~ 1985(R2022)	Hydrants for Utility and Maintenance Use	IPC							

Standard	Title	1	2	3	4	5	6	7	8
A112.36.2M-~~1991~~ ~~(R2022)~~ 2022	Cleanouts	IPC	IRC						
ASME A112.3.4-2022/CSA B45.9-2022	Macerating Toilet Systems and Waste Pumping Systems for Plumbing Fixtures	IPC							
ASME A112.4.2-2021/CSA B45.16-2021	Personal Hygiene Devices for Water Closets	IRC							
ASME A112.19.14-2013 ~~(R2018).~~ (R2025)	Six-Liter Water Closets Equipped with a Dual Flushing Device	IPC	IRC						
ASME B31.3-~~2020~~ 2026	Process Piping	IBC	IECC	IFC					
ASSE 1002-~~2020/ASME A112.1002-2020/CSA B125.12-20~~ 2025/ASME A112.1002-2025/CSA B125.12-2025	Anti-Siphon Fill Valves for Water Closet Tanks	IPC	IRC						
ASSE 1016-~~2021/ASME A112.1016-2021/CSA B125.16-2021~~ 2026/ASME A112-1016/CSA B125.16-2026(R2021)	Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations	IRC							
ASSE 1037-~~2015/ASME A112.1037-2015/CSA B125.37-2015~~ 2025/ASME A112.1037-2025/CSA B125.37-2025	Performance Requirements for Pressurized Flushing Devices for Plumbing Fixtures	IPC	IRC						
ASSE 1070-~~2020/ASME A112.1070-2020/CSA B125.1070-20~~ 2025/ASME A112.1070-2025/CSA B125.1070-25	Performance Requirements for Water Temperature Limiting Devices	IRC							
B1.13M- ~~2020~~ 2005 (S2025)	Metric Screw Threads: M Profile	IMC							

B1.20.1- ~~2023~~ 2025	Pipe Threads, General Purpose (Inch)	IFGC	IMC	IPC					
B1.20.3-~~2023~~ 1976(R2023)	Dryseal Pipe Threads, Inch	IMC							
B16.1-~~2020~~ 2025	Gray Iron Pipe Flanges and Flanged Fittings, Class 25, 125, And 250	IFGC							
B16.3-~~2016~~ 2026	Malleable Iron Threaded Fittings, Classes 150 & 300	IMC	IRC						
B16.4-~~2016~~ 2026	Gray Iron Threaded Fittings Classes 125 and 250	IPC	IRC						
B16.5-~~2020~~ 2025	Pipe Flanges and Flanged Fittings: NPS 1/2 through NFPS 24, Metric/Inch Standard	IFGC	IMC						
B16.9-~~2023~~ 2024	Factory-made Wrought Steel Buttwelding Fittings	IMC	IPC	IRC					
B16.9- 2023	Factory-made Wrought Steel Buttwelding Fittings	IMC							
B16.9-2023	Factory-Made Wrought Steel Buttwelding Fittings	IPC							
B16.11-~~2021~~ 2026	Forged Fittings, Socket-welding and Threaded	IMC	IPC	IRC					
B16.12-~~2024~~ 2025	Cast Iron Threaded Drainage Fittings	IPC	IRC						
B16.15-2023	Cast Alloy Threaded Fittings: Classes 125 and 250	IRC	ISPSC						
B16.15- ~~2023~~ 2024	Cast Alloy Threaded Fittings: Classes 125 and 250	IMC	IPC	IRC	ISPSC				
B16.15-2023	Cast Alloy Threaded Fittings: Classes 125 and 250	IPC							
B16.18-~~2023~~ 2026	Cast Copper Alloy Solder Joint Pressure Fittings	IBC	IFC	IMC	IPC	IRC			

B16.20-~~2017~~ 2023	Metallic Gaskets for Pipe Flanges: Ring-Joint, Spiral- Wound and Jacketed	IFGC							
B16.21-~~2021~~ 2026	Nonmetallic Flat Gaskets for Pipe Flanges	IFGC							
B16.22-~~2023~~ 2026	Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings	IBC	IFC	IMC	IPC	IRC			
B16.23-~~2016~~ 2026	Cast Copper Alloy Solder Joint Drainage Fittings DWV	IPC	IRC						
B16.24-~~2021~~ 2026	Cast Copper Alloy Pipe Flanges, Flanged Fittings, And Valves: Classes 150, 300, 600, 900, 1500, and 2500	IFGC	IMC						
B16.26-2023	Cast Copper Alloy Fittings for Flared Copper Tubes	IRC							
B16.26- ~~2023~~ 2024	Cast Copper Alloy Fittings for Flared Copper Tubes	IMC	IPC	IRC					
B16.33-20~~22~~ 23	Manually Operated Metallic Gas Valves for Use in Gas Piping Systems up to 125 psig (Sizes $^1/_2$ through 2)	IFGC	IRC						
B16.34-~~2023~~ 2020 (R2025)	Valves—Flanged, Threaded and Welding End	IPC	IRC						
B16.34-2023	Valves—Flanged, Threaded and Welding End	IPC							
B16.42-~~2021~~ 2026	Ductile Iron Pipe Flanges and Flanged Fittings, Classes 150 and 300	IFGC	IRC						
B16.44-~~2022~~ 2023	Manually Operated Metallic Gas Valves for Use in Aboveground Piping Systems up to 5 psi	IFGC	IRC						
B16.47-~~2020~~ 2025	Large Diameter Steel Flanges: NPS 26 through NPS 60, Metric/Inch Standard	IFGC							

B16.50-~~2018~~ 2026	Wrought Copper and Copper Alloy Braze-joint Pressure Fittings	IMC							
B16.51-~~2018~~ 2026	Copper and Copper Alloy Press-connect Pressure Fittings	IMC	IPC	IRC					
B20.1-~~2024~~ 2027	Safety Standard for Conveyors and Related Equipment	IBC							
B31.1-~~2022~~ 2024	Power Piping	IFC							
B31.9-~~2023~~ 2025	Building Services Piping	IFC	IMC						
B31.12-~~2024~~ 2023	Hydrogen Piping and Pipelines	IFGC							
B36.10M-2018	Welded and Seamless Wrought Steel Pipe	IFGC							
B36.10M-~~2023~~ 2022	Welded and Seamless Wrought Steel Pipe	IFGC	IRC						
BPVC-~~2023~~ 2025	ASME Boiler and Pressure Vessel Code (Sections I, II, IV, V, VI and VIII)	IECC	IFC	IFGC	IMC	IRC			
A112.6.1M - ~~2022~~ 2025	Floor Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use	IPC							
ASSE	**ASSE International**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
1001-~~2017~~ 2021	Performance Requirements for Atmospheric Type Vacuum Breakers	IPC	IRC						
1003-~~2020~~ 23/CSA B356:23	~~Performance Requirements for~~ Water-pressure-reducing Valves for ~~Domestic~~ potable Water Distribution Systems	IRC							

1004-~~2017~~ 2024	Performance Requirements for Backflow Prevention Requirements for Commercial Dishwashing Machines	IPC							
1010-~~2004~~ 2021	Performance Requirements for Water Hammer Arresters	IPC	IRC						
1011-~~2017~~ 2023	Performance Requirements for Hose Connection Vacuum Breakers	IPC	IRC						
1012-~~2009~~ 2021	Performance Requirements for Backflow Preventers with an Intermediate Atmospheric Vent	IPC	IRC						
1017-~~2009~~ 2023	Performance Requirements for Temperature Actuated Mixing Values for Hot Water Distribution Systems	IMC	IPC	IRC					
1018-~~2001 (R2021)~~2023	Performance Requirements for Trap Seal Primer Valves; Potable Water Supplied	IPC							
1019-~~2011~~ 2023	Performance Requirements for Wall Hydrant with Backflow Protection and Freeze Resistance	IRC							
1022-~~2021~~ 2023	Performance Requirements for Backflow Preventer for Beverage Dispensing Equipment (for carbonated and non-carbonated)	IPC							
1024-~~2021~~ 2023	Performance Requirements for Dual Check Backflow Preventers	IRC							
1024-2021	Performance Requirements for Dual Check Backflow Preventers	IPC							
1044-~~2015 (R2020)~~ 2023	Performance Requirements for Trap Seal Primer—Drainage Types and Electric Design Types	IRC							

1048-2021<u>e1</u>	Performance Requirements for Double Check Detector ~~Fire Protection~~ Backflow Prevention Assemblies	IRC							
1052-~~2016~~ <u>2023</u>	Performance Requirements for Hose Connection Backflow Preventers	IPC	IRC						
1062-2021	Performance Requirements for Temperature-actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings	IRC							
1066-~~1997~~ <u>2023</u>	Performance Requirements for Individual Pressure Balancing In-line Valves for Individual Fixture Fittings	IPC	IRC						
1082-~~2018~~ <u>2021</u>	Performance Requirements for Water Heaters with Integral Temperature Control Devices for Hot Water Distribution Systems.	IPC							
1084-2018<u>e1(R2023)</u>	Performance Requirements for Water Heaters with Temperature Limiting Capacity	IPC							
1085-2018<u>(R2023)</u>	Performance Requirements for Water Heaters for Emergency Equipment	IPC							
ASSP	**American Society of Safety Professionals**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/ASSP Z359.1-~~2020~~ <u>2024</u>	The Fall Protection Code	IBC	IFC	IFGC	IMC				

ASTM	**ASTM International**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
A6/A6M—~~21~~ 24b	Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes and Sheet Piling	IBC							
A53/A53M—~~2020~~ 24	Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless	IFGC	IMC	IPC	IRC				
A74—~~2021~~ 21	Specification for Cast Iron Soil Pipe and Fittings	IPC	IPSDC	IRC					
A105/A105M—~~21~~ 24	Standard Specification for Carbon Steel Forgings for Piping Applications	IMC							
A106/A106M—~~2019a~~ 19a	Specification for Seamless Carbon Steel Pipe for High-Temperature Service	IFGC	IMC	IRC					
A123/A123M—~~2017~~ 24	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products	IRC							
A126—~~04(2019)~~ 04(2023)	Standard Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings	IMC	IRC						
A153/A153M—~~2016A~~ 23	Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware	IBC	IRC						
A181/A181M—~~14(2020)~~ 23	Standard Specification for Carbon Steel Forgings, for General-Purpose Piping	IMC							
A182/A182M—~~21~~ 24c	Standard Specification for Forged or Rolled Alloy and	ISPSC							

	Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High- temperature Service								
A193/A193M—~~20~~ 24a	Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications	IMC							
A234/A234M—~~19~~ 24	Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service	IMC							
A240/A240M—~~20a~~ 24a	Standard Specification for Chromium and Chromium- Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications	IBC	IMC	IRC	ISPSC				
A268/A268M—~~20~~ 24	Standard Specification for Seamless and Welded Ferritic and Martensitic Stainless Steel Tubing for General Service	IFGC	IRC						
A269/A269M—~~15a(2019)~~ 24	Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service	IFGC	IMC	IPC	IRC				
A283/A283M—~~2018~~ 24	Specification for Low and Intermediate Tensile Strength Carbon Steel Plates	IBC							
A312/A312M—~~21~~ 24b	Specification for Seamless, Welded and Heavily Cold Worked Austenitic Stainless Steel Pipes	IFGC	IMC	IPC	IRC	ISPSC			
A333/A333M—~~2017~~ 24	Standard Specification for Seamless and Welded Steel	IMC							

	Pipe for Low-Temperature Service and Other Applications with Required Notch Toughness								
A395/A395M—~~99(2018)~~ (2022)	Standard Specification for Ferritic Ductile Iron Pressure- Retaining Castings for Use at Elevated Temperatures	IMC							
A403/A403M—~~20~~ 22b	Standard Specification for Wrought Austenitic Stainless Steel Piping Fittings	ISPSC							
A416/A416M—~~18~~ 24	Standard Specification for Low-Relaxation, Seven-Wire Steel Strand, for Prestressed Concrete	IBC							
A420/A420M—~~20~~ 24a	Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service	IMC							
A463/A463M—~~15(2020)e1~~ 22	Standard Specification for Steel Sheet, Aluminum-Coated, by the Hot-Dip Process	IBC	IRC						
A518/A518M—~~99(2018)~~ 2022	Standard Specification for Corrosion-Resistant High-Silicon Iron Castings	IPC							
A536—~~84(2019)e1~~ 24	Standard Specification for Ductile Iron Castings	IMC							
A563/A563M—~~21a~~ 24	Standard Specification for Carbon and Alloy Steel Nuts (Inch and Metric)	IRC							
A615/A615M—~~20~~ 24	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement	IBC	IRC						
A653/A653M—~~20~~ 23	Specification for Steel Sheet, Zinc-Coated (Galvanized) or	IBC	IRC	IEBC					

	Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process								
A690/A690M—~~13a(2018)~~ 24	Standard Specification for High-Strength Low-Alloy Nickel, Copper, Phosphorus Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments	IBC							
A706/A706M—~~2016~~ 24	Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement	IBC	IRC						
A733—16(2022)	Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples	IPC							
A755/A755M—18(2024)	Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products	IBC	IRC						
A778/A778M—~~16(2021)~~ 24a	Standard Specification for Welded, Unannealed Austenitic Stainless Steel Tubular Products	IMC	IPC	IRC					
A792/A792M—~~21a~~ 23	Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process	IBC	IRC						
A875/A875M—~~21~~ 23	Standard Specification for Steel Sheet, Zinc-5%, Aluminum Alloy-Coated by the Hot-Dip Process	IBC	IRC						
A888—~~21a~~ 24	Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary	IPSDC	IRC	IPC					

	and Storm Drain, Waste, and Vent Piping Application								
A924/A924M—~~20~~ 22a	Standard Specification for General Requirements for Steel Sheet, Metallic-coated by the Hot-Dip Process	IBC	IRC						
A996/A996M—~~2016~~ 24	Specifications for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement	IRC							
A1003/A1003M—~~15~~ 23e1	Standard Specification for Steel Sheet, Carbon, Metallic and Nonmetallic-Coated for Cold-Formed Framing Members	IRC							
B88—~~20~~ 22	Standard Specification for Seamless Copper Water Tube	IBC	IPC	IPSDC	ISPSC				
B101—~~12(2019)~~ 22	Specification for Lead-Coated Copper Sheet and Strip for Building Construction	IBC	IRC						
B152/B152M—~~19~~ 24	Standard Specification for Copper Sheet, Strip Plate, and Rolled Bar	IPC							
B209—21a	Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate	IMC	IRC						
B241/B241M—~~2016~~ 22	Specification for Aluminum and Aluminum-Alloy, Seamless Pipe and Seamless Extruded Tube	IFGC							
B251/B251M—~~2017~~ 17	Specification for General Requirements for Wrought Seamless Copper and Copper-alloy Tube	IBC	IFC	IMC	IPC	IPSDC	IRC		
B280—~~20~~ 23	Specification for Seamless Copper Tube for Air-Conditioning and Refrigeration Field Service	IBC	IFC	IFGC	IMC				

B361—~~16~~(2024)	Standard Specification for Factory-Made Wrought Aluminum and Aluminum-Alloy Welding Fittings	IMC							
B370—~~12(2019)~~ 22	Specification for Copper Sheet and Strip for Building Construction	IBC	IRC						
B491/B491M—~~15~~ 23	Standard Specification for Aluminum and Aluminum-alloy Extruded Round Tubes for General- ~~purpose~~ Purpose Applications	IMC							
B687—~~1999(2016)~~ 99(2023)	Specification for Brass, Copper and Chromium-plated Pipe Nipples	IPC	IRC	ISPSC					
B695-~~04(2009)~~ 21	Standard Specification for Coating of Zinc Mechanically Deposited on Iron and Steel	IBC	IEBC	IRC					
B813—~~2016~~ 24	Standard Specification for Water Flushable Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube	IMC	IPC	IRC	IPSDC				
B828—~~2016~~ 23	Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings	IMC	IPC	IRC					
B1003—16(2023)	Standard Specification for Seamless Copper Tube for Linesets	IMC							
C4—04~~(2018)~~ (2023)	Specification for Clay Drain Tile and Perforated Clay Drain Tile	IPC	IPSDC	IRC					
C5—~~2018~~ 24	Specification for Quicklime for Structural Purposes	IBC	IRC						
C27—~~1998(2018)~~ 98(2022)	Specification for Standard Classification of Fireclay and High-Alumina Refractory Brick	IBC	IRC						

C31/C31M—~~21a~~ 24b	Practice for Making and Curing Concrete Test Specimens in the Field	IBC							
C33/C33M—~~2018~~ 24	Specification for Concrete Aggregates	IBC	IRC						
C34—~~2017~~ 23	Standard Specification for Structural Clay Loadbearing Wall Tile	IRC							
C55—~~2017~~ 23	Specification for Concrete Building Brick	IBC	IRC						
C56—~~2013(2017)~~ 22	Standard Specification for Structural Clay Nonloadbearing Tile	IRC							
C62—~~2017~~ 23	Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)	IBC	IRC						
C67-~~14~~/C67M-23a	Standard Test Methods of Sampling and Testing Brick and Structural Clay Tile	IBC	IEBC						
C73—~~2017~~ 23	Specification for Calcium Silicate Brick (Sand-Lime Brick)	IBC	IRC						
C76—22a	Specification for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe	IPSDC	IPC	IRC					
C90—~~21~~ 24	Specification for Loadbearing Concrete Masonry Units	IBC	IRC	IECC					
C91/C91M—~~2018~~ 23	Specification for Masonry Cement	IBC	IRC						
C94/C94M—~~21b~~ 24c	Standard Specification for Ready-Mixed Concrete	IBC	IEBC	IRC					
C109/C109M—~~2015el~~ 23	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50mm [2 in.] Cube Specimens)	IRC							

C126—~~19~~ 22	Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units	IRC							
C129—~~2017~~ 23	Specification for Nonload-Bearing Concrete Masonry Units	IRC							
C140/C140M—~~22a~~ 24	Test Method Sampling and Testing Concrete Masonry Units and Related Units	IBC	IEBC						
C141/C141M—14(2022)	Standard Specification for Hydrated Hydraulic Lime for Structural Purposes	IBC	IEBC	IRC					
C150/C150M—~~21~~ 24	Specification for Portland Cement	IBC	IRC						
C177—19e1	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus	IRC							
C199—~~1984(2016)~~ 22	Test Method for Pier Test for Refractory Mortars	IBC	IRC						
C206—14(2022)	Specification for Finishing Hydrated Lime	IBC	IRC						
C207—~~2018~~ 24	Specification for Hydrated Lime for Masonry Purposes	IRC							
C208—~~2022~~ 22	Specification for Cellulosic Fiber Insulating Board	IBC	IRC						
C212—~~21~~ 22	Standard Specification for Structural Clay Facing Tile	IRC							
C216—~~21~~ 23	Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale)	IBC	IRC						
C270—~~19ae1~~ 24	Specification for Mortar for Unit Masonry	IBC	IRC						
C317/C317M—~~2000(2019)~~ 24		IBC							

	Specification for Gypsum Concrete								
C330/C330M—~~2017A~~ 23	Specification for Lightweight Aggregates for Structural Concrete	IBC							
C331/C331M—~~2017~~ 23	Specification for Lightweight Aggregates for Concrete Masonry Units	IBC							
C406/C406M—~~15~~ 22	Specification for Roofing Slate	IBC	IRC						
C425—~~21~~ 22	Specification for Compression Joints for Vitrified Clay Pipe and Fittings	IPC	IPSDC	IRC					
C428/C428M—05~~(2011)e1~~ (2019) (Withdrawn)	Specification for Asbestos-cement Nonpressure Sewer Pipe	IPSDC							
C475/C475M—~~2017~~ 17(2022	Specification for Joint Compound and Joint Tape for Finishing Gypsum Board	IBC	IRC						
C476—~~20~~ 23	Specification for Grout for Masonry	IRC							
C478-~~15a~~/C478M-22	Specification for Circular Precast Reinforced Concrete Manhole Sections	IPSDC							
C503/C503M-~~2015~~ 23	Standard Specification for Marble Dimension Stone	IRC							
C518-~~15:~~ 21	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	IRC							
C547—~~19~~ 22a	Specification for Mineral Fiber Pipe Insulation	IBC							
C549—~~18~~ 23	Specification for Perlite Loose Fill Insulation	IBC							
C568M—~~2015~~ 22	Standard Specification for Limestone Dimension Stone	IRC							
C578—~~19~~ 23	Standard Specification for	IBC	IRC						

	Rigid, Cellular Polystyrene Thermal Insulation								
C587—~~2004(2018)~~ 24	Specification for Gypsum Veneer Plaster	IBC	IRC						
C595/C595M—~~21~~ 24	Specification for Blended Hydraulic Cements	IBC	IRC						
C615/C615M—~~2018E1~~ 23	Standard Specification for Granite Dimension Stone	IRC							
C616/C616M—~~2015~~ 22	Standard Specification for Quartz-Based Dimension Stone	IRC							
C629/C629M—~~2015~~ 22	Standard Specification for Slate Dimension Stone	IRC							
C631—09(2020)	Standard Specification for Bonding Compounds for Interior Gypsum Plastering	IBC	IRC						
C635/C635M—~~2017~~ 22	Specification for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings	IBC							
C652—~~21~~ 22	Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale)	IBC	IRC						
C685/C685M—~~2017~~ 24	Specification for Concrete Made by Volumetric Batching and Continuous Mixing	IRC							
C700—~~2018~~ 18(2022)	Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated	IPC	IPSDC	IRC					
C726—~~2017~~ 24	Standard Specification for Mineral Wool Roof Insulation Board	IBC	IRC						
C728—~~2017A~~ 17a(2022)	Standard Specification for Perlite Thermal Insulation Board	IBC	IRC						

C744—~~2016~~ 21	Specification for Prefaced Concrete and Calcium Silicate Masonry Units	IBC							
C840—~~20~~ 23	Specification for Application and Finishing of Gypsum Board	IBC							
C841—~~2003(2018)~~ 23	Standard Specification for Installation of Interior Lathing and Furring	IBC	IRC						
C843—~~2017~~ 23	Specification for Application of Gypsum Veneer Plaster	IBC	IRC						
C913—~~08~~ 23	Specification for Precast Concrete Water and Wastewater Structures	IPSDC							
C926—~~2021~~ 24	Specification for Application of Portland Cement-Based Plaster	IBC	IRC						
C932—06~~(2019)~~ (2024)	Specification for Surface-Applied Bonding Compounds for Exterior Plastering	IBC							
C933—~~2018~~ 23	Specification for Welded Wire Lath	IBC	IRC						
C946—~~2018~~ 23	Standard Practice for Construction of Dry-Stacked, Surface-Bonded Walls	IBC	IRC						
C954—~~2018~~ 22	Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inch (0.84 mm) to 0.112 inch (2.84 mm) in Thickness	IBC	IRC						
C956—~~04(2019)~~ 24	Specification for Installation of Cast-In-Place Reinforced Gypsum Concrete	IBC							
C957/C957M—~~2017~~ 17(2024)	Specification for High-Solids Content, Cold Liquid-Applied	IBC	IRC						

	Elastomeric Waterproofing Membrane with Integral Wearing Surface								
C1002—~~20~~ 22	Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs	IBC	IRC						

C1007—20(2024)	Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories	IBC							
C1032/C1032M—~~2018~~ 24	Specification for Woven Wire Plaster Base	IBC	IRC						
C1063—~~21~~ 23	Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-based Plaster	IBC	IRC						
C1088—~~20~~ 23	Specification for Thin Veneer Brick Units Made from Clay or Shale	IBC	IRC						
C1116/C116M—~~20~~ 23	Standard Specification for Fiber-Reinforced Concrete ~~and Shotcrete~~	IRC							
C1157/C1157M—~~20a~~ 23	Standard Performance Specification for Hydraulic Cement	IBC	IRC						
C1167—~~2011(2017)~~ 22	Specification for Clay Roof Tiles	IBC	IRC						
C1173—~~2018~~ 22	Specification for Flexible Transition Couplings for Underground Piping System	IPC	IPSDC	IRC					
C1177/C1177M—~~2017~~ 24	Specification for Glass Mat Gypsum Substrate for Use as Sheathing	IBC	IRC						
C1178/C1178M—~~2018~~ 24	Standard Specification for	IBC	IRC						

	Coated Glass Mat Water-Resistant Gypsum Backing Panel								
C1186—~~2008(2016)~~ 22e1	Specification for Flat Fiber Cement Sheets	IBC	IRC						
C1261—~~2013(2017)E1~~ 22	Specification for Firebox Brick for Residential Fireplaces	IBC	IRC						
C1278/C1278M—~~2017~~ 24	Specification for Fiber-Reinforced Gypsum Panels	IBC	IRC						
C1280—18(2023)	Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing	IBC	IRC						
C1288—~~2017~~ 23	Standard Specification for Fiber-Cement Interior Substrate Sheets	IBC	IRC						
C1289—~~22~~ 23a	Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board	IBC	IRC						
C1321—15(2020)	Standard Practice for Installation and Use of Interior Radiation Control Coating Systems (IRCCS) in Building Construction	IRC							
C1325—~~21~~ 22e1	Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units	IBC	IRC						
C1328/C1328M—~~19~~ 23	Specification for Plastic (Stucco Cement)	IBC	IRC						
C1363~~-19~~ 24	Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus	IECC	IRC						
C1364—~~19~~ 23e1	Standard Specification for Architectural Cast Stone	IRC							
C1372—~~17~~ 23	Standard Specification for Dry-	IBC							

	Cast Segmental Retaining Wall Units								
C1396/C1396M—~~2017~~ 24	Specification for Gypsum Board	IBC	IRC						
C1405—~~20a~~ 23	Standard Specification for Glazed Brick (Single Fired, Brick Units)	IRC							
C1492—~~2003(2016)~~ 24	Standard Specification for Concrete Roof Tile	IBC	IRC						
C1531—~~15~~ 22	Standard Test Methods for In Situ Measurement of Masonry Mortar Joint Shear Strength Index	IEBC							
C1569—~~03(2016)~~ 22	Standard Test Method for Wind Resistance of Concrete and Clay Roof Tiles (Wind Tunnel Method)	IBC							
C1570—~~03(2016)~~ 22	Standard Test Method for Wind Resistance of Concrete and Clay Roof Tiles (Air Permeability Method)	IBC							
C1600/C1600M—~~19~~ 23	Standard Specification for Rapid Hardening Hydraulic Cement	IBC							
C1629/C1629M—~~19~~ 23	Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels	IBC							
C1634—~~20~~ 23a	Standard Specification for Concrete Facing Brick and Other Concrete Masonry Facing Units	IRC							
C1644—06(2017)	Specification for Resilient Connectors Between Reinforced Concrete On-Site Wastewater Tanks and Pipes	IPSDC							
		IBC	IRC						

C1658/C1658M—~~19e1~~ (2024)	Standard Specification for Glass Mat Gypsum Panels								
C1668—~~20~~ 24	Standard Specification for Externally Applied Reflective Insulation Systems on Rigid Duct in Heating, Ventilation, and Air Conditioning (HVAC) Systems	IRC							
C1670/1670M—~~21b~~ 24	Standard Specification for Adhered Manufactured Stone Masonry Veneer Units	IBC	IRC						
C1691—~~2021~~ 21	Standard Specification for Unreinforced Autoclaved Aerated Concrete (AAC) Masonry Units	IRC							
C1743—~~2019~~ 19(2024)	Standard Practice for Installation and Use of Radiant Barrier Systems (RBS) in Residential Building Construction	IRC	IECC						
C1822-~~2015~~ 21	Standard Specification for Insulating Covers on Accessible Lavatory Piping	IPC							
C1902—~~20~~ 22a	Standard Specification for Cellular Glass Insulation Used in Building and Roof Applications	IBC	IRC						
D25-~~2012(2017)~~ 12(2022)	Specification for Round Timber Piles	IBC							
D41/D41M-~~2011(2016)~~ 11(2023)	Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing	IBC	IRC						
D43/D43M-~~2000(2018)~~ 00(2024)	Specification for Coal Tar Primer Used in Roofing, Dampproofing and Waterproofing	IBC	IRC						
D56-~~21a~~ 22	Test Method for Flash Point by Tag Closed Cup Tester	IBC	IFC	IMC					

D86-~~20b~~ 23ae1	Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure	IBC	IFC						

D226/D226M-~~2017~~ 17(2023)	Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing	IBC	IRC						
D227/D227M-~~2003(2018)~~ 03(2024)	Specification for Coal-Tar-Saturated Organic Felt Used in Roofing and Waterproofing	IBC	IRC						
D312/D312M-~~2016a~~ 16a(2023)	Specification for Asphalt Used in Roofing	IBC	IRC						
D448-~~2012(2017)~~ 12(2022)	Standard Classification for Sizes of Aggregate for Road and Bridge Construction	IBC							
D450/D450M-~~2017(2018)~~ 07(2024)	Specification for Coal-Tar Pitch Used in Roofing, Dampproofing and Waterproofing	IBC	IRC						
D635-~~18~~ 22	Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position	IBC							
D1143/D1143M-20e1	Standard Test Methods for Deep Foundation Elements Under Static Axial Compressive Load	IBC							
D1227/D1227M-13~~(2019)e1~~ (2024)	Specification for Emulsified Asphalt Used as a Protective Coating for Roofing	IBC	IRC						
D1248-~~2016~~ 16	Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable	IRC							
D1593-~~19~~ 22	Standard Specification for Nonrigid Vinyl Chloride Plastic Film and Sheeting	ISPSC							
D1863/D1863M-~~2005(2018)~~ 05(2024)	Specification for Mineral	IBC	IRC						

	Aggregate Used on Built-up Roofs								
D1869-15(2022)	Specification for Rubber Rings for Fiber-Reinforced Cement Pipe	IPSDC	IRC						
D1929-~~20~~ 23	Standard Test Method for Determining Ignition Temperature of Plastics	IBC							
D2235-~~2021~~ 22	Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings	IMC	IPSDC	IRC					
D2239-~~21~~ 22	Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter	IPC	IRC						
D2241-~~20~~ 24	Specification for Poly (Vinyl Chloride) (PVC) Pressure-rated Pipe (SDR-Series)	IMC	IPC	IRC	ISPSC				
D2464-~~15~~ 23	Standard Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80								
D2466-~~21~~ 24	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40	IMC	IRC	ISPSC					
D2467-~~20~~ 24	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	IMC	IPC	IRC	ISPSC				
D2513-~~20~~ 24	Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing and Fittings	IFGC	IRC						
D2564-20(2024)	Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems	IMC	IPSDC	IRC					
D2609-~~21~~ 24	Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe	IPC	IRC						

D2657-~~2007(2015)~~ 07(2023)	Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings	IMC	IPC	IPSDC	IRC				
D2661-~~21~~ 24	Specification for Acrylonitrile-butadiene-styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings	IPC	IPSDC	IRC					
D2665-~~20~~ 24	Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste and Vent Pipe and Fittings	PC	IPSDC	IRC					
D2729-~~2021~~ 21	Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings	IPC	IPSDC	IRC					
D2737-~~21~~ 22	Standard Specification for Polyethylene (PE) Plastic Tubing	IBC	IMC	IPC	IRC				
D2824/D2824M-2018(2024)	Standard Specification for Aluminum-pigmented Asphalt Roof Coatings, Nonfibered and Fibered without Asbestos	IBC	IRC						
D2846/ D2846M-~~19a~~ 24	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-water Distribution Systems	IMC	IPC	IRC	ISPSC				
D2855-20(2024)	Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets	IPC	IPSDC	IRC					
D2859-~~2016~~ 16(2021)	Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials	IBC	IFC						
D2898-~~2010(2017)~~ 10(2024)	Standard Practice for	IBC	IRC	IWUIC					

	Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing								
D2949-~~18~~ 24	Specification for 3.25-in. Outside Diameter Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste and Vent Pipe and Fittings	IPC	IPSDC	IRC					
D2996-~~2017~~ 23	Specification for Filament-Wound Fiberglass (Glass Fiber Reinforced Thermosetting Resin) Pipe	IMC							
D3019/D3019-~~2017~~ 17(2024)	Specification for Lap Cement Used with Asphalt Roll Roofing, Nonfibered, Asbestos Fibered and Nonasbestos Fibered	IBC	IRC						
D3034-~~21~~ 24	Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings	IRC							
D3035-~~21~~ 22	Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter	IMC							
D3261-~~2016~~ 24	Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing	IMC	IPC	IRC					
D3311-~~2017(2021)~~ 22	Specification for Drain, Waste and Vent (DWV) Plastic Fittings Patterns	IPC	IRC						
D3350-~~21~~ 24	Specification for Polyethylene Plastic Pipe and Fitting Materials	IRC							
D3462/D3462M-~~19~~ 23	Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules	IBC							
D3679-~~21~~ 24	Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding	IBC							
D3737-~~2018E1~~ 18(2023)e1	Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)	IBC							
D3746/D3746M-~~1985(2015)E1~~	Test Method for Impact Resistance of Bituminous Roofing Systems	IBC							
	Standard Specification for Asphalt Roll Roofing (Glass Felt)	IBC	IRC	IWUIC					

D3909/D3909M-~~14(2021)~~ 22	Surfaced With Mineral Granules								

D4479/D4479M—~~2007(2018)~~ 07(2024)	Specification for Asphalt Roof Coatings—Asbestos-Free	IBC	IRC						
D4551~~—2017~~ 22	Specification for Poly (Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-containment Membrane	IBC	IRC						
D4586/D4586M-~~2007(2018)~~ 07(2024)	Specification for Asphalt Roof Cement—Asbestos-Free	IBC	IRC						
D4637/D4637M-~~2015(2021)~~ 15(2021)e1	Specification for EPDM Sheet Used in Single-Ply Roof Membrane	IBC	IRC						
D4897/D4897M-~~2016~~ 16(2023)	Specification for Asphalt- Coated Glass Fiber Venting Base Sheet Used in Roofing	IBC	IRC						
D5019-07a~~(2013)~~	Specification for Reinforced Nonvulcanized Polymeric Sheet Used in Roofing Membrane	IBC	IRC						
D5034-~~09(2017)~~ 21	Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)	ISPSC							
D5643/D5643M-~~2006 (2018)~~ 06(2024)	Specification for Coal Tar Roof Cement, Asbestos-Free	IBC	IRC						
D6083/D6083M-~~21~~ 24	Specification for Liquid Applied Acrylic Coating Used in Roofing	IBC	IRC						
D6162/D6162M-~~2016~~ 21	Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	IBC	IRC						
D6163/D6163M-~~2016~~ 21	Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements	IBC	IRC						

D6164/D6164M-~~2016~~ 21	Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements	IBC							

D6222/D6222M-~~2016~~ 16(2023)	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements	IBC	IRC						
D6223/D6223M-~~2016~~ 21	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	IBC	IRC						
D6298-~~2016~~ 16(2023)	Specification for Fiberglass Reinforced Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheets with a Factory Applied Metal Surface	IBC	IRC						
D6380/D6380M-~~2003(2018)~~ 03(2022)	Standard Specification for Asphalt Roll Roofing (Organic Felt)	IBC	IRC						
D6509/D6509M-~~2016~~ 16(2023)	Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet Materials Using Glass Fiber Reinforcements	IBC							
D6694/D6694M-~~08(2013)E1~~ 15(2023)	Standard Specification for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing Systems	IBC	IRC						
D6754/D6754M-~~2015~~ 23	Standard Specification for Ketone Ethylene Ester Based Sheet Roofing	IBC	IRC						

D6757/D6757M-~~2018~~ 18(2023)	Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep Slope Roofing	IBC	IRC						
D6947/D6947M-~~2016~~ 16(2023)	Standard Specification for Liquid Applied Moisture Cured Polyurethane Coating Used in Spray Polyurethane Foam Roofing System	IBC	IRC						
D7158-D7158M-~~20~~ 24a	Standard Test Method for Wind Resistance of Asphalt Shingles (Uplift Force/Uplift Resistance Method)	IBC	IRC						
D7655/D7655M-~~2012(2017)~~ 12(2022)	Standard Classification for Size of Aggregate Used as Ballast for Roof Membrane Systems	IBC							
D7672-~~19~~ 24	Standard Specification for Evaluating Structural Capacities of Rim Board Products and Assemblies	IBC	IRC						
D7793-~~20~~ 24	Standard Specification for Insulated Vinyl Siding	IBC	IRC						
D7957/D7957M-~~17~~ 22	Standard Specification for Solid Round Glass Fiber Reinforced Polymer Bars for Concrete Reinforcement	IBC							
D8257/D8257M-~~20~~ 22	Standard Specification for Mechanically Attached Polymeric Roof Underlayment Used in Steep Slope Roofing	IBC	IRC						
E84-~~21a~~ 24	Standard Test Method for Surface Burning Characteristics of Building Materials	IBC	IFC	IMC	IPC	IRC	IWUIC		
E90-~~09(2016).~~ 23	Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements	IBC	IRC						

E96/E96M-~~21~~ 24	Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials	IBC	IRC						
E119-~~20~~ 24	Standard Test Methods for Fire Tests of Building Construction and Materials	IBC	IEBC	IMC	IRC	IWUIC			
E136-~~2022~~ 24c	Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C	IBC	IEBC	IFGC	IMC	IRC	IWUIC		
E331-~~2000(2016)~~ 00(2023)	Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference	IBC	IRC						
E336-~~20~~ 24	Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings	IBC	IRC						
E488/E488M -~~15~~ 22	Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements	IEBC							
E492-~~09~~ 22	Specification for Laboratory Measurement of Impact Sound Transmission through Floor-ceiling Assemblies Using the Tapping Machine	IBC	IRC						
E519/E519M -~~2010~~ 22	Standard Test Method for Diagonal Tension (Shear) in Masonry Assemblages	IEBC							
E605/E605M-19(2023)	Test Method for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members	IBC							
E648-~~2017A~~ 23	Standard Test Method for Critical Radiant Flux of Floor- Covering Systems Using a Radiant Heat Energy Source	IBC							

E681-~~09(2015)~~ 09(2023)	Standard Test Method for Concentration Limits of Flammability of Chemicals (Vapors and Gases)	IBC	IFC						
E736/E736M-19(2023)	Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members	IBC							
E814-~~2013A(2017)~~ 24	Standard Test Method for Fire Tests of Penetration Firestop Systems	IBC	IMC	IRC					
E903-20	Standard Test Method for Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres ~~(Withdrawn 2005)~~	IECC							
E970-~~2017~~ 23	Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source	IBC	IRC						
E1300-~~2016~~ 24	Practice for Determining Load Resistance of Glass in Buildings	IBC							
E1354-~~2017~~ 24	Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter	IBC	IFC	IWUIC					
E1509-~~2012(2017)~~ 22	Specification for Room Heaters, Pellet Fuel-Burning Type	IMC	IRC						
E1529-~~16e1~~ 22	Standard Test Methods for Determining Effects of Large Hydrocarbon Pool Fires on Structural Members and Assemblies	IFC							

E1554/E1554 M-~~13(2018)~~ 13(2023)	Standard Test Methods for Determining Air Leakage of Air Distribution Systems by Fan Pressurization	IRC							
E1590-~~2022~~ 23	Test Method for Fire Testing of Mattresses	IFC							
E1677-~~19:~~ 23	Specification for Air Barrier (AB) Material or Systems for Low-rise Framed Building Walls	ICCPC	IECC						
E1745-17(2023)	Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs	IRC							
E1996-~~20~~ 23	Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes	IBC	IRC						
E2072-~~14~~ 24	Standard Specification for Photoluminescent (Phosphorescent) Safety Markings	IBC	IFC						
E2307-~~20~~ 23b	Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using the Intermediate-Scale, Multistory Test Apparatus	IBC							
E2357-~~23~~ 24	Standard Test Method for Determining Air Leakage of Air Barriers Assemblies	IECC							
E2392/E2392M-~~10(2016)~~ 24	Standard Guide for Design of Earthen Wall Building Systems	IBC	IRC						
E2404-~~17~~ 22	Standard Practice for Specimen Preparation and Mounting of Textile, Paper or	IBC	IFC						

	Polymeric (Including Vinyl) and Wood Wall or Ceiling Coverings, Facing and Veneers to Assess Surface Burning Characteristics								
E2556/E2556M-~~2010(2016)~~ 10(2022)	Standard Specification for Vapor Permeable Flexible Sheet Water-resistive Barriers Intended for Mechanical Attachment	IBC	IRC						
E2573-~~19~~ 24	Standard Practice for Specimen Preparation and Mounting of Site-Fabricated Stretch Systems to Assess Surface Burning Characteristics	IBC	IFC						
E2579-~~21~~ 23b	Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning Characteristics	IBC	IFC						
E2599-~~2018~~ 22	Standard Practice for Specimen Preparation and Mounting of Reflective Insulation, Radiant Barrier and Vinyl Stretch Ceiling Materials for Building Applications to Assess Surface Burning Characteristics	IBC							
E2634-~~2018~~ 18(2022)	Standard Specification for Flat Wall Insulating Concrete Form (ICF) Systems	IBC	IRC						
E2635-~~14~~ 22	Standard Practice for Water Conservation Through In-Situ Water Reclamation	IPC							
E2652-~~18~~ 22	Standard Test Method for Assessing Combustibility of Materials Using a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750^{o}C	IBC							
E2751/E2751M-~~2017A~~ 21	Practice for Design and	IBC							

	Performance of Supported Laminated Glass Walkways								
E2837-~~2013(2017)~~ 23ae1	Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies	IBC							
E3158-~~18~~ 24	Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building	IECC	IRC						
F405-~~05~~ 13	Specification for Corrugated Polyethylene (PE) Pipe and Fittings	IPC	IPSDC	IRC					
F409-~~2017~~ 22	Specification for Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings	IPC	IRC						
F437-~~21~~ 24	Standard Specification for Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	IMC	IPC	IRC	ISPSC				
F438-~~2017~~ 23	Specification for Socket Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40	IMC	IPC	IRC	ISPSC				
F439-~~19~~ 24	Standard Specification for ~~Socket Type~~ Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	IMC	IPC	IRC	ISPSC				
F441/F441M-~~20~~ 23	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80	IMC	IPC	IRC					
F442/F442M-~~20~~ 23	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)	IMC	IPC	IRC					

F493-~~20~~ 22	Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings	IMC	IPC	IRC					
F547-~~2017~~ 22	Terminology of Nails for Use with Wood and Wood-Base Materials	IBC							
F628-~~2012E2~~ 23	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe with a Cellular Core	IPC	IPSDC	IRC					
F714-~~21a~~ 24	Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter	IMC	IPC	IRC					
F844-~~19~~ 19(2024)	Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use	IRC							
F876-~~20b~~ 24a	Specification for Cross-linked Polyethylene (PEX) Tubing	IMC	IPC	IRC					
F877-~~20~~ 24	Specification for Cross-Linked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems	IMC	IRC						
F891-~~2016~~ 24	Standard Specification for Coextruded Poly(Vinyl Chloride) (PVC) Plastic Pipe with a Cellular Core	IPC	IPSDC	IRC					
F1055-~~2016A~~ 16a(2022)	Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing	IMC	IPC	IRC					
F1085-19(2024)	Standard Specification for Mattress and Box Springs for Use in Berths in Marine Vessels	IFC							

F1281-~~2017(2021)e1~~ 24	Specification for Cross-linked Polyethylene/Aluminum/Cross -linked Polyethylene (PEX-AL-PEX) Pressure Pipe	IECC	IMC	IPC	IRC				
F1282-~~2017~~ 23a	Specification for Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure Pipe	IMC	IPC	IRC					
F1346-~~1991(2018)~~ 23	Standard Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs	ISPSC							
F1412-~~2016~~ 22	Specification for Polyolefin Pipe and Fittings for Corrosive Waste Drainage	IRC							
F1484-18(2023)	Standard Test Method for Performance of Steam Cookers	IECC							
F1499-~~2017~~ 22	Specification for Coextruded Composite Drain Waste and Vent Pipe (DWV)	IPSDC							
F1504 - ~~21~~ 21e1	Standard Specification for Folded Poly (Vinyl Chloride) (PVC) for Existing Sewer and Conduit Rehabilitation	IPC							
F1548-~~2001(2018)~~ 01(2023)	Standard Specification for the Performance of Fittings for Use with Gasketed Mechanical Couplings Used in Piping Applications	IMC	IPC						
F1760-~~01 (2011)~~ 16(2020)	Standard Specification for Coextruded Poly (Vinyl Chloride) (PVC) Non-Pressure Plastic Pipe Having Reprocessed-Recycled Content	IRC							

F1807~~-19b~~ 23	Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring, or Alternate Stainless Steel Clamps, for SDR9 Cross-Linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	IMC	IRC						
F1866~~-2018~~ 23	Specification for Poly (Vinyl Chloride) (PVC) Plastic Schedule 40 Drainage and DWV Fabricated Fittings	IPC	IRC						
F1871 ~~-20~~ 24	Standard Specification for Folded/Formed Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation	IPC							
F1901~~-10~~ 22	Standard Specification for Polyethylene (PE) Pipe and Fittings for Roof Drain Systems	IRC							
F1960~~-21~~ 24	Standard Specification for Cold-Expansion Fittings with PEX Reinforcing Rings for Use with Cross-Linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing	IMC	IRC						
F1970~~-19~~ 23	Standard Specification for Special Engineered Fittings, Appurtenances or Valves for Use in Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Systems	IRC							
F1974~~-09(2020)~~ 23	Specification for Metal Insert Fittings for Polyethylene/Aluminum/Polyethylene and Cross-Linked Polyethylene/Aluminum/Cross-Linked Polyethylene Composite Pressure Pipe	IMC	IPC	IRC					

F2080-~~19~~ 23	Specification for Cold-Expansion Fittings with Metal Compression-Sleeves for Cross-Linked Polyethylene (PEX) Pipe	IMC	IRC						
F2093-18(2023)	Standard Test Method for Performance of Rack Ovens	IECC							
F2098-~~18~~ 24	Standard Specification for Stainless Steel Clamps for Securing SDR9 Cross-Linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) to Metal Insert and Plastic Insert Fittings	IRC							
F2158-~~08 (2016)~~ 08(2024)	Standard for Residential Central-vacuum Tube and Fittings	IRC							
F2159-~~21~~ 23a	Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-Linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	IMC	IRC						
F2200-~~20~~ 24	Standard Specification for Automated Vehicular Gate Construction	IBC	IFC	IRC					
F2286-16(2023)	Standard Design and Performance Specification for Removable Mesh Fencing for Swimming Pools, Hot Tubs, and Spas	ISPSC							
F2389-~~21~~ 24a	Standard Specification for Pressure-Rated Polypropylene Piping Systems	IMC	IRC						
F2599-~~20~~ 22	Standard Practice for	IPC							

	Sectional Repair of Damaged Pipe by Means of an Inverted Cured-in-Place Liner								
F2618-~~19~~ 24	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Fittings for Chemical Waste Drainage Systems	IPC							
F2623-~~19~~ 24e1	Standard Specification for Polyethylene of Raised Temperature (PE-RT) SDRG Tubing	IRC							
F2648/F2648M-~~20~~ 23	Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications	IPC							
F2735-~~21~~ 23	Standard Specification for Plastic Insert Fittings for SDR9 Cross-Linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing	IMC	IRC						
F2763-16(2021)e1	Standard Specification for 12 to 60 in. [300 to 1500 mm] Dual and Triple Profile-Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications	IPC							
F2764/F2764M-~~19~~ 24	Standard Specification for 6 to 60 in. [150 to 1500 mm] Polypropylene (PP) Corrugated Double and Triple Wall Pipe and Fittings for Non- Pressure Sanitary Sewer Applications	IPC							
F2769-~~18~~ 24	Polyethylene or Raised Temperature (PE-RT) Plastic Hot and Cold-Water Tubing and Distribution Systems	IRC							
F2806-~~20~~ 23	Standard Specification for	IMC	IRC						

	Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (Metric SDR-PR)								

F2831-19(2024)	Standard Practice for Internal Non Structural Epoxy Barrier Coating Material Used in Rehabilitation of Metallic Pressurized Piping Systems	IPC							
F2855-19(2024)	Standard Specification for Chlorinated Poly (Vinyl Chloride)/Aluminum/Chlorinat ed Poly (Vinyl Chloride) (CPVC AL CPVC) Composite Pressure Tubing	IRC							
F2945-~~2018~~ 18(2023)	Standard Specification for Polyamide 11 Gas Pressure Pipe, Tubing and Fittings	IFGC	IRC						
F2947/F2947M-~~20~~ 21a	Standard Specification for 150 to 1500 mm [6 to 60 in] Annular Corrugated Profile- Wall Polyethylene (PE) Pipe and Fittings for Sanitary Sewer Applications	IPC							
F3202-~~19a~~ 24	Standard Specification for Solid Wall Poly (Vinyl Chloride) PVC Fittings for Joining Corrugated Wall High Density Polyethylene (PE) and Propylene (PP) Piping	IPC							
F3240-~~19e1~~ 19(2023)	Standard Practice for Installation of Seamless Molded Hydrophilic Gaskets (SMHG) for Long Term Watertightness of Cured-in-Place Rehabilitation of Main and Lateral Pipelines	IPC							
F3253-~~19~~ 24	Standard Specification for Crosslinked Polyethylene (PEX) Tubing with Oxygen Barrier for Hot- and Cold-Water Hydronic Distribution Systems	IMC	IRC						

F3328-18(2024)	Standard Practice for the One-Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets	IPC							
F3347-~~20a~~ 23	Standard Specification for Metal Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-Linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	IMC	IRC						
F3348-~~20b~~ 23a	Standard Specification for Plastic Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-Linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	IMC	IPC	IRC					
F3371-~~19~~ 22	Standard Specification for Polyolefin Pipe and Fittings for Drainage, Waste, and Vent Applications	IPC	IRC						
AWC	**American Wood Council**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/AWC NDS-2024	National Design Specification (NDS) for Wood Construction —with ~~2018~~ 2024 NDS Supplement	IBC	IRC						
ANSI/AWC PWF-~~2021~~ 2027	Permanent Wood Foundation Design Specification	IBC	IRC						
ANSI/AWC SDPWS-~~2021~~ 2027	Special Design Provisions for Wind and Seismic	IBC							

AWPA	American Wood Protection Association								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
M4-~~21~~ 23	Standard for the Handling, Storage, Field Fabrication and Field Treatment of Preservative-treated Wood Products	IBC	IRC						
U1-~~23~~ 26	USE CATEGORY SYSTEM: User Specification for Treated Wood Except Commodity Specification H	IBC	IRC						

AWS	American Welding Society								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/AWS A5.31M/A5.31-~~2012~~ 2022	Specification for Fluxes for Brazing and Braze Welding ~~Edition: 2nd~~	IRC							

BHMA	Builders Hardware Manufacturers' Association								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
A156.10-~~2022~~ 2024	Power-Operated Pedestrian Doors	IBC	IFC						
A156.27-~~2019~~ 2024	Power- and Manual-Operated Revolving Pedestrian Doors	IBC	IFC						

CGA	Compressed Gas Association								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/CGA G-13-~~(2015)~~ (2023)	Storage and Handling of Silane and Silane Mixtures	IFC							
ANSI/CGA P-18-~~(2018)~~ (2020)	Standard for Bulk Inert Gas Systems	IFC							
CGA C-7-(2020)	Guide to Classification and Labeling of Compressed Gases	IFC							

CGA P-20-~~2009~~ 2023	Standard for Classification of Toxic Mixtures	IFC							
CGA P-23-~~2008~~ 2015	Standard for Categorizing Gas Mixtures Containing Flammable and Nonflammable Components	IFC							
CGA P-1-~~(2015)~~ 2022	Standard for Safe Handling of Compressed Gases in Containers	IFC							
CGA S-1.1-~~(2019)~~ 2022	Pressure Relief Device Standards—Part 1—Cylinders for Compressed Gases	IFC	IFGC						
CGA S-1.2-~~(2019)~~ (2024)	Pressure Relief Device Standards—Part 2—Portable Containers for Compressed Gases	IFC	IFGC						
S-1.3-~~(2020)~~ 2024	Pressure Relief Device Standards—Part 3— Stationary Storage Containers for Compressed Gases	IFC	IFGC						
CGA V-1-~~(2021)~~ (2023)	Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections	IFC							
CPA	**Composite Panel Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI A208.1-~~2016~~ 2022	Particleboard	IBC	IRC						
CRRC	**Cooling Roof Rating Council;**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/CRRC-S100-~~2021~~ 2025	Standard Test Methods for Determining Radiative Properties of Materials	IECC	IRC						
CSA	**Canadian Standards Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							

A257.1-~~19~~ 24	Non-reinforced ~~Circular~~ circular ~~Concrete~~ concrete ~~Culvert~~ culvert, ~~Storm~~ storm ~~Drain~~ drain, ~~Sewer~~ sewer ~~Pipe~~ pipe and ~~Fittings~~ fittings	IPC							
A257.2-~~19~~ 24	Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe and Fittings	IPC	IPSDC	IRC					
A257.3-~~19~~ 24	Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections and Fittings Using Rubber Gaskets	IPC	IPSDC	IRC					
AAMA/WDMA/CSA 101/I.S.2/A440-22	North American Fenestration Standard/Specification for Windows, Doors and Skylights	IBC	IECC	IRC					
ANSI Z21.69-2015 ~~(R2020)~~(R2025)/CSA 6.16-15~~(R2020)~~ (R2025)	Connectors for ~~Moveable~~ moveable ~~Gas~~ gas ~~Appliances~~ appliances	IFC							
ANSI Z83.26-~~2014~~ 20/CSA 2.37-~~14~~ 20	Gas-Fired Outdoor Infrared Patio Heaters	IFC							
ANSI/CSA/IGSHPA C448 Series-16(R2021)	Design and Installation of Ground Source Heat Pump Systems for Commercial and Residential Buildings	IMC	IRC						
ASME A112.3.4-2018/CSA B45.9-18~~(R2023)~~ (R2022)	Macerating Toilet Systems and Waste Pumping Systems for Plumbing Fixtures	IRC							
ASME A112.18.1-2023/CSA B125.1-~~23~~ 24	Plumbing Supply Fittings	IPC	IRC						
ASME A112.18.2-2023/CSA B125.2-~~23~~ 20	Plumbing Waste Fittings	IPC	IRC						
ASME A112.18.6-2021/CSA B125.6-~~21 26~~	Flexible Water Connectors	IPC	IRC						
ASME A112.19.1-2023/CSA B45.2-~~23~~ 24	Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures	IPC	IRC						
ASME A112.19.2-2023/CSA B45.1-~~23~~ 24	Ceramic Plumbing Fixtures	IPC	IRC						

ASME A112.19.5-2022/CSA B45.15-22	Flush Valves and Spuds for Water Closets, Urinals and Tanks	IPC							
ASSE 1016-~~2020~~ 2025/ASME A112.1016-~~2020~~ 2025/CSA B125.16-~~20~~ 25	Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations	IPC	IRC						
ASSE 1037-~~2020~~ 2025/ASME A112.1037-~~2020~~ 2025/CSA B125.37-~~20~~ 25	Performance Requirements for Pressurized Flushing Devices for Plumbing Fixtures	IPC							
ASSE 1070-2020/ASME A112.1070-2020/CSA B125.~~10~~70-20	Performance Requirements for Water Temperature Limiting Devices	IPC							
B55.1-~~20~~ 25	Test Method for Measuring Efficiency and Pressure Loss of Drain Water Heat Recovery Units	IRC							
B55.2-~~20~~ 25	Drain Water Heat Recovery Units	IRC							
B64.1.1-~~21~~ 26	Vacuum Breakers, Atmospheric Type (AVB)	IRC							
B64.1.2-~~21~~ 26	Pressure Vacuum Breakers (PVB)	IRC							
B64.1.3-~~21~~ 26	Spill Resistant Pressure Vacuum Breakers (SRPVB)	IRC							
B64.2-~~21~~ 26	Vacuum Breakers, Hose Connection Type (HCVB)	IRC							
B64.2.1-~~21~~ 26	Hose Connection Vacuum Breakers (HCVB) with Manual Draining Feature	IPC	IRC						
B64.2.1.1-~~21~~ 26	Hose Connection Dual Check Vacuum Breakers (HCDVB)	IPC	IRC						
B64.2.2-~~21~~ 26	Vacuum Breakers, Hose Connection Type (HCVB) with Automatic Draining Feature	IPC	IRC						

B64.3-~~21~~ 26	Dual Check Backflow Preventers with Atmospheric Port (DCAP)	IRC							
B64.4-~~21~~ 26	Reduced Pressure Principle (RP) Backflow Preventers	IRC							
B64.4.1-~~21~~ 26	Reduced Pressure Principle Backflow Preventers for Fire Protection Systems (RPF)	IRC							
B64.5-~~21~~ 26	Double Check Backflow Preventers (DCVA)	IRC							
B64.5.1-~~21~~ 26	Double Check Valve Backflow Preventers for Fire Protection Systems (DCVAF)	IRC							
B64.5.1-21	Double Check Valve Backflow Preventers for Fire Protection Systems (DCVAF)	IPC							
B64.6-~~21~~ 26	Dual Check Valve (DuC) Backflow Preventers	IRC							
B64.7-~~21~~ 26	Laboratory Faucet Vacuum Breakers (LFVB)	IRC							
B64.10-~~17~~ 23	Selection and Installation of Backflow Preventers	IPC							
B64.10.1-~~17~~ 23	Maintenance and Field Testing of Backflow Preventers	IPC							
B79-08(R2018)	Commercial and Residential Drains and Cleanouts	IPC							
B125.3-~~23~~ 22	Plumbing Fittings	IRC							
B137.1-~~23~~ 26	Polyethylene (PE) Pipe, Tubing and Fittings for Cold-water Pressure Services	IMC	IRC						
B137.2-~~23~~ 26	Polyvinylchloride (PVC) Injection-moulded Gasketed Fittings for Pressure Applications	IMC	IRC	ISPSC					

B137.3-~~23~~ 26	Rigid Polyvinylchloride (PVC) Pipe and Fittings for Pressure Applications	IMC	IPSDC	IRC	ISPSC				
B137.5-~~23~~ 26	Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications	IMC	IRC						
B137.6-~~23~~ 26	Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing and Fittings for Hot- and Cold- water Distribution Systems	IMC	IRC	ISPSC					
B137.9-~~23~~ 26	Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure-pipe Systems	IMC	IRC						
B137.10-~~23~~ 26	Crosslinked Polyethylene/Aluminum/Cross linked Polyethylene (PEX-AL- PEX) Composite Pressure- pipe Systems	IMC	IRC						
B137.11-~~23~~ 26	Polypropylene (PP-R & PP-RCT) Pipe and Fittings for Pressure Applications	IMC	IRC						
B137.18-~~23~~ 26	Polyethylene of Raised Temperature Resistance (PE- RT) Tubing Systems for Pressure Applications	IMC	IRC						
B181.1-~~21~~ 24	Acrylonitrile-butadiene-styrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings	IPSDC	IRC						
B181.2-~~21~~ 24	Polyvinylchloride PVC and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings	IPC							
B181.3-~~21~~ 24	Polyolefin and Polyvinylidene Fluoride (PVDF) Laboratory Drainage Systems	IRC							
B181.3-21	Polyolefin and Polyvinylidene Fluoride (PVDF) Laboratory Drainage Systems	IPC							

B182.1-~~21~~ 24	Plastic Drain and Sewer Pipe and Pipe Fittings	IPSDC	IRC						
B182.2-~~21~~ 24	PSM type Polyvinylchloride(PVC) Sewer Pipe and Fittings	IPSDC	IRC						
B182.4-~~21~~ 24	Profile Polyvinylchloride PVC Sewer Pipe and Fittings	IPC							
B182.6-~~21~~ 24	Profile Polyethylene (PE) Sewer Pipe and Fittings for Leak-Proof Sewer Applications	IRC							
B182.8-~~21~~ 24	Profile Polyethylene (PE) Storm Sewer and Drainage Pipe and Fittings	IRC							
B182.13-~~18~~ 24	Profile Polypropylene (PP) Sewer Pipe and Fittings for Leak-proof Sewer Applications	IPC							
ASSE 1003-23/CSA B356-~~-10(R2020)~~ :23	Water Pressure Reducing Valves for Domestic Water Systems	IPC	IRC						
C22.2 No. 108-14~~(R2019)~~ (R2024)	Liquid Pumps	ISPSC							
C22.2 No. 218.1-13 ~~(2017)~~ (R2022)	Spas, Hot Tubs and Associated Equipment	ISPSC							
CAN/CSA-C439-~~18~~ 24	Laboratory methods of test for rating the performance of heat/energy-recovery ventilators	ICCPC	IECC	IRC					
CSA P.4.1-~~21~~ 24	Testing Method for Measuring Fireplace Efficiency	IECC							
CSA/ANSI FC1-21/CSA C22.2 No. 62282-3-100-21	Fuel Cell Technologies—Part 3-100: Stationary Fuel Cell Power Systems—Safety	IFGC							
CSA/ANSI NGV 5.1-~~22~~ 23	Residential Fueling Appliances (RFA)	IFC	IFGC						

CSA/ANSI NGV 5.2-~~2022~~ 23	Vehicle Fueling Appliances (VFA)	IFC							
AAMA/WDMA/CSA 101/I.S.2/A440—~~22~~ 26	North American Fenestration Standard/Specification for Windows, Doors, and Skylights	IRC	IECC						
DHA	**Decorative Hardwoods Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/HPVA HP-1-~~2022~~ 2024	American National Standard for Hardwood and Decorative Plywood	IBC	IRC						
DOC	**U.S. Department of Commerce**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
PS 20-~~20~~ 25	American Softwood Lumber Standard	IBC	IRC						
DOL	**U.S. Department of Labor**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
29 CFR Part 1910.1200 (~~2015~~) 2024	Hazard Communication	IFC							
FEMA	**Federal Emergency Management Agency**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
FEMA P646-~~12~~ 19	Guidelines for Design of Structures for Vertical Evacuation from Tsunamis, Third Edition	IBC							
FEMA TB-2-~~23~~ 25	Flood Damage-resistant Materials Requirements for Buildings Located in Special Flood Hazard Areas	IRC							
FEMA TB-11-~~23~~ 01	Crawlspace Construction for Buildings Located in Special Flood Hazard Area	IRC							

FGIA	Fenestration & Glazing Industry Alliance (formerly American Architectural Manufacturers Association)								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
506-~~16~~ 23	~~Voluntary~~ Specifications for Impact and Cycle Testing of Fenestration Products	IRC							
711-~~22~~ 26	Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products	IRC							
712-~~23~~ 26	~~Voluntary~~ Specification for Mechanically Attached Flexible Flashing	IRC							
714-~~23~~ 26	~~Voluntary~~ Specification for Liquid-Applied Flashing Used to Create a Water-Resistive Seal around Exterior Wall Openings in Buildings	IRC							
AAMA/WDMA/CSA 101/I.S.2/A440-~~22~~ 26	North American Fenestration Standard/Specification for Windows, Doors, and Skylights	IECC	IRC						

FM	FM Approvals								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
4430-~~2012~~ August 2022	~~Approval~~ Examination Standard for Heat and Smoke Vents	IBC	IFC						
~~4450-(1989)~~ 4470-April 2022	~~Approval Standard for Class 1 Insulated Steel Deck Roofs—with Supplements through July 1992~~ Examination Standard for Single-ply Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction	IBC							

4470-~~2016~~ April 2022	~~Approval Standard for Single- ply Polymer-modified Bitumen Sheet, Built-up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction~~ Examination Standard for Single-ply Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use for Class 1 and Noncombustible Roof Deck Construction	IBC							
ANSI/FM 4880-~~2017~~ 2024	American National Standard for Evaluating the Fire Performance of Insulated Building Panel Assemblies and Interior Finish Materials	IBC	IRC						
ANSI/FM 4996-~~2019~~	Approval National Standard for Classification of Pallets and Other Material Handling Products as Equivalent to Wood Pallets	IFC							
GA	**Gypsum Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
GA-216-~~2021~~ 2024	Application and Finishing of Gypsum Panel Products	IBC							
GA-253-~~2021~~ 2024	Application of Gypsum Sheathing	IBC	IRC						
GA-600-~~2021~~ 2024	Fire-resistance and Sound Control Design Manual, 23rd Edition	IBC							
HVI	**Home Ventilating Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
916-~~18~~ 25	Airflow Test Procedure	IRC							

IAPMO	International Association of Plumbing and Mechanical Officials;								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
CSA B45.5-22/IAPMO Z124-2022e1	Plastic Plumbing Fixtures	IRC							
IAPMO Z124.7-2013 (R2023)	Prefabricated Plastic Spa Shells	ISPSC							
IAPMO/ANSI Z1157-2014e1~~(R2019)~~ (R2024)	Ball Valves	IPC							

IES	Illuminating Engineering Society								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/IES RP-6-~~2020~~ 22	Recommended Practice: Lighting Sports and Recreational Areas	ICCPC	IECC						
ANSI/IES RP-8-~~2021~~ 22	Recommended Practice: Lighting Roadway and Parking Facilities	ICCPC	IECC						

IIAR	International Institute of Ammonia Refrigeration								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/IIAR 2-~~2021~~ 2026	Safe Design of Closed-circuit Ammonia Refrigeration Systems	IFC	IMC						
ANSI/IIAR 3-~~2017~~ 2022	Ammonia Refrigeration Valves	IMC							
ANSI/IIAR 4-~~2020~~ 2026	Installation of Closed-circuit Ammonia Refrigeration Systems	IMC							
ANSI/IIAR 5-~~2019~~ 2025	Startup of Closed-circuit Ammonia Refrigeration Systems	IMC							

ANSI/IIAR 6-~~2019~~ 2025	Inspection, Testing, and Maintenance of Closed-Circuit Ammonia Refrigeration Systems	IFC	IMC						
ANSI/IIAR 7-~~2019~~ 2025	Developing Operating Procedures for Closed-Circuit Ammonia Refrigeration Systems	IFC							
ANSI/IIAR 8-~~2020~~ 2026	Decommissioning of Closed-Circuit Ammonia Refrigeration Systems	IFC							
ANSI/IIAR 9 -2020, Addendum A-2024	Minimum System Safety Requirements for Existing Closed-Circuit Ammonia Refrigeration Systems	IFC							
ANSI/IIAR CO2-~~2021~~ 2026	Safety Standard for Closed-Circuit Carbon Dioxide Refrigeration Systems	IMC							
IKECA	**International Kitchen Exhaust Cleaning Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/IKECA C10-~~2021~~ 2025	Standard for the Methodology for Cleaning Commercial Kitchen Exhaust Systems	IFC							
MHI	**Material Handling Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI MH16.1-~~2021~~ 2023	Specification for the Design, Testing and Utilization of Industrial Steel Storage Racks	IBC							
MSS	**Manufacturers Standardization Society of the Valve and Fittings Industry**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							

SP 58-~~2023~~ 2025	Pipe Hangers and Supports—Materials Design and Manufacture, Selection, Application and Installation	IMC							
SP-42-~~2022~~ 2025	Corrosion Resistant Gate, Globe, Angle and Check Valves with Flanged and Butt Weld Ends (Classes 150, 300 & 600)	IRC							
SP-67-~~2022~~ 2027	Butterfly Valves	IPC	IRC						
SP-70-~~2023~~ 2025	Gray Iron Gate Valves, Flanged and Threaded Ends	IPC	IRC						
SP-71-~~2011~~ 2025	Gray Iron Swing Check Valves, Flanged and Threaded Ends	IPC							
SP-72-~~2023~~ 2025	~~Ball Valves with Flanged or~~ Butt-welding Ends for General Service	IPC	IRC						
SP-78-~~2023~~ 2025	Cast Iron Plug Valves, Flanged and Threaded Ends	IPC	IRC						
SP-80-~~2019~~ 2025	Bronze Gate, Globe, Angle and Check Valves	IPC	IRC						
SP-110-~~2023~~ 2026	Ball Valves, Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends ~~(incl. a 2010 Errata Sheet)~~	IRC							
SP-122-~~2023~~ 2025	Plastic Industrial Ball Valves	IRC							
SP-139-~~2022~~ 2026	Copper Alloy Gate, Globe, Angle and Check Valves for Low Pressure/Low Temperature Plumbing Applications	IPC	IRC						
NFPA	**National Fire Protection Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
2-~~23~~ 26	Hydrogen Technologies Code	IFC	IFGC	IMC					

04-~~24~~ <u>27</u>	Standard for Integrated Fire Protection and Life Safety System Testing	IBC	IFC						
10-~~22~~ <u>26</u>	Standard for Portable Fire Extinguishers	IBC	IFC	IPMC					
11-~~21~~ <u>24</u>	Standard for Low-, Medium-, and High-Expansion Foam	IBC	IFC						
12-~~22~~ <u>25</u>	Standard on Carbon Dioxide Extinguishing Systems	IBC	IPMC						
12A-~~22~~ <u>25</u>	Standard on Halon 1301 Fire Extinguishing Systems	IBC	IFC	IPMC					
13-~~22~~ <u>25</u>	Standard for the Installation of Sprinkler Systems	IBC	IFC	IRC					
13D-~~22~~ <u>25</u>	Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes	IBC	IFC	IRC					
13R-~~22~~ <u>25</u>	Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies	IBC	IEBC	IFC	IRC				
14-~~22~~ <u>24</u>	Standard for the Installation of Standpipe and Hose Systems	IBC	IFC						
15-~~22~~ <u>27</u>	Standard for Water Spray Fixed Systems for Fire Protection	IFC							
17-~~21~~ <u>27</u>	Standard for Dry Chemical Extinguishing Systems	IBC	IFC	IPMC					
17A-~~21~~ <u>27</u>	Standard for Wet Chemical Extinguishing Systems	IBC	IFC	IPMC					
20-~~22~~ <u>25</u>	Standard for the Installation of Stationary Pumps for Fire Protection	IBC	IFC						
24-~~22~~ <u>25</u>	Standard for Installation of Private Fire Service Mains and Their Appurtenances	IFC							

25-~~23~~ 26	Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems	IFC	IPMC						
30-~~24~~ 27	Flammable and Combustible Liquids Code	IBC	IFC						
30A-~~24~~ 27	Code for Motor Fuel Dispensing Facilities and Repair Garages	IBC	IFC	IFGC	IMC				
30B-~~23~~ 27	Code for the Manufacture and Storage of Aerosol Products	IFC							
31-~~20~~ 24	Standard for the Installation of Oil-Burning Equipment	IBC	IFC	IMC	IRC				
32-~~21~~ 26	Standard for Drycleaning Facilities	IBC	IFC						
33-~~21~~ 24	Standard for Spray Application Using Flammable or Combustible Materials	IFC							
34-~~21~~ 24	Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids	IFC							
35-~~21~~ 26	Standard for the Manufacture of Organic Coatings	IFC							
37-~~21~~ 24	Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines	IFGC	IMC						
40-~~22~~ 25	Standard for the Storage and Handling of Cellulose Nitrate Film	IBC	IFC						
45-~~23~~ 24	Standard on Fire Protection for Laboratories Using Chemicals	IBC	IFC						
52-~~22~~ 26	Vehicular Natural Gas Fuel System Code	IFC							

55-~~23~~ 26	Compressed Gases and Cryogenic Fluids Code	IFC	IPC						
56-~~23~~ 26	Standard for Fire and Explosion Prevention during Cleaning and Purging of Flammable Gas Piping Systems	IFC							
58-~~23~~ 24	Liquefied Petroleum Gas Code	IBC	IFC	IFGC	IMC	IRC			
59A-~~22~~ 26	Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)	IFC							
~~61-20~~ 660-25	Standard for ~~the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities~~ Combustible Dusts	IBC	IFC						
69-~~19~~ 24	Standard on Explosion Prevention Systems	IFC	IMC						
70-~~23~~ 26	National Electrical Code	IBC	IECC	IFC	IFGC	IMC	IPMC	IRC	ISPSC
		IWUIC							
72-~~22~~ 25	National Fire Alarm and Signaling Code	IBC	IEBC	IMC	IPMC	IRC			
76-~~20~~ 24	Standard for the Fire Protection of Telecommunications Facilities	IFC							
80-~~22~~ 25	Standard for Fire Doors and Other Opening Protectives	IBC	IEBC	IFGC	IMC	IPMC			
82-~~19~~ 24	Incinerators and Waste and Linen Handling Systems and Equipment	IBC	IFGC	IMC					
86-~~23~~ 27	Standard for Ovens and Furnaces	IFC							
88A-~~23~~ 27	Standard for Parking Structures	IFGC							

91-~~20~~ 26	Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids	IMC							
92-~~21~~ 24	Standard for Smoke Control Systems	IBC	IFC	IMC					
96-~~24~~ 27	Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations	IFC	IMC						
99-24	Health Care Facilities Code	IBC	IMC						
99-~~24~~ 27	Health Care Facilities Code	IBC	IEBC	IFC	IMC	IPC			
101-~~24~~ 27	Life Safety Code	IBC	IEBC	IFC					
105-~~22~~ 25	Standard for Smoke Door Assemblies and Other Opening Protectives	IBC	IFC	IMC	IPMC				
110-~~22~~ 25	Standard for Emergency and Standby Power Systems	IBC	IECC	IFC					
111-~~22~~ 25	Standard on Stored Electrical Energy Emergency and Standby Power Systems	IBC	IFC						
120-~~20~~ 23	Standard for Fire Prevention and Control in Coal Mines	IBC	IFC						
160-~~21~~ 26	Standard for the Use of Flame Effects Before an Audience	IFC							
170-~~21~~ 24	Standard for Fire Safety and Emergency Symbols	IBC	IFC						
204-~~21~~ 24	Standard for Smoke and Heat Venting	IFC	IPMC						
211-~~22~~ 27	Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances	IBC	IFGC	IMC	IRC				
221-~~24~~ 27	Standard for High Challenge Fire Walls, Fire Walls and Fire Barrier Walls	IBC							

232-~~22~~ 26	Standard for the Protection of Records	IFC							
241-~~22~~ 27	Standard for Safeguarding Construction, Alteration and Demolition Operations	IFC							
285-~~23~~ 25	Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components	IBC							
286-~~23~~ 27	Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth	IBC	IFC	IMC	IRC				
303-~~21~~ 26	Fire Protection Standard for Marinas and Boatyards	IFC							
318-~~22~~ 25	Standard for the Protection of Semiconductor Fabrication Facilities	IFC							
326-~~20~~ 25	Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair	IFC							
400-~~22~~ 25	Hazardous Materials Code	IFC							
407-~~22~~ 27	Standard for Aircraft Fuel Servicing	IFC							
409-~~22~~ 26	Standard on Aircraft Hangars	IBC	IFC	IFGC					
410-~~20~~ 25	Standard on Aircraft Maintenance	IFC							
418-~~21~~ 24	Standard for Heliports and Vertiports	IBC							
~~484-22~~ 660-25	Standard for Combustible ~~Metals~~ Dusts	IBC	IFC						

505-~~23~~ 24	Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations	IFC							
~~652-19~~ 660-25	Standard ~~on the Fundamentals of Combustible Dust~~ for Combustible Dusts	IBC	IFC						
~~654-20~~ 660-25	Standard for ~~Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids~~ Combustible Dusts	IBC	IFC						
~~655-19~~ 660-25	Standard for ~~the Prevention of Sulfur Fires and Explosions~~ Combustible Dusts	IBC	IFC						
~~664-20~~ 660-25	Standard for ~~the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities~~ Combustible Dusts	IBC	IFC						
703-~~24~~ 27	Standard for Fire Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials	IFC							
704-~~22~~ 27	Standard System for the Identification of the Hazards of Materials for Emergency Response	IBC	IFC	IMC					
750-~~23~~ 27	Standard on Water Mist Fire Protection Systems	IBC	IFC	IPMC					
770-~~21~~ 26	Standard on Hybrid (Water and Inert Gas) Fire-Extinguishing Systems	IBC	IFC						
780-~~20~~ 26	Standard for the Installation of Lightning Protection Systems	IBC	IFC						
853-~~20~~ 25	Standard for the Installation of Stationary Fuel Cell Power Systems	IFC	IFGC	IMC	IRC				

855-~~20~~ 26	Standard for the Installation of Stationary Energy Storage Systems	IFC							
1122-~~18~~ 26	Code for Model Rocketry	IFC							
1123-~~22~~ 26	Code for Fireworks Display	IFC							
1124-~~06~~ 26	Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles	IFC							
1125-~~22~~ 26	Code for the Manufacture of Model Rocket and High-Power Rocket Motors	IFC							
1126-~~21~~ 26	Standard for the Use of Pyrotechnics Before a Proximate Audience	IFC							
1127-~~18~~ 26	Code for High-Power Rocketry	IFC							
1142-~~22~~ 27	Standard on Water Supplies for Suburban and Rural Firefighting	IFC							
1225-~~22~~ 27	Standard for Emergency Services Communications	IFC							
2001-~~22~~ 25	Standard on Clean Agent Fire Extinguishing Systems	IBC	IFC	IPMC					
2010-~~20~~ 25	Standard for Fixed Aerosol Fire-Extinguishing Systems	IBC	IFC						
NFPA ~~1901-16~~ 1900-24	Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances	IFC							
NFPA ~~1989-13~~ 1985-26	Proposed Breathing Air Quality for Fire Emergency Services Respiratory Protection and Respirators for Wildland Firefighting	IFC							

NSF	NSF International								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
NSF/ANSI 3-~~2019~~ 2023	Commercial Warewashing Equipment	IPC							
NSF/ANSI 14-~~2020~~ 2023	Plastic Piping System Components and Related Materials	IPC	IRC						
NSF/ANSI 18-~~2020~~ 2023	Manual Food and Beverage Dispensing Equipment	IPC							
NSF/ANSI 40-~~2020~~ 2023	Residential Wastewater Treatment Systems	IPSDC							
NSF/ANSI 41-~~2018~~ 2023	Nonliquid Saturated Treatment Systems (Composting Toilets)	IPSDC	IRC						
NSF/ANSI 42-~~2021~~ 2023	Drinking Water Treatment Units-Aesthetic Effects	IPC	IRC						
NSF/ANSI 44-~~2017~~ 2024	Residential Cation Exchange Water Softeners	IPC	IRC						
NSF/ANSI 50-~~2020~~ 2024	Equipment and Chemicals for Swimming Pools, Spas, Hot Tubs and Other Recreational Facilities	IPC							
NSF/ANSI 53-~~2020~~ 2023	Drinking Water Treatment Units—Health Effects	IPC							
NSF/ANSI 58-~~2020~~ 2023	Reverse Osmosis Drinking Water Treatment Systems	IPC	IRC						
NSF/ANSI/CAN 61-~~2020~~ 2024	Drinking Water System Components—Health Effects	IPC	IRC						
NSF/ANSI 62-~~2021~~ 2023	Drinking Water Distillation Systems	IPC	IRC						
NSF/ANSI 350-~~2020~~ 2023	Onsite Residential and Commercial Water Reuse Treatment Systems	IPC	IRC						

NSF/ANSI 358-1-~~2021~~ 2022	Polyethylene Pipe and Fittings for Water-based Ground- source “Geothermal” Heat Pump Systems	IMC	IRC						
NSF/ANSI 358-2-~~2017~~ 2022	Polypropylene Pipe and Fittings for Water-based Ground-source “Geothermal” Heat Pump Systems	IMC	IRC						
NSF/ANSI 358-4-~~2018~~ 2022	Polyethylene of Raised Temperature (PE-RT) Pipe and Fittings for Water-based Ground-source (Geothermal) Heat Pump Systems	IMC	IRC						
NSF/ANSI 359-~~2018~~ 2022	Valves for Crosslinked Polyethylene (PEX) Water Distribution Tubing Systems	IPC	IRC						
NSF/ANSI 372-~~2020~~ 2022	Drinking Water Systems Components—Lead Content	IPC	IRC						
PCI	**Precast Prestressed Concrete Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
PCI 124-~~18~~ 23	Specification for Fire Resistance of Precast ~~/~~ and Precast, Prestressed Concrete	IBC							
PCI 128-~~19~~ 24	Specification for Glass-Fiber-Reinforced Concrete Panels	IBC							
PHTA	**Pool & Hot Tub Alliance (formerly The Association of Pool & Spa Professionals);**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/PHTA/ICC 10-~~2021~~ 2026	American National Standard for Elevated Pools, ~~and~~ Spas and Other Aquatic Venues Integrated into a Building or Structure	ISPSC							
ANSI/APSP/ICC-13 ~~2017~~ 2025	American National Standard for	ISPSC							

	Water Conservation Efficiency in Residential and Public Pools, Spas, Portable Spas								
PLIB	**Pacific Lumber Inspection Bureau (formerly WCLIB and AITC)**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
AITC 200-~~20~~ 24	Manufacturing Quality Control Systems Manual for Structural Glued Laminated Timber	IBC							
PTI	**Post-Tensioning Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
PTI DC10.5-~~19~~ 24	Standard Requirements for Design and Analysis of Shallow ~~Post-Tensioned~~ Concrete Foundations on Expansive and Stable Soils	IBC	IRC						
RESNET	**Residential Energy Services Network, Inc.**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/RESNET/ICC 301-~~2022~~ 2025	Standard for the Calculation and Labeling of the Energy Performance of Dwelling and Sleeping Units using an Energy Rating Index~~--includes Addendum A Approved July 28, 2022; and Addendum B Approved October 12, 2022~~	IECC	IRC						
ANSI/RESNET/ICC 380-~~2022~~ 2025	Standard for Testing Airtightness of Building, Dwelling Unit, and Sleeping Unit Enclosures; Airtightness of Heating and Cooling Air Distribution Systems; and Airflow of Mechanical Ventilation Systems	IECC	IRC						
RMI	**Rack Manufacturers Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							

ANSI MH16.1-~~2021~~ 2023	Design, Testing and Utilization of Industrial Storage Racks	IBC						
ANSI MH16.3-~~2021~~ 2025	Specification for the Design, Testing and Utilization of Industrial Steel Cantilevered Storage Racks	IBC						
SBCA	**Structural Building Components Association**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
BCSI-2018	Building Component Safety Information—Guide to Good Practice for Handling, Installing, Restraining & Bracing of Structural Building Components	IRC						
CFS-BCSI-~~(updated June 2016)~~ updated June 2019	~~Cold-formed Steel~~ Building Component Safety Information ~~(CFSBCSI)—~~Guide to Good Practice for Handling, Installing & Bracing of Cold- formed Steel Trusses	IRC						
SDI	**Steel Deck Institute**							
Standard Reference Number	**Title**	**Referenced in Code(s):**						
ANSI/SDI SD-2022 w/S1-26	Standard for Steel Deck	IBC						
SDI ~~AISI~~ S100-~~16 (2020) w/S2- 20~~ 24	North American Specification for the Design of Cold-Formed Steel Structural Members, ~~2016~~ 2024 Edition ~~(Reaffirmed 2020), with Supplement 2, 2020 Edition~~	IBC	IRC					
SDI ~~AISI~~ S310 ~~20 w/S1 22~~ 23	North American Standard for the Design of Profiled Steel Diaphragm Panels, ~~with Supplement 1, 2022~~ 2023 Edition	IBC	IRC					

SFIA	**Steel Framing Industry Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
SFIA ~~AISI~~ S202-~~20~~ 26	Code of Standard Practice for Cold-formed Steel Structural Framing, ~~2020~~ 2026 Edition	IBC							
SFIA ~~AISI~~ S220-~~20~~ 26	North American Standard for Cold-Formed Steel Nonstructural Framing, 2026 Edition	IBC	IFGC	IMC	IPC	IRC			
SFIA ~~AISI~~ S230-~~19~~ 26	North American Standard for Cold-Formed Steel Framing—Prescriptive Method for One and Two Family Dwellings, ~~2019~~ 2026 Edition	IBC	IRC						
SFIA ~~AISI~~ S240-~~20~~ 26	North American Standard for Cold-Formed Steel Structural Framing, ~~2020~~ 2026	IBC	IFGC	IMC	IRC				
SFIA ~~AISI~~ S250-~~22~~ 26	North American Standard for Thermal Transmittance of Building Envelopes with Cold-Formed Steel Framing, with Supplement 1, ~~dated 2022~~ 2026 Edition	IRC							
SFIA ~~AISI~~ S400-~~20~~ 26	North American Standard for Seismic Design of Cold-formed Steel Structural Systems, ~~2020~~ 2026 Edition	IBC	IRC						

SJI	**Steel Joist Institute**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
SJI 100-~~2020~~ 2026	Standard Specification for K-Series, LH-Series, and DLH-Series Open Web Steel Joists and for Joist Girders	IBC							
SJI 200-~~2015~~ 2026	Standard Specification for CJ-Series Composite Steel Joists	IBC							

SMACNA	**Sheet Metal and Air Conditioning Contractors' National Association, Inc.**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/SMACNA 1st Edition 2015	Phenolic Duct Construction	IMC							

Standard Reference Number	Title	Referenced in Code(s):							
	Standard~~s (ANSI/SMACNA 022—2015)~~ 1st edition								
ANSI/SMACNA 2nd Edition - 2011	Rectangular Industrial Duct Construction Standard~~s (ANSI/SMACNA 002—2011)~~ 2nd edition	IMC							
ANSI/SMACNA 3rd Edition 2013	Round Industrial Duct Construction Standards ~~(ANSI/SMACNA 005—2013~~ 3rd edition	IMC							
ANSI/SMACNA ~~006-2020~~ 4th edition - 2020	HVAC Duct Construction Standards—Metal and Flexible, 4th Edition	IFGC	IMC	IRC					
ANSI/SMACNA 016, 2nd edition-2012	HVAC Air Duct Leakage Test Manual ~~Second~~ 2nd Edition ~~(ANSI/SMACNA 016—2012)~~	IECC							
SPRI	**Single-Ply Roofing Industry**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
ANSI/SPRI RP-4-~~2019~~ 2022	Wind Design Standard for Ballasted Single-ply Roofing Systems	IBC							
ANSI/SPRI VF-1-~~2021~~ 2023	External Fire Design Standard for Vegetative Roofs	IBC							
ANSI/SPRI/FM 4435/ES-1-~~2017~~ 2022	Test Standard for Edge Systems Used with Low Slope Roofing Systems	IBC							
TMS	**The Masonry Society**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
302~~—2018~~ 25	Standard ~~Method~~ for Determining the Sound Transmission Class Ratings for Masonry Assemblies	IBC	IRC						
UL	**UL LLC**								

Standard Reference Number	Title	Referenced in Code(s):							
9-2009	Fire Tests of Window Assemblies—with Revisions through ~~March 2020~~ October 2024	IBC							
10A-2009	Tin Clad Fire Doors—with Revisions through ~~July 20, 2018~~ March 2022	IBC							
10B-2008	Fire Tests of Door Assemblies —with Revisions through ~~May 2020~~ October 2024	IBC							
10D-2017	Fire Tests of Fire-Protective Curtain Assemblies-With Revisions through July 2022	IBC							
30-~~1995~~ 2022	Metallic and Nonmetallic ~~Metal~~ Safety Cans for Flammable and Combustible Liquids~~—with Revisions through September 2019~~	IFC							
55A-2004	Materials for Built-up Roof Coverings-With Revisions through April 2016	IBC	IRC						
70-2001	Septic Tanks, Bituminous-coated Metal-With Revisions through December 2006	IPSDC							
80-2007	Steel Tanks for Oil-Burner Fuels and Other Combustible Liquids—with Revisions through October 2024	IFC	IRC						
87A-2015	Power-Operated Dispensing Devices for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent~~—with Revisions through September 2019~~ (E0 - E85)	IFC							

96A-~~2016~~ 2023	~~Standard for~~ Installation Requirements for Lightning Protection Systems	IBC							
127-~~2011~~ 2024	~~Standard for~~ Factory-Built Fireplaces~~—with Revisions through February 2020~~	IBC	IECC	IFGC	IMC	IRC			
142-~~2006~~ 2019	Steel Aboveground Tanks for Flammable and Combustible Liquids—with Revisions through January 2021	IFC							
174-2004	Household Electric Storage Tank Water Heaters—with Revisions through ~~October 2021~~ November 2024	IMC	IRC						
180-2019	~~Liquid-level Indicating Gauges for Oil Burner Fuels and Other Combustible Liquids~~ Combustible Liquid Tank Accessories—with Revisions through ~~August 2021~~ February 2023	IMC	IRC						
181-2013	Factory-Made Air Ducts and Air Connectors and Air Connectors-With Revisions through December 2021	IMC	IRC						
181A-2013	Closure Systems for Use with Rigid Air Ducts and Air Connectors—with Revisions through ~~March 2017~~ December 2021	IMC	IRC						
181B-2013	Closure Systems for Use with Flexible Air Ducts and Air Connectors—with Revisions through ~~March 2017~~ December 2021	IMC	IRC						
197-2010	Commercial Electric Cooking Appliances—with Revisions through ~~January 2018~~ April 2023	IMC							

199E-2004	Outline of Investigation for Fire Testing of Sprinklers and Water Spray Nozzles for Protection of Deep Fat Fryers-With Revisions through January 2014	IBC	IFC						
207-~~2009~~ 2022	Refrigerant-containing Components and Accessories, Nonelectrical~~—with Revisions through January 2020~~	IMC							
217-~~2015~~ 2024	Smoke Alarms—with Revisions through ~~April 2021~~ November 2024	IBC	IFC	IRC					
263-2011	Fire Tests of Building Construction and Materials— with Revisions through ~~August 2021~~ March 2022	IBC	IMC	IRC	IWUIC				
268-~~2016~~ 2024	Smoke Detectors for Fire Alarm Systems~~—with Revisions through October 2019~~	IBC	IFC	IMC	IPMC	IRC			
268A-2008	Smoke Detectors for Duct Application—with Revisions through August ~~2020~~ 2023	IMC							
294-~~2018~~ 2023	Access Control System Units~~—with Revisions through October 2018~~	IBC	IFC						
300-2019	Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment-With Revisions through April 2024	IBC	IFC						
300A-2006	Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces-With Revisions through January 2014	IBC	IFC						
305-2012	Panic Hardware—with	IBC	IFC						

	Revisions through March ~~2017~~ 2022								
325-2017	Door, Drapery, Gate, Louver and Window Operators and Systems—with Revisions through February ~~2020~~ 2023	IBC	IFC	IRC					
343-2008	Pumps for Oil-burning Appliances—with Revisions through ~~December 2017~~ March 2024	IMC	IRC						
372-2007	Automatic Electrical Controls for Household and Similar Use—Part 2: Particular Requirements for Burner Ignition Systems and Components—with revisions through ~~June 2012~~ January 2013	ISPSC							
378-2006	Draft Equipment—with Revisions through ~~September 2013~~ June 2016	IFGC	IMC	IRC					
391-~~2010~~ 2024	Solid-fuel and Combination- fuel Central and Supplementary Furnaces~~— with Revisions through August 2019~~	IMC							
399-2017	Drinking-Water Coolers—with Revisions through ~~July 2020~~ February 2024	IPC							
412-2011	Refrigeration Unit Coolers— with Revisions through ~~August 2018~~ June 2022	IMC							
427-2011	Standard for Refrigerating Units—with Revisions through ~~February 2014~~ June 2022	IMC							
441-2016	Gas Vents—with Revisions through ~~August 2019~~ April 2024	IFGC	IRC						
467-~~2013~~ 2022		IFGC	IRC						

	Grounding and Bonding Equipment								
471-2010	Commercial Refrigerators and Freezers—with Revisions through ~~September 2019~~ August 2024	IMC							
484 -2014	~~Standard for~~ Room Air Conditioners—with Revisions through ~~May 2019~~ June 2022	IRC							
498A-2008	Current Taps and Adaptors— with Revisions through ~~June 2016~~ October 2021	IFC							
499-2014	~~Standard for~~ Electric Heating Appliances—with Revisions through ~~February 2017~~ May 2023	IFC	IMC						
507-2017	Electric Fans—with Revisions through ~~May 2020~~ August 2024	IMC	IRC						
508-~~2018~~ 2024	Industrial Control Equipment~~—with Revisions through July 2021~~	IMC	IPC	IRC					
580-2006	Test for Uplift Resistance of Roof Assemblies—with Revisions through ~~March 2019~~ April 2024	IBC	IRC						
586-2009	High-efficiency, Particulate, Air Filter Units—with Revisions through ~~December 2017~~ September 2022	IMC							
641-2010	Type L Low-temperature Venting Systems—with Revisions through ~~April 2018~~ October 2022	IBC	IFGC	IMC	IRC				
647-1993	~~Standard for~~ Unvented Kerosene-Fired Room Heaters and Portable Heaters —with Revisions through ~~April 2010~~ June 2016	IFC							

651-2011	Schedule 40 and Schedule 80, Type EB and A Rigid PVC Conduit and Fittings—with Revisions through ~~March 2019~~ May 2022	IFGC	IRC						
705-2017	Power Ventilators—with Revisions through ~~August 2021~~ September 2024	IFGC	IMC	IRC					
710-~~12:~~ 2024	Exhaust Hoods for Commercial Cooking Equipment~~—with Revisions through February 2021~~	ICCPC	IECC	IFC	IMC				
710B-2011	Recirculating Systems—with Revisions through ~~February 2019~~ October 2021	IBC	IFC	IMC					
723-2018	Standard for Surface Burning Characteristics of Building Materials-With Revisions through April 2023	IBC	IFC	IMC	IPC	IRC	IWUIC		
723S-2006	Drop-Out Ceilings Installed Beneath Automatic Sprinklers-with Revisions through April 2016	IBC							
726-1995	Oil-fired Boiler Assemblies— with Revisions through ~~October 2013~~ September 2024	IMC	IRC						
727-~~18:~~2018	Oil-fired Central Furnaces-With Revisions through May 2024	ICCPC	IECC	IMC	IRC				
729-2003	Oil-fired Floor Furnaces—with Revisions through ~~November 2016~~ August 2022	IMC	IRC						
730-2003	Oil-fired Wall Furnaces—with Revisions through ~~November 2016~~ August 2022	IMC	IRC						
731-2018	Oil-fired Unit Heaters-with	IECC	IMC						

	Revisions through November 2021								
732-~~2018~~ 2023	Oil-fired Storage Tank Water Heaters~~—with Revisions through August 2018~~	IMC	IRC						
737-2011	Fireplace Stoves-With Revisions through February 2020	IMC	IRC						
762-2013	Outline of Investigation for Power Ventilators for Restaurant Exhaust Appliances-With Revisions through March 2014	IMC							
790-~~2004~~ 2022	Standard Test Methods for Fire Tests of Roof Coverings~~— with Revisions through October 2018~~	IBC	IFC	IRC	IWUIC				
793-~~2008~~ 2020	Automatically Operated Roof Vents for Smoke and Heat~~— with Revisions through March 2017~~	IBC	IFC						
795-~~2016~~ 2024	Commercial-Industrial Gas Heating Equipment~~ with Revisions through 2020~~	IFGC	IRC						
817-2015	~~Standard for~~ Cord Sets and Power-Supply Cords—with Revisions through ~~September 2021~~ May 2023	IFC							
834-2004	Heating, Water Supply and Power Boilers—Electric—with Revisions through July ~~2019~~ 2024	IMC	IRC						
842-~~2019~~ 2020	Valves for Flammable Fluids	IMC	IRC						
858-2014	Household Electric Ranges— with Revisions through ~~September 2019~~ August 2023	IMC	IRC						
864-~~2014~~ 2023	Control Units and Accessories for	IBC	IFC	IMC					

	Fire Alarm Systems—with Revisions through ~~May 2020~~ October 2024								
867-2011	Electrostatic Air Cleaners— with Revisions through ~~August 2021~~ June 2024	IMC							
875-~~2009~~ 2024	Electric Dry-Bath Heaters~~— with revisions through January 2021~~	IMC	IRC						
896-1993	Oil-burning Stoves—with Revisions through ~~November 2016~~ August 2022	IMC	IRC						
900-2015	Air Filter Units-With Revisions through August 2022	IFC	IMC						
907-~~2016~~ 2024	Fireplace Accessories	IMC	IRC						
921-2020	~~Standard for~~ Commercial Dishwashers-With Revisions through December 2024	IMC							
923-2013	Microwave Cooking Appliances—with Revisions through ~~August 2020~~ May 2024	IMC	IRC						
924-2016	Standard for Emergency Lighting and Power Equipment—with Revisions through ~~May 2020~~ December 2022	IBC	IFC						
959-2010	Medium Heat Appliance Factory-built Chimneys—with Revisions through ~~August 2019~~ April 2024	IFGC	IMC	IRC					
971A-~~2006~~ 2022	Outline of Investigation for Metallic Underground Fuel Pipe	IFC	IMC						
1026-2012	Household Electric Cooking and Food Serving Appliances —with Revisions through ~~March 2021~~ September 2023	IRC							

1037-2016	Antitheft Alarms and Devices —with Revisions through ~~September 2017~~ August 2023	IFC							
1040-1996	Fire Test of Insulated Wall Construction—with Revisions through ~~April 2017~~ January 2022	IBC	IRC						
1046-2010	Grease Filters for Exhaust Ducts—with Revisions through ~~April 2017~~ June 2022	IFC	IMC						
1256-~~2002~~ 2023	Fire Test of Roof Deck Construction~~—with Revisions through August 2018~~	IBC	IRC						
1261-2016	Electric Water Heaters for Pools and Tubs—with Revisions through ~~September 2017~~ August 2022	IMC							
1275-2021	Flammable Liquid Storage Cabinets-with Revisions through June 2024	IFC							
1315-~~2017~~ 2022	Safety Containers for ~~Metal~~ Waste Paper	IFC							
1316-2018	Fibre Reinforced Underground Tanks for Flammable and Combustible Liquids—with Revisions through ~~March 2019~~ May 2024	IFC							
1363-~~2018~~ 2023	Relocatable Power Taps	IFC							
1363A-~~2014~~ 2010	Outline of Investigation for Special Purpose Relocatable Power Taps-With Revision through March 2014	IFC							
1370-~~2011~~ 2024	Unvented Alcohol Fuel Burning Decorative Appliances~~—with Revisions through March 2016~~	IMC							

1389-2019	Plant Oil Extraction Equipment for Installation and Use in Ordinary (Unclassified) Locations and Hazardous (Classified) Locations—with Revisions through ~~October 2020~~ April 2023	IFC							
1453-2016	Electric Booster and Commercial Storage Tank Water Heaters—with Revisions through May ~~2018~~ 2023	IMC							
1479-2015	Fire Tests of Penetration Firestops—with Revisions through ~~May 2021~~ April 2024	IBC	IMC	IRC					
1482-2011	Solid-fuel Type Room Heaters —with Revisions through ~~February 2020~~ June 2022	IBC	IMC	IRC					
1618-2015	Wall Protectors, Floor Protectors and Hearth Extensions—with Revisions through ~~January 2018~~ April 2024	IFGC	IMC	IRC					
1703-2002	Flat-plate Photovoltaic Modules and Panels—with Revisions through ~~November 2019~~ May 2024	IBC	IRC						
1715-1997	Fire Test of Interior Finish Material—with Revisions through ~~April 2017~~ January 2022	IBC	IRC						
1738-~~2010~~ 2023	Venting Systems for Gas-Burning Appliances, Categories II, III and IV~~—with Revisions through August 2021~~	IFGC	IRC						
1741-~~2010~~ 2021	Inverters, Converters, Controllers and Interconnection System Equipment for Use with	IBC	IFC	IRC					

	Distributed Energy Resources —with Revisions through ~~June 2021~~ October 2024								
1777-2015	Chimney Liners—with Revisions through April ~~2019~~ 2024	IBC	IFGC	IMC	IRC				
1778-2014	Uninterruptible Power Systems—with Revisions through ~~October 2017~~ April 2024	IFC							
1784-15:	Air Leakage Tests of Door Assemblies—with Revisions through February 2015	ICCPC							
1784-2015	Air Leakage Tests of Door Assemblies and Other Opening Protectives—with Revisions through February ~~2015~~ 2020	IBC	IECC						
1805-2002	Laboratory Hoods and Cabinets—with Revisions through ~~June 2006~~ April 2013	IFC							
1812-2013	Ducted Heat Recovery Ventilators—with Revisions through April ~~2021~~ 2024	IMC							
1815-2012	Nonducted Heat Recovery Ventilators—with Revisions through ~~April 2021~~ January 2024	IMC							
1820-2004	Fire Test of Pneumatic Tubing for Flame and Smoke Characteristics—with Revisions through ~~July 2017~~ September 2021	IMC							
1897-2015	Uplift Tests for Roof Covering Systems—with Revisions through ~~September 2020~~ July 2023	IBC	IRC						

1973-~~2018~~ 2022	ANS/CAN/UL Batteries for Use in Stationary~~, Vehicle~~ and Motive Auxiliary Power ~~and Light Electric Rail (LER)~~ Applications	IFC							
1974-~~2018~~ 2023	Evaluation for Repurposing Batteries	IFC							
1975-2006	Fire Tests for Foamed Plastics Used for Decorative Purpose-With Revisions through September 2012	IBC	IFC						
1978-2010	Grease Ducts—with Revisions through ~~October 2021~~ April 2024	IMC							
1994-2015	Luminous Egress Path Marking Systems—with Revisions through ~~July 2020~~ November 2023	IBC	IFC						
1995-2015	Heating and Cooling Equipment—with Revisions through August ~~2018~~ 2022	IMC	IRC	ISPSC					
1996-2009	Electric Duct Heaters—with Revisions through ~~September 2021~~ August 2022	IMC	IRC						
2011-~~2019~~ 2022	Outline of Investigation for Machinery~~—with Revisions through October 2020~~	IFC							

2017-2008	General-purpose Signaling Devices and Systems—with revisions through ~~December 2016~~ January 2024	IFC	ISPSC						
2021-2015	Fixed and Location-Dedicated Electric Room Heaters—with Revisions through ~~December 2016~~ February 2021	IMC							
2024-2014	Cable Routing Assemblies and	IMC							

	Communications Raceways—with Revisions through ~~August 2015~~ November 2021								
2034-~~2017~~ 2024	Single and Multiple Station Carbon Monoxide Alarms~~—with Revisions through September 2018~~	IBC	IFC	IRC					
2043-~~2013~~ 2023	Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-handling Spaces~~—with Revisions through July 2018~~	IMC							
2075-2013	Gas and Vapor Detectors and Sensors—with Revisions through August ~~2021~~ 2023	IBC	IFC	IMC	IRC				
2079-2015	Tests for Fire Resistance of Building Joint Systems—with Revisions through ~~July 2020~~ June 2024	IBC	IFC						
2152-2021	~~ANSI/CAN/UL/ULC~~ Special Purpose Nonmetallic Containers and Tanks for Specific Combustible or Noncombustible Liquids	IFC							
2158-2021	Electric Clothes Dryers-With Revisions through December 2023	IMC							
2158A-2013	Clothes Dryer Transition Duct—with Revisions through ~~October 2021~~ April 2023	IFGC	IMC	IRC					
2200-2020	Stationary Engine Generator Assemblies-With Revisions through September 2022	IBC	IFC	IFGC	IMC	IRC			
2201-2018	~~Standard for~~ Carbon Monoxide (CO) Emission Rate of Portable Generators-With Revisions through February 2023	IFC							

2202-~~2009~~ 2022	~~Electric Vehicle (EV)~~ DC Charging Equipment for Electric Vehicles ~~System- with revisions through February 2018~~	IBC	ICCPC								
2221-2010	Tests of Fire Resistive Grease Duct Enclosure Assemblies-With Revisions through January 2014	IMC									
2245-2006	Below-Grade Vaults for Flammable Liquid Storage Tanks-With Revisions through January 2007	IFC									
2272-~~2016~~ 2024	ANSI/CAN/UL/ULC Electrical Systems for Personal E- Mobility Devices	IFC									
2335-2010	Fire Tests of Storage Pallets—with Revisions through ~~August 2017~~ July 2022	IFC									
2360-2000	Test Methods for Determining the Combustibility Characteristics of Plastics Used in Semi-Conductor Tool Construction—with Revisions through October ~~2017~~ 2023	IFC									
2518-2016	Air Dispersion Systems—with Revisions through ~~June 2021~~ April 2023	IMC									
2523-2009	Solid Fuel-fired Hydronic Heating Appliances, Water Heaters, and Boilers—with Revisions through ~~March 2018~~ October 2022	IMC									
2523-2009:	Solid Fuel-Fired Hydronic Heating Appliances, Water Heaters and Boilers—with Revisions through March 2018	IRC									
2524-~~2019~~ 2024	~~In-Building 2-Way~~ Emergency Responder ~~Radio~~	IFC									

	Communication Enhancement Systems~~—with Revisions through February 2019~~								
2525-2020	~~Standard for~~ Two-Way Emergency Communications Systems for Rescue Assistance	IBC	IFC						
2703-~~2014~~ 2015	Mounting Systems, Mounting Devices, Clamping/Retention Devices and Ground Lugs for Use with Flat-plate Photovoltaic Modules and Panels—with Revisions through ~~March 2021~~ July 2024	IBC	IRC						
2790-2010	Standard for Commercial Incinerators—with Revisions through ~~June 2019~~ April 2024	IMC							
2849-2020	Electrical Systems for eBikes-With Revisions through December 2022	IFC							
3741-2020	~~Standard for~~ ANSI/CAN/UL Safety for Photovoltaic Hazard Control	IFC	IRC						
8800-2019	ANSI/CAN/UL ~~Standard for~~ Horticultural Lighting Equipment And Systems-with Revisions through September 2023	IFC							
8802-~~2020~~ 2023	ANSI/CAN/UL Ultraviolet (UV) Outline of Investigation for Germicidal Systems	IBC							
9540-~~2020~~ 2023	ANSI/CAN/UL ~~Standard for~~ Energy Storage Systems and Equipment	ICCPC	IFC	IRC					
9540A-2019	ANSI/CAN/UL ~~Standard for Safety~~ Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems	ICCPC	IFC						

60335-2-1000-~~17~~ 2017	Household and Similar Electrical Appliances: Particular Requirements for Electrically Powered Pool Lifts-With Revisions through September 2022	ISPSC							
60601-1-2003	Medical Electrical Equipment, Part I: General Requirements for Safety—with Revisions through ~~April 2006~~ May 2016	IFC							
60950-1-2007	Information Technology Equipment—Safety - Part 1: General Requirements—with Revisions through May 2019	IFC							
61730-1-~~2017~~ 2022	Photovoltaic (PV) Module Safety Qualification — Part 1: Requirements for Construction~~—with Revisions through April 2020~~	IBC	IRC						
61730-2-~~2017~~ 2022	Photovoltaic (PV) Module Safety Qualification — Part 2: Requirements for Testing— with Revisions through ~~April 2020~~ November 2023	IBC	IRC						
62368-1-2019	Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements—with Revisions through October 2021	IFC							
UL 325-02	Door, Drapery, Gate, Louver, and Window Operators and Systems, with Revisions through May 2015	IFC	IRC						
UL 325-2017	Door, Drapery, Gate, Louver and Window Operations and Systems—with Revisions through February 2020	IRC							

UL 723-2018	Standard for Test for Surface Burning Characteristics of Building Materials	IBC							
UL 1821-~~2011~~ 2019	ANSI/CAN/UL Thermoplastic Sprinkler Pipe and Fittings for Fire Protection Service~~—with revisions through August 2015~~	IRC							
UL 2202-2009	Electric Vehicle (EV) Charging System—with revisions through February 2018	IRC							
UL 2594-~~2016~~ 2022	~~Standard for~~ Electric Vehicle Supply Equipment	IBC	IECC	IRC					
~~UL~~ 3401-~~19~~ 2022	Outline of Investigation for 3D Printed Building Construction	IRC							

ULC	**Underwriters Laboratories of Canada**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
CAN/ULC S 102.2-~~2018~~ 2024	Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies- With Revisions through June 2024	IBC	IRC						

WDMA	**Window and Door Manufacturers Association**								
Standard Reference Number	**Title**	**Referenced in Code(s):**							
AAMA/WDMA/CSA 101/I.S.2/A440-~~22~~ 26	North American Fenestration Standard/Specification for Windows, Doors, and Skylights	IBC	IECC	IRC					
WDMA I.S. 11-~~2018~~ 2025	Industry Standard for Analytical Method for Design Pressure (DP) Ratings of Fenestration Products	IBC	IRC						

Reason: This is the ADM Code Change for Group B

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact: The ADM code change does not affect the cost of construction.

Staff Analysis: Under ANSI essential requirements concerning usage of all ANSI marking and designations ICC will be updating future editions of the I-Codes per these rules. This specifically means that within referenced standards chapters all referenced standards will be listed under their promulgator and not ANSI. ANSI designation may remain in the unique alphanumeric designation, however it will not be allowed in the title of the standard.

Within the body of the code text, where an affected referenced standard is identified with an ANSI acronym, the reference will be followed with “See promulgator acronym” in parenthesis. This will assist readers to be able to locate the correct promulgator under which to refer in the referenced standards chapter.

IBC – Fire Safety Code Change Proposals

The following code change proposals are labeled as FS code change proposals because they are proposals for changes to sections in chapters of the International Building Code that are designated as the responsibility of the IBC – Fire Safety Code Development Committee (see page viii of the Introductory pages of this monograph), which met in the Group A cycle in 2024. However, the changes included in this Group B code development cycle are to sections of the code that have been prefaced with a [G] and [S], meaning that they are the responsibility of a different IBC Code Development Committee— the IBC-General [G] and the IBC-Structural [S] Committees.

The committee assigned for each code change proposal is indicated in a banner statement near the beginning of the proposal. See the IBC-General and IBC-Structural hearing orders.

FS1-25

IBC: [BS] 1402.3

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1402.3 Wind <u>and tornado</u> resistance. *Exterior walls*, exterior wall coverings, exterior soffits and fascias, and the associated openings, shall be designed and constructed to resist safely the <u>greater of wind pressures or tornado pressures determined in accordance with ASCE 7 and other</u> superimposed *loads* required by Chapter 16.

Reason: ASCE 7-22 introduced Chapter 32 Tornado Loads and related provisions in Chapter 1 General, Chapter 2 Combination of Loads, and Chapter 26 Wind Loads: General Requirements. While IBC 2024 generally adopted the new ASCE 7-22 provisions, several sections of IBC 2024 do not adequately clarify the tornado design requirements. The proposal includes the clarifications to IBC 2024 Chapter 14 (Section 1402.3) explicitly referencing tornado resistance in addition to wind resistance. The proposed clarification aligns with Section 1609.6.1 for roof decks.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposed IBC code changes are generally editorial clarifications that improve the thoroughness of IBC for alignment to the introduction of tornado loads in ASCE 7-22 and IBC 2024.

FS1-25

FS2-25

IBC: [BS] 1402.3

Proponents: Theresa Weston, The Holt Weston Consultancy, representing Rainscreen Association in North America (holtweston88@gmail.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1402.3 ~~Wind~~ Load resistance. *Exterior walls*, exterior wall coverings, exterior soffits and fascias, and the associated openings, shall be designed and constructed to resist safely the superimposed *loads* required by Chapter 16.

Reason: This proposal updates the title of the section to reflect that loads, not confined to wind, are covered under the section and Chapter 16. The section references the defined term "loads" which is defined as "forces or other actions that result from the weight of *building* materials, occupants and their possessions, environmental effects, differential movement and restrained dimensional changes."

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This updates a section title and does not change any technical requirements.

FS2-25

FS3-25

IBC: [BS] 1404.5

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1404.5 Fastening. Exterior wall coverings shall be securely fastened with corrosion-resistant fasteners in accordance with this code or the *approved* manufacturer's instructions. Fastening of claddings or furring through foam plastic insulating sheathing shall comply with Section 1404.5.1, 1404.5.2 or 1404.5.3, as applicable<u>, or Chapter 4 of ANSI/ABTG FS200.1</u>.

Reason: This proposal adds an ANSI consensus standard, FS200.1, which includes design, testing, and prescriptive requirements for attachment of cladding through foam plastic insulating sheathing. It is the basis for the prescriptive fastening provisions that are currently in Sections 1404.5.1, 1404.5.2, and 1404.5.3 of the code. It provides additional options that can be used by designers and manufacturers to properly evaluate or design attachment solutions consistent with the provisions in the code. The standard is available as a free download at: https://www.appliedbuildingtech.com/standards

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0.

Estimated Immediate Cost Impact Justification (methodology and variables):

This standard is consistent with current code but adds additional options for designers and manufacturers and would tend to have a cost decrease that is difficult to quantify or forecast. Thus, it will support alternative equivalent solutions which would have the general effect of reducing cost of compliance by providing more options.

Estimated Life Cycle Cost Impact:

Life cycle cost impact is not applicable to this proposal.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Life cycle cost impact is not applicable to this proposal. However, it is expected that this proposal would have no change to the life-cycle cost in comparison to the equivalent solutions currently in the code.

Staff analysis: FS115-24 was AS and is now on the consent agenda. That proposal included the new standard ANSI/ABTG FS200.1 – 2022

FS3-25

FS4-25

IBC: [BS] 1404.5, TABLE 1404.5 (New)

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1404.5 Fastening. Exterior wall coverings shall be securely fastened to the wall structure with corrosion-resistant fasteners in accordance with this code or the *approved* manufacturer's instructions. Fastening of claddings or furring through foam plastic insulating sheathing shall comply with Section 1404.5.1, 1404.5.2 or 1404.5.3, as applicable. Where the components and cladding allowable stress wind load determined in accordance with Section 1609 is not greater than 30 psf (negative pressure), siding shall be permitted to be fastened to minimum 7/16-inch (11 mm) wood structural panel sheathing in accordance with the siding manufacturer's installation instructions, Table 1404.5, or an *approved* design.

Add new text as follows:

TABLE 1404.5 OPTIONAL CLADDING ATTACHMENT SCHEDULE FOR FASTENER INTO MINIMUM 7/16-IN-THICK WOOD STRUCTURAL PANEL SHEATHING

APPLICATION	NUMBER AND TYPE OF FASTENER	SPACING OF FASTENERS[b]
Exterior wall covering (weighing 3 psf or less) attachment to wood structural panel sheathing, either direct or over foam sheathing a maximum of 2 inches thick.[a] Note: Does not apply to vertical siding.	Ring shank roofing nail (0.120" min. dia.)	12" o.c.
	Ring shank nail (0.148" min. dia.)	15" o.c.
	No. 6 screw (0.128" min. dia.)	12" o.c.
	No. 8 screw (0.164" min. dia.)	16" o.c.

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.479 kPa

a. Fastener length shall be sufficient to penetrate the back side of the wood structural panel by at least 1/4 inch. The wood structural panel sheathing shall be not less than 7/16 inch in thickness.

b. Spacing of fasteners is per 12 inches of siding width. For other siding widths, multiply "Spacing of Fasteners" above by a factor of 12/s, where "s" is the siding width in inches. Fastener spacing shall never be greater than the manufacturer's minimum recommendations.

Reason: This proposal coordinates the IBC with a siding/cladding attachment option in the IRC (Section R703.3.3 and Table R703.3.3). The attachment options in proposed Table 1404.5 are limited to an ASD components and cladding wind load of 30 psf which is the limit of the IRC cladding connection provisions. Other solutions are permitted, such as manufacturer installation instructions or an approved design. This cladding attachment method provides a simple and robust means for installation of light-weight (less than 3 psf) exterior wall coverings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is providing an additional option and therefore does not change existing requirements in the code. In some cases, this option could result in a cost decrease but the purpose of this proposal is merely to add an option that is currently also an option in the IRC.

FS5-25

IBC: [BS]TABLE 1404.5.2.1, [BS]TABLE 1404.5.2.2, [BS]TABLE 1404.5.3.1, [BS]TABLE 1404.5.3.2

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS]TABLE 1404.5.2.1 CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

CLADDING FASTENER THROUGH FOAM SHEATHING INTO:	CLADDING FASTENER TYPE AND MINIMUM SIZE[b]	CLADDING FASTENER VERTICAL SPACING (inches)[d]	MAXIMUM THICKNESS OF FOAM SHEATHING[c] (inches)							
			16″ o.c. fastener horizontal spacing				24″ o.c. fastener horizontal spacing			
			Cladding weight[e]				Cladding weight[e]			
			3 psf	11 psf	18 psf	25 psf	3 psf	11 psf	18 psf	25 psf
Cold-formed steel framing (minimum penetration of steel thickness plus 3 threads)	#8 screw into 33 mil steel or thicker	6	3.00	2.95	2.20	1.45	3.00	2.35	1.25	DR
		8	3.00	2.55	1.60	0.60	3.00	1.80	DR	DR
		12	3.00	1.80	DR	DR	3.00	0.65	DR	DR
	#10 screw into 33 mil steel	6	4.00	3.50	2.70	1.95	4.00	2.90	1.70	0.55
		8	4.00	3.10	2.05	1.00	4.00	2.25	0.70	DR
		12	4.00	2.25	0.70	DR	3.70	1.05	DR	DR
	#10 screw into 43 mil steel or thicker	6	4.00	4.00	4.00	3.60	4.00	4.00	3.45	2.70
		8	4.00	4.00	3.70	3.00	4.00	3.85	2.80	1.80
		12	4.00	3.85	2.80	1.80	4.00	3.05	1.50	DR

For SI: 1 inch = 25.4 mm, 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = design required, o.c. = on center.

a. Cold-formed steel framing shall be minimum 33 ksi steel for 33 mil and 43 mil steel and 50 ksi steel for 54 mil steel or thicker.

b. Screws shall comply with the requirements of AISI S240.

c. Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

d. Fastener vertical spacing is an average spacing associated with the following fastener count per foot: 6 inch spacing is associated with 2 fasteners per foot; 8 inch spacing is associated with 1.5 fasteners per foot, and 12 inch spacing is associated with 1 fastener per foot.

e. Cladding weight is the maximum weight of cladding materials to the exterior side of the foam plastic insulating sheathing in pounds per square foot of wall area. The 3 psf category typically applies to panel and lap siding materials; the 11 psf category typically applies to conventional 3-coat stucco of nominal 7/8-inch thickness; and 15 psf to 25 psf categories typically apply to adhered masonry veneers.

[BS] TABLE 1404.5.2.2 FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

FURRING MATERIAL	FRAMING MEMBER	FASTENER TYPE AND MINIMUM SIZE[b]	MINIMUM PENETRATION INTO WALL FRAMING (inches)	FASTENER SPACING IN FURRING (inches)	MAXIMUM THICKNESS OF FOAM SHEATHING[d] (inches)							
					16″ o.c. furring[e]				24″ o.c. furring[e]			
					Cladding weight[f]				Cladding weight[f]			
					3 psf	11 psf	18 psf	25 psf	3 psf	11 psf	18 psf	25 psf
				12	3.00	1.80	DR	DR	3.00	0.65	DR	DR

FURRING MATERIAL	FRAMING MEMBER	FASTENER TYPE AND MINIMUM SIZE	MINIMUM PENETRATION INTO WALL FRAMING (inches)	FASTENER SPACING IN FURRING (inches)	MAXIMUM THICKNESS OF FOAM SHEATHING (inches)							
					16″ o.c. furring				24″ o.c. furring			
					Cladding weight				Cladding weight			
					3 psf	11 psf	18 psf	25 psf	3 psf	11 psf	18 psf	25 psf
Minimum 33 mil steel furring or minimum 1x wood furring[c]	33 mil cold-formed steel stud	#8 screw	Steel thickness plus 3 threads	16	3.00	1.00	DR	DR	2.85	DR	DR	DR
				24	2.85	DR	DR	DR	2.20	DR	DR	DR
		#10 screw	Steel thickness plus 3 threads	12	4.00	2.25	0.70	DR	3.70	1.05	DR	DR
				16	3.85	1.45	DR	DR	3.40	DR	DR	DR
				24	3.40	DR	DR	DR	2.70	DR	DR	DR
	43 mil or thicker cold-formed steel stud	#8 Screw	Steel thickness plus 3 threads	12	3.00	1.80	DR	DR	3.00	0.65	DR	DR
				16	3.00	1.00	DR	DR	2.85	DR	DR	DR
				24	2.85	DR	DR	DR	2.20	DR	DR	DR
		#10 screw	Steel thickness plus 3 threads	12	4.00	3.85	2.80	1.80	4.00	3.05	1.50	DR
				16	4.00	3.30	1.95	0.60	4.00	2.25	DR	DR
				24	4.00	2.25	DR	DR	4.00	0.65	DR	DR

For SI: 1 inch = 25.4 mm, 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = Design Required, o.c. = on center.

a. Wood furring shall be spruce-pine-fir or any softwood species with a specific gravity of 0.42 or greater. Steel furring shall be minimum 33 ksi steel. Cold-formed steel studs shall be minimum 33 ksi steel for 33 mil and 43 mil thickness and 50 ksi steel for 54 mil steel or thicker.

b. Screws shall comply with the requirements of AISI S240.

c. Where the required cladding fastener penetration into wood material exceeds $^{3}/_{4}$ inch and is not more than $1^{1}/_{2}$ inches, a minimum 2-inch nominal wood furring or an approved design shall be used.

d. Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

e. Furring shall be spaced not more than 24 inches on center, in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

f. Cladding weight is the maximum weight of cladding materials to the exterior side of the foam plastic insulating sheathing in pounds per square foot of wall area. The 3 psf category typically applies to panel and lap siding materials; the 11 psf category typically applies to conventional 3-coat stucco of nominal 7/8-inch thickness; and 15 psf to 25 psf categories typically apply to adhered masonry veneers.

[BS] TABLE 1404.5.3.1 CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

CLADDING FASTENER THROUGH FOAM SHEATHING INTO:	CLADDING FASTENER TYPE AND MINIMUM SIZE[c]	CLADDING FASTENER VERTICAL SPACING (INCHES)[d]	MAXIMUM THICKNESS OF FOAM SHEATHING[e]~~[d]~~ (INCHES)							
			16″ o.c. fastener horizontal spacing				24″ o.c. fastener horizontal spacing			
			Cladding weight~~:~~[f]				Cladding weight~~:~~[f]			
			3 psf	11 psf	18 psf	25 psf	3 psf	11 psf	18 psf	25 psf
Wood Framing (minimum $1^{1}/_{4}$- inch penetration)[b]	0.113" diameter nail	6	2.00	1.45	0.75	DR	2.00	0.85	DR	DR
		8	2.00	1.00	DR	DR	2.00	0.55	DR	DR
		12	2.00	0.55	DR	DR	1.85	DR	DR	DR
	0.120" diameter nail	6	3.00	1.70	0.90	0.55	3.00	1.05	0.50	DR
		8	3.00	1.20	0.60	DR	3.00	0.70	DR	DR
		12	3.00	0.70	DR	DR	2.15	DR	DR	DR
	0.131" diameter nail	6	4.00	2.15	1.20	0.75	4.00	1.35	0.70	DR
		8	4.00	1.55	0.80	DR	4.00	0.90	DR	DR
		12	4.00	0.90	DR	DR	2.70	0.50	DR	DR
		6	4.00	3.55	2.05	1.40	4.00	2.25	1.25	0.80
		8	4.00	2.55	1.45	0.95	4.00	1.60	0.85	0.50

CLADDING FASTENER THROUGH FOAM SHEATHING INTO:	0.162" diameter nail CLADDING FASTENER TYPE AND MINIMUM SIZE	CLADDING FASTENER VERTICAL SPACING (INCHES)	MAXIMUM THICKNESS OF FOAM SHEATHING (INCHES)							
			16″ o.c. fastener horizontal spacing				24″ o.c. fastener horizontal spacing			
			Cladding weight:				Cladding weight:			
			3 psf	11 psf	18 psf	25 psf	3 psf	11 psf	18 psf	25 psf
		12	4.00	1.60	0.85	0.50	4.00	0.95	DR	DR

For SI: 1 inch = 25.4 mm, 1 pound per square foot (psf) = 0.0479 kPa.

DR = Design Required, o.c. = on center.

a. Wood framing shall be spruce-pine-fir or any wood species with a specific gravity of 0.42 or greater in accordance with ANSI/AWC NDS.

b. The thickness of *wood structural panels* complying with the specific gravity requirement of Note a shall be permitted to be included in satisfying the minimum penetration into framing.

c. Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

d. Fastener vertical spacing is an average spacing associated with the following fastener count per foot: 6 inch spacing is associated with 2 fasteners per foot, 8 inch spacing is associated with 1.5 fasteners per foot, and 12 inch spacing is associated with 1 fastener per foot.

e. ~~d.~~ Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C578 or ASTM C1289.

f. Cladding weight is the maximum weight of cladding materials to the exterior side of the foam plastic insulating sheathing in pounds per square foot of wall area. The 3psf category typically applies to panel and lap siding materials; the 11 psf category typically applies to conventional 3-coat stucco of nominal 7/8-inch thickness; and 15 psf to 25 psf categories typically apply to adhered masonry veneer.

[BS] TABLE 1404.5.3.2 FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a, b]

FURRING MATERIAL	FRAMING MEMBER	FASTENER TYPE AND MINIMUM SIZE	MINIMUM PENETRATION INTO WALL FRAMING (INCHES) [c]	FASTENER SPACING IN FURRING (INCHES)	MAXIMUM THICKNESS OF FOAM SHEATHING[e] (INCHES)							
					16″ o.c. furring [f]				24″ o.c. furring [f]			
					Siding weight:[g]				Siding weight:[g]			
					3 psf	11 psf	18 psf	25 psf	3 psf	11 psf	18 psf	25 psf
Minimum 1x Wood Furring [d]	Minimum 2x Wood Stud	0.131" diameter nail	$1^1/_4$	8	4.00	2.45	1.45	0.95	4.00	1.60	0.85	DR
				12	4.00	1.60	0.85	DR	4.00	0.95	DR	DR
				16	4.00	1.10	DR	DR	3.05	0.60	DR	DR
		0.162" diameter nail	$1^1/_4$	8	4.00	4.00	2.45	1.60	4.00	2.75	1.45	0.85
				12	4.00	2.75	1.45	0.85	4.00	1.65	0.75	DR
				16	4.00	1.90	0.95	DR	4.00	1.05	DR	DR
		No. 10 wood screw	1	12	4.00	2.30	1.20	0.70	4.00	1.40	0.60	DR
				16	4.00	1.65	0.75	DR	4.00	0.90	DR	DR
				24	4.00	0.90	DR	DR	2.85	DR	DR	DR
		$^1/_4$" lag screw	$1^1/_2$	12	4.00	2.65	1.50	0.90	4.00	1.65	0.80	DR
				16	4.00	1.95	0.95	0.50	4.00	1.10	DR	DR
				24	4.00	1.10	DR	DR	3.25	0.50	DR	DR

For SI: 1 inch = 25.4 mm, 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = Design Required, o.c. = on center.

a. Wood framing and furring shall be spruce-pine-fir or any wood species with a specific gravity of 0.42 or greater in accordance with ANSI/AWC NDS.

b. Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

c. The thickness of *wood structural panels* complying with the specific gravity requirements of Note a shall be permitted to be included in satisfying the minimum required penetration into framing.

d. Where the required cladding fastener penetration into wood material exceeds $^{3}/_{4}$ inch and is not more than $1^{1}/_{2}$ inches, a minimum 2-inch nominal wood furring or an *approved* design shall be used.

e. Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C578 or ASTM C1289.

f. Furring shall be spaced not greater than 24 inches on center in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

g. Cladding weight is the maximum weight of cladding materials to the exterior side of the foam plastic insulating sheathing. The 3 psf category typically applies to panel or lap siding materials; the 11 psf category typically applies to conventional 3-coat stucco of nominal 7/8-inch thickness; and 15 psf to 25 psf categories typically apply to adhered masonry veneers.

Reason: This proposal coordinates with the exterior wall covering weight and fastener spacing explanations added as footnotes to the identical tables found in IRC Section R703. A cladding manufacturer requested this additional information to better explain the basis of the table fastening schedules to avoid mis-interpretation or mis-application. This information will help users of the code properly apply the tables and also address fastening schedules that may vary in spacing or arrangement for different cladding types.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal clarifies application of the table and does not change requirements. Therefore, there is no cost impact.

FS5-25

FS6-25

IBC: [BS] 1404.11, [BS] 1404.11.1, ASTM Chapter 35 (New)

Proponents: Nicholas Lang, representing Concrete Masonry & Hardscapes Association (nlang@masonryandhardscapes.org); Charles Clark Jr, representing Brick Industry Association (cclark@bia.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1404.11 Adhered masonry veneer. *Adhered masonry veneer* shall comply with the applicable requirements in this section and Sections 13.1 and 13.3 ~~13.2~~ of TMS 402.

[BS] 1404.11.1 Exterior adhered masonry veneer. Exterior *adhered masonry veneer* shall be installed in accordance with one of the following: ~~Section 1404.11 and the manufacturer's instructions.~~

1. Section 1404.11
2. Article 3.3D of TMS 602
3. For concrete masonry or manufactured stone veneer units, ASTM C1780.
4. For clay or shale masonry units, ASTM C1935.
5. Manufacturer's instructions.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

C1780-24	Standard Practice for Installation Methods for Cement-based Adhered Masonry Veneer
C1935-24	Standard Practice for Installation Methods for Adhered Veneer Systems Using Thin Brick Units Made from Clay or Shale

Reason: This ballot proposes to add new options for installation of adhered masonry veneer. The first proposed option is Section 1404.11. This option currently exists, as such, no change is proposed. The second option is Article 3.3D of TMS 602. This option is applicable to all veneer types, and is already included as an installation option in the IRC. The third option is ASTM C1780, which is a consensus standard for installation of adhered masonry veneers where the units are cement based. In particular, this option is applicable to concrete masonry and manufactured stone veneer masonry units. The fourth option is ASTM C1935, which is a consensus standard for installation of adhered masonry veneers where the units are made of clay or shale. The fifth option is manufacturer's instructions. This option currently exists, as such, no change is proposed.

ASTM C1780 and ASTM C1935 have been developed by ASTM Committee C15 on Masonry. They include specific sets of installation information for the applicable units, and are valuable resources to installers. The addition of these standards will improve the quality of adhered veneer installations, and provide important information to installers of adhered veneers. These standards have also been aligned with requirements of TMS 602 to provide consistency across standards.

Finally, the pointer to the relevant sections of TMS 402 for design criteria in 1404.11 is being corrected. Adhered masonry veneers are covered in Sections 13.1 and 13.3. The reference to 13.2 is erroneous and requires correction.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change provides additional options for the installer. The requirements of both new reference standards are aligned with the IBC and TMS 602, so application of those would not impact construction cost.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTMC1780-24 Standard Practice for Installation Methods for Cement-based Adhered Masonry Veneer
ASTMC1935-24 Standard Practice for Installation Methods for Adhered Veneer Systems Using Thin Brick Units Made from Clay or Shale

FS6-25

FS7-25

IBC: [BS] 1404.11.3, [BS] 1404.11.2, TCNA (New)

Proponents: Brian Trimble, representing International Masonry Institute (btrimble@imiweb.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] ~~1404.11.3~~ 1404.11.2 Interior adhered masonry veneers. Interior *adhered masonry veneers* shall have a maximum weight of 20 psf (0.958 kg/m^2) and shall be installed in accordance with Section 1404.11. Where the interior *adhered masonry veneer* is supported by wood construction, the supporting members shall be designed to limit deflection to $^1/_{600}$ of the span of the supporting members.

[BS] ~~1404.11.2~~ 1404.12 Exterior adhered ~~masonry veneers -~~ porcelain tile. Adhered units weighing more than 3.5 pounds per square foot (0.17 kN/m^2) shall not exceed 48 inches (1219 mm) in any face dimension nor more than 9 square feet (0.8 m^2) in total face area and shall not weigh more than 6 pounds per square foot (0.29 kN/m^2). Adhered units weighing less than or equal to 3.5 pounds per square foot (0.17 kN/m^2) shall not exceed 72 inches (1829 mm) in any face dimension nor more than 17.5 square feet (1.6 m^2) in total face area. *Porcelain tile* shall be adhered to an *approved backing* system and installed in accordance with ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.5, or ANSI A108.20 (See TCNA).

Add new standard(s) as follows:

TCNA

Tile Council-North America Inc
100 Clemson Research Blvd
Anderson, SC 29625
USA

A108.1C-2021	Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement Mortar
A108.20-2021	Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs 2023 TCNA Handbook for Ceramic, Glass, and Stone Tile Installation

Reason: Porcelain tile is a ceramic tile material and should not be required to comply with TMS 402 "Building Code Requirements for Masonry Structures" which covers clay, concrete and stone masonry units. Since porcelain tile is found within Section 1404.11.2, it would be required to conform to all of Section 1404.11 requirements which invoke TMS 402, which is not correct. As defined by the Code, porcelain tile is addressed by ANSI A137.1:2022 "American National Standards Specifications for Ceramic Tile" and ANSI A137.3 "American National Standard Specifications for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs." Standards for the installation of porcelain tile on exterior walls that accompany these ANSI specifications include ANSI A108.1A "Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar," ANSI A108.1B "Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar," ANSI A108.1C "Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement Mortar," ANSI A108.5 "Setting of Ceramic Tile with Dry-Set Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Mortar," and A108.20 "Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs" and not by TMS 402. By moving porcelain tile to its own separate section, the installation requirements of TMS 402 will not apply since they are different than those found in the ANSI standards relevant to porcelain tile.

The section on interior adhered veneer masonry veneers has been moved up to follow directly after exterior adhered masonry veneer with the new number of 1404.11.2. The section on porcelain tile would follow that section with its own section number of 1404.12. Current Sections 1404.12 through the 1404.19 would have to be renumbered along with any references to those sections.

Bibliography: ANSI A137.1:2022 "American National Standards Specifications for Ceramic Tile"

ANSI A137.3:2022 "American National Standard Specifications for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs."

ANSI A108.1A:2021 "Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar"

ANSI A108.1B:2021 "Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar"

ANSI A108.1C:2021 "Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement Mortar"

ANSI A108.5"2021 "Setting of Ceramic Tile with Dry-Set Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Mortar"

ANSI A108.20:2021 "Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs 2023 TCNA Handbook for Ceramic, Glass, and Stone Tile Installation"

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a rearrangement of sections with reference to appropriate ANSI standards and does not have a cost impact.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
TCNA ANSIA108.1C-2021 Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement Mortar
TCNA ANSIA108.20-2021 Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs 2023 TCNA Handbook for Ceramic, Glass, and Stone Tile Installation

TCNA ANSI A108.1A, ANSI A108.1B, and ANSI A108.5 are currently referenced in the IBC. They are in Chapter 35 under ANSI.

FS7-25

FS8-25

IBC: [BS] 1404.15, [BS] 1404.15.2

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1404.15 Vinyl siding, backed vinyl siding, and insulated vinyl siding. *Vinyl siding*, backed vinyl siding, and insulated *vinyl siding* conforming to the requirements of this section and complying with ASTM D3679, ASTM D7445, and ASTM D7793, respectively, shall be permitted on *exterior walls* where the design wind pressure determined in accordance with Section 1609 does not exceed 30 pounds per square foot (1.44 kN/m^2). Where the design wind pressure exceeds 30 pounds per square foot (1.44 kN/m^2), tests or calculations indicating compliance with Chapter 16 shall be submitted.

[BS] 1404.15.2 Installation over foam plastic insulating sheathing. Where *vinyl siding*, backed vinyl siding, or insulated *vinyl siding* is installed over foam plastic insulating sheathing, the *vinyl siding* or insulated *vinyl siding* shall comply with Section 1404.15 and shall have a wind load design pressure rating in accordance with Table 1404.15.2.

Exceptions:

3. Where the foam plastic insulating sheathing and its attachment has a design wind pressure resistance complying with Sections 1609 and 2603.10, the ~~*vinyl siding* or insulated *vinyl*~~ siding shall be installed in accordance with Section 1404.15.1.
2. Where the ~~*vinyl siding* or insulated *vinyl*~~ siding manufacturer's product specifications provide an *approved* wind load design pressure rating for installation over foam plastic insulating sheathing, use of this wind load design pressure rating shall be permitted and the siding shall be installed in accordance with the manufacturer's installation instructions.
1. Where the foam plastic insulating sheathing is applied directly over *wood structural panels*, *fiberboard*, *gypsum sheathing* or other *approved backing* capable of independently resisting the design wind pressure, the ~~*vinyl siding* or insulated *vinyl*~~ siding shall be installed in accordance with Section 1404.15.1.

Reason: This change provides direction on the requirements for the installation of backed siding, as it is the same as vinyl and insulated vinyl siding. The material standard was added during the Group A cycle. The change also makes small edits to clean up and remove unnecessary words in relevant sections.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This changes simply provides installation requirements for backed siding if it is chosen, it does not add any additional requirements that would add cost.

Staff Analysis: FS111-24 was AMC1 and is now on the consent agenda. That proposal included the new standard ASTM D7445-24 and a new defintion for 'backed vinyl siding.'

FS8-25

FS9-25

IBC: [BS] 1404.15.1, [BS] 1404.18.1

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

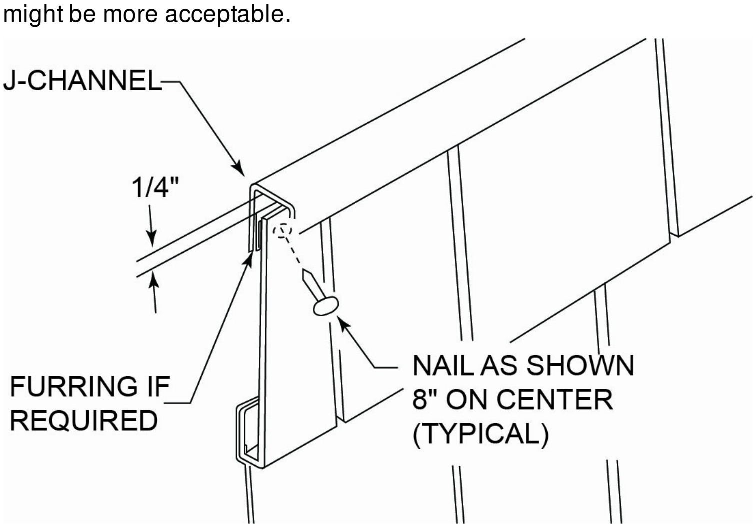
[BS] 1404.15.1 Application. The siding shall be applied over sheathing or materials listed in Section 2304.6. Siding shall be applied to conform to the *water-resistive barrier* requirements in Section 1402. Siding and accessories shall be installed in accordance with the approved manufacturer's instructions <u>and the following:</u>

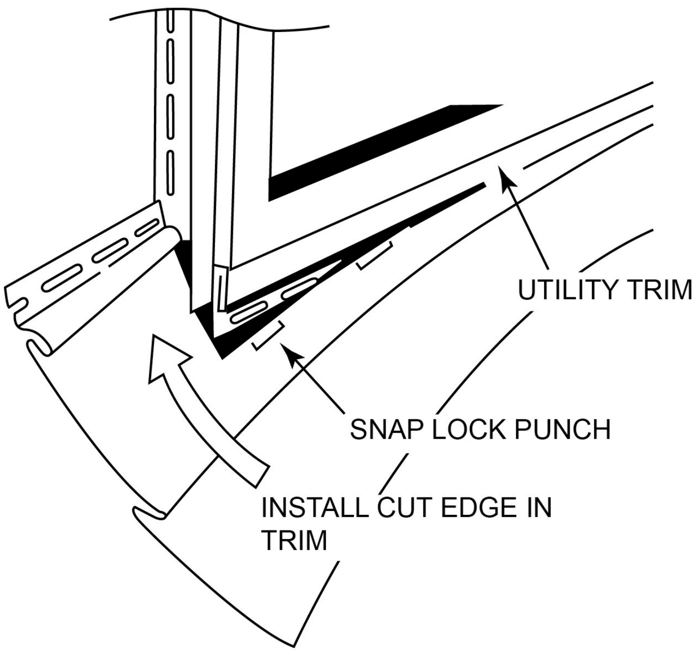
1. <u>Horizontal siding shall be installed with a starter strip at the initial course at any location.</u>
2. <u>Under windows, and at the top of walls, utility trim shall be used with snap locks.</u>

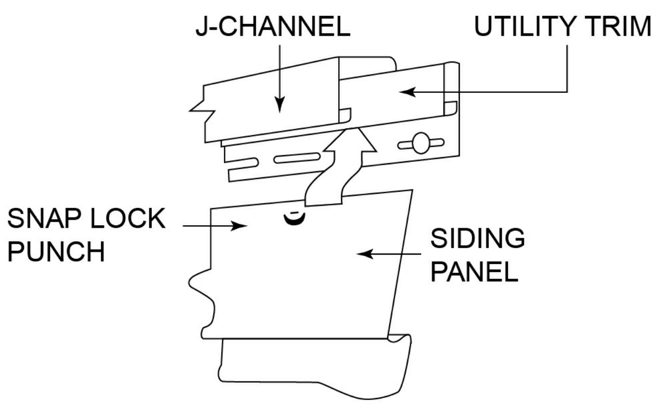
[BS] 1404.18.1 Installation. *Polypropylene siding* and accessories shall be installed over and attached to *wood structural panel sheathing* with *nailable substrate* not less than $^7/_{16}$ inch (11.1 mm) in thickness or other substrate suitable for mechanical fasteners in accordance with the approved manufacturer's instructions <u>and the following:</u>

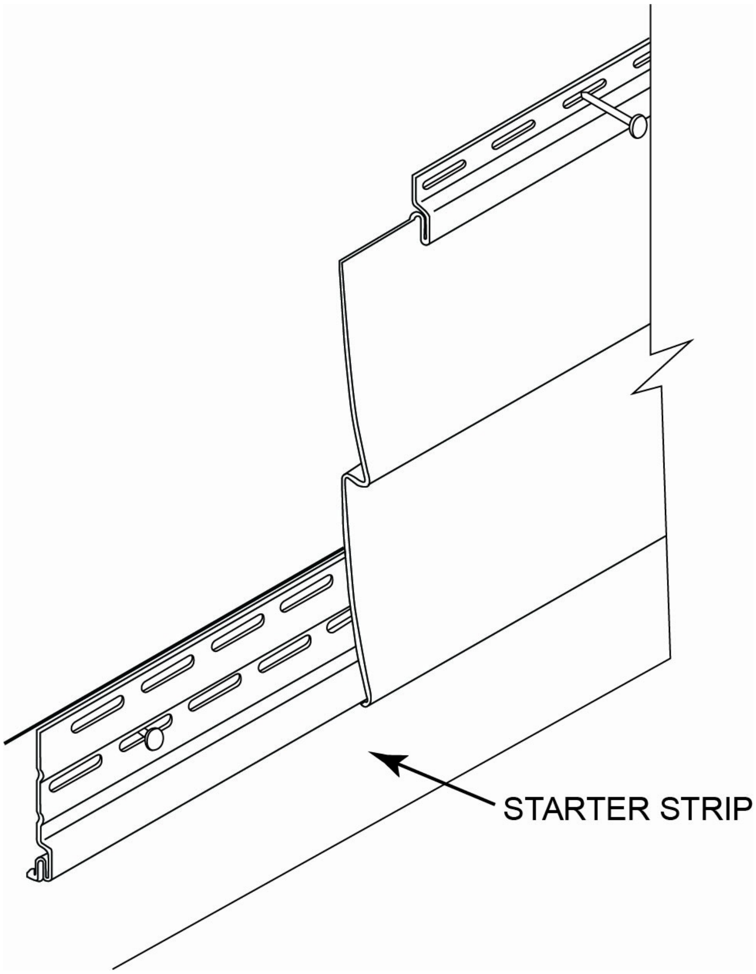
1. <u>Horizontal siding shall be installed with a starter strip at the initial course at any location.</u>
2. <u>Where nail hem is removed for application under windows and top of walls, nail slot punch or pre-drilled holes shall be constructed for the fasteners.</u>

Reason: This change provides critical installation point requirement, that ensure system performance. These areas have been noted in the field as missing in some cases. By adding them, the code will require these specific connection points and by do so doing create more durable structures.Below are the drawings adopted by the IRC and also adopted by the Florida Residential Code. These drawings could be offered as part of the proposal as well, but based on input from the committee last year, I thought starting with simple language might be more acceptable.




UTILITY TRIM
SNAP LOCK PUNCH
INSTALL CUT EDGE IN TRIM


J-CHANNEL
UTILITY TRIM
SNAP LOCK PUNCH
SIDING PANEL



Cost Impact: Increase

Estimated Immediate Cost Impact:

This change literally will add cost, however it is a requirement by the industry and manufacturers instructions, so if the siding is installed properly it will include these components.

Estimated Immediate Cost Impact Justification (methodology and variables):

Since the these items are already require by industry standards and manufacturers installation instructions, their added cost is critical to the systems performance.

The added costs for and average 20 square house, based on industry cost information.

Starter Strip

160 lf material - $30

Labor to install $80

Utility Trim

260 lf material $40

Labor to install $120

Total added cost of change on an average house approximately. $270

However, it is worth noting all manufacturer installation instructions require this, so correct installations will include these components as part of the system. In other words, these components should already be used as it is generally required by the code already through the manufacturer installation instruction default.

FS10-25

IBC: [BS] 1404.15.1, [BS] 1404.15.1.1, [BS] 1404.15.1.2, [BS] 1404.15.1.3, TABLE 1404.15.1 (New)

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1404.15.1 Application. The siding shall be applied over sheathing or materials listed in Section 2304.6. Siding shall be applied to conform to the *water-resistive barrier* requirements in Section 1402. Siding and accessories shall be installed in accordance with the approved manufacturer's instructions. Fasteners for vinyl siding, backed vinyl siding and insulated vinyl siding shall comply with Table 1404.15.1.

Delete without substitution:

~~**[BS] 1404.15.1.1 Fasteners and fastener penetration for wood construction.** Unless otherwise specified in the approved manufacturer's instructions, nails used to fasten the siding and accessories shall be corrosion resistant and have not less than a 0.313-inch (7.9 mm) head diameter and $^{1}/_{8}$-inch (3.18 mm) shank diameter. The penetration into *nailable substrate* shall be not less than 1$^{1}/_{4}$ inches (32 mm).~~

Revise as follows:

[BS] ~~1404.15.1.2~~ 1404.15.1.1 Fasteners and fastener penetration for cold-formed steel light-fame construction. For cold-formed steel light-frame construction, corrosion-resistant fasteners shall be used. Screw fasteners shall penetrate through the steel with not fewer than three exposed threads. Other fasteners shall be installed in accordance with the *approved construction documents* and manufacturer's instructions.

Delete without substitution:

~~**[BS] 1404.15.1.3 Fastener spacing.** Unless specified otherwise by the approved manufacturer's instructions, fasteners shall be installed in the middle third of the slots of the nail hem and spacing between fasteners shall be not greater than 16 inches (406 mm) for horizontal siding and 12 inches (305 mm) for vertical siding.~~

Add new text as follows:

TABLE 1404.15.1 PRESCRIPTIVE FASTENER REQUIREMENTS FOR VINYL SIDING, BACKED VINYL SIDING, AND INSULATED VINYL SIDING

GENERAL			
Fastner[a]	**Substrate[b]**	**Penetration depth[c]**	**Spacing**
Smooth shank nail, not less than 0.120" nail shank with 0.313(5/16)" head or 16 gage staple with 3/8 to 1/2 inch crown	Nailable Subtrate	Not less than 1-1/4"	Horizontal siding - not greater than 16-inches on center
Ring shank nail, not less than 0.120" shank with 0.313(5/16)" head	min. 7/16" nailable substrate	Through substrate plus a minimum of 1/4" through	Horizontal siding - not greater than 12-inches on center
Ring shank nail, not less than 0.120" shank with 0.313(5/16)" head	> 15/32" thick nailable substrate	Through substrate plus a minimum of 1/4" through	Horizontal siding - not greater than 16-inches on center

Either smooth shank or ring shank (as specified above)	min. 7/16" nailable substrate	Through substrate plus a minimum of 1/4" through	Vertical siding - Not greater than 12-inches on center each way
Ring shank nail, not less than 0.120" shank with 0.313(5/16)" head or screw not less than 0.138 shank with a .423" truss or pan head	min. 3/4" thick wood furring	Into furring 3/4"	Horizontal sidng - Not greater than 12-inches on center
24-INCH O.C. FRAMING (For 20 psf or less settings design wind pressure)[d]			
Fastner[a]	**Substrate[b]**	**Penetration depth[c]**	**Spacing**
All fastener types	Nailable subtrate	1-1/4"	Horizontal siding - Not greater than 24-inches on cente

For SI: 1 inch=25.4 mm

a. Fasteners shall comply with ASTM F1667

b. Wood framing and furring shall have a minimum specific gravity of 0.42. Other nailable substrates with equal or greater fastener withdrawal performance shall also be permitted. Where fiberboard, gypsum, foam plastic or other non-nailable substrate is use, fasteners must go into studs or other form of nailable substrate.

c. The total thickness of wood structural panel, wood furring, and other nailable substrates shall be satisfying the required penetration depth.

d. For 0.120 inch roofing nail only, 24 inches on center fastener spacing for horizontal siding shall be permitted where the allowable stress design wind pressure is 20 psf or less in accordance with Section 1609. Alternatively, it shall be permitted where the mean roof height of the building is 30 feet or less and the design wind speed does not exceed 115 mph for Exposure B or 110 mph Exposure C.

Reason: This change moves away from the long-standing "standard" installation prescription of 16" oc into the stud to a prescriptive table that offers practical fastener alternatives to installation depending on the framing and sheathing patterns. It is based on industry testing using ASTM D5206 and engineering calculations and in short it requires the use of ring shank nails where it's more difficult to hit the stud framing.

In addition in "low wind" areas (a good portion of the country), 20 psf or less where 24" oc framing is used the nailable sheathing is not being used, is provides allowance for this construction method.

This change offers options of installation while addressing trends in construction related to energy efficiency and alternative framing concepts.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This change offers alternatives which could add additional fasteners and ring shank nails vs. smooth shank nail which are more expensive.

Estimated Immediate Cost Impact Justification (methodology and variables):

5lbs of 1 1/4" Roofing Smooth Shank Nails $19

5 lbs of 1 1/4" Roofing Ring Shank Nails $25

Adds about 25% in material costs and potentially additional labor cost.

Estimated additional cost for an average 20 square home is between $50 - $150.

Estimated Life Cycle Cost Impact:

Life cycle costs is not relevant here as the change in fastener type will not impact this issue.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

NA

FS10-25

FS11-25

IBC: [BS] 1404.17.1

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1404.17.1 Panel siding. *Fiber-cement* panels shall comply with the requirements of ASTM C1186, Type A, minimum Grade II (or ISO 8336, Category A, minimum Class 2). Panels shall be installed with the long dimension either parallel or perpendicular to framing. Vertical and horizontal joints shall occur over framing members<u>, furring, *wood structural panel* or other *approved* supporting material</u> and shall be protected with caulking, with battens or flashing, or be vertical or horizontal shiplap or otherwise designed to comply with Section 1402.2. Panel siding shall be installed with fasteners in accordance with the approved manufacturer's instructions.

Reason: This proposal attempts to clarify that means of support and attachment of edges/joints of fiber-cement panels can be achieved by multiple methods, including framing members, but also including furring, wood structural panel, and other means/materials not falling into the above methods, which may or may not require *approval* from the building official or an approved agency.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial in nature, and merely provides clarification that fiber-cement panel products' joints can be supported and attached using methods/materials more than *just* framing members.

FS11-25

FS12-25

IBC: [BS] 1404.17.2

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1404.17.2 Lap siding. *Fiber-cement* lap siding having a maximum width of 12 inches (305 mm) shall comply with the requirements of ASTM C1186, Type A, minimum Grade II (or ISO 8336, Category A, minimum Class 2). Lap siding shall be lapped not less than $1^1/_4$ inches (32 mm) and lap siding not having tongue-and-groove end joints shall have the ends protected with caulking, covered with an H-section joint cover, located over a strip of metal or non-metal flashing or shall be otherwise designed to comply with Section 1402.2. Lap siding courses shall be installed with the fastener heads exposed or concealed in accordance with the approved manufacturer's instructions.

Reason: This proposal is editorial in nature, and aims to provide clarification that the materials listed with the intent to comply with section 1402.2 may be made of metal or non-metal materials and still fulfil the intent of this section. (caulking, H-section joint cover, strip of metal or non-metal flashing, or otherwise designed to comply with Section 1402.2). (prevents the accumulation of water within the exterior wall assembly, and provides a means for draining water to the exterior)

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is simply a clarification that *both* metal and non-metal flashing materials satisfy the intent of 1404.17.2.

FS12-25

FS13-25

IBC: [BS] 1404.18.2

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 1404.18.2 Fastener requirements. Unless otherwise specified in the approved manufacturer's instructions, nails shall be corrosion resistant, with a minimum 0.120-inch (3 mm) shank and a minimum 0.313-inch (8 mm) head diameter. Nails shall be not less than 1 $^{1}/_{4}$ inches (32 mm) long or as necessary to penetrate sheathing or *nailable substrate* not less than $^{3}/_{4}$ inch (19.1 mm). Where the nail fully penetrates the sheathing or *nailable substrate*, the end of the fastener shall extend not less than $^{1}/_{4}$ inch (6.4 mm) beyond the opposite face of the sheathing or *nailable substrate*. ~~Spacing of~~ Fasteners shall be spaced ~~installed~~ in accordance with the ~~approved~~ manufacturer's instructions.

Reason: This is a simple edit of word order, it is more consistent with how the code with written.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Just switching word order.

FS13-25

FS14-25

IBC: 1404.14.2 (New), FIGURE 1404.14.2(1) (New)

Proponents: Craig Drumheller, representing WDMA (cdrumheller@wdma.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Add new text as follows:

1404.14.2 Door systems with a Limited Water (LW) Rating. Door systems *labeled* with a Limited Water (LW) rating as specified in AAMA/WDMA/CSA 101/I.S.2/A440 shall require additional water exposure protection by an overhang with an OH Ratio greater than or equal to 1.0, approval by a *registered design professional*, or by other *approved* methods. The OH Ratio, as depicted in Figure 1404.14.2(1), shall be determined in accordance with the following equation:OH Ratio = OH Length/OH HeightWhere:OH Length = The minimum horizontal projection of the permanent overhang measured from the nearest portion of the door face. OH Height = The maximum vertical distance from the elevation of the bottom of the door to the underside of the outer edge of the permanent overhang over the door.

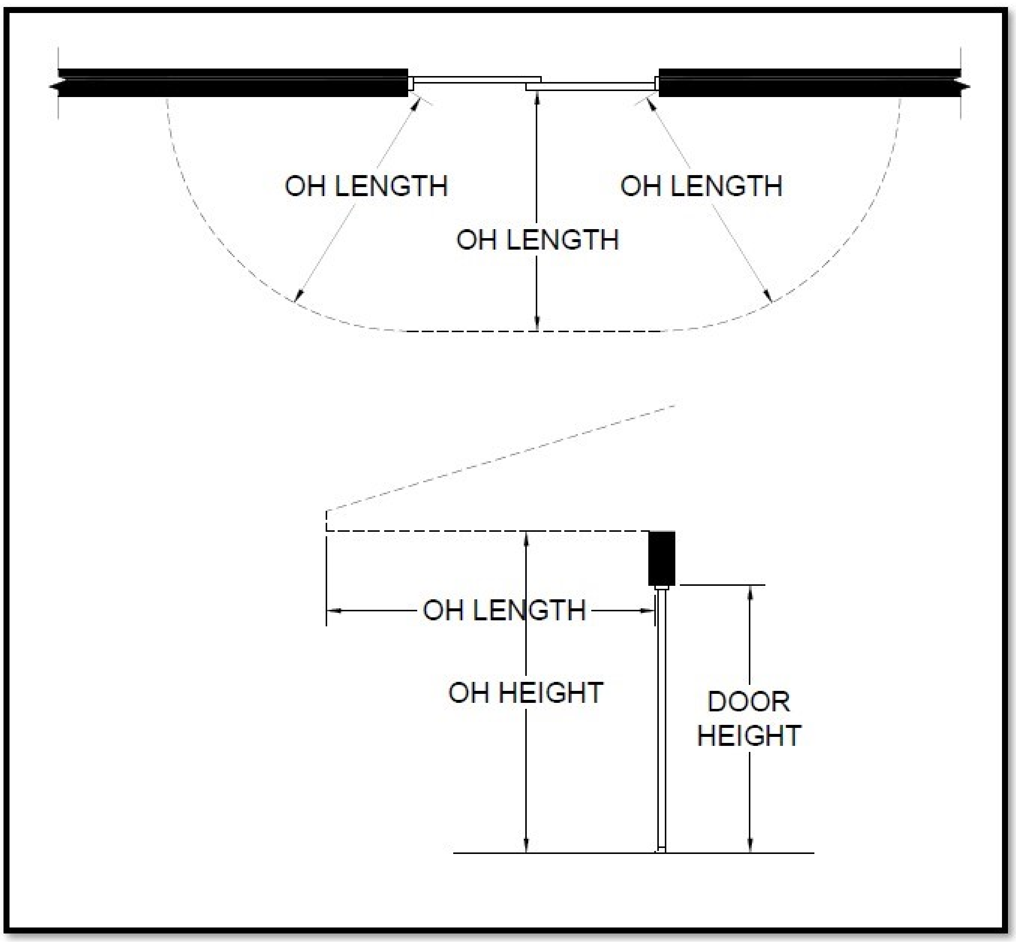


FIGURE 1404.14.2(1) OVERHANG RATIO

Reason: The proposed code change introduces a requirement for doors labeled with a Limited Water (LW) rating under standard AAMA/WDMA/CSA 101/I.S.2/A440 (NAFS). The Limited Water (LW) designation specifies products intended for use in locations where adequate protection from water exposure is provided. Currently, the code has no additional requirements for LW-rated windows as the NAFS standard recommends. This proposal seeks to integrate this designation into the building code with clear door overhang criteria, thereby reducing the ambiguity of the LW designation and ensuring consistency with industry intent.

WDMA members have determined that an overhang-to-height ratio of 1.0 offers adequate protection against wind-driven rain for LW-rated doors. This criterion is practical and measurable, ensuring that doors installed in such configurations meet the LW designation's intent without requiring additional water infiltration testing or increasing the exposure risk. By adopting this requirement, the building code will reflect current industry standards, support effective design practices, and streamline compliance for projects with adequate water infiltration protection for doors. A provision for a registered design professional and other approved methods is included to allow for alternate solutions that provide adequate water protection.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Using overhangs for additional weather protection is already a compliance approach intended for LW-rated doors in the referenced standard. This proposal may reduce the cost of construction for doors installed over large overhangs.

Staff Analysis: CC # FS14-25 and CC # FS15-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

FS14-25

FS15-25

IBC: CHAPTER 14, 1404.14.2 (New)

Proponents: Cesar Lujan, representing Window & Door Manufacturers Association (clujan@wdma.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

CHAPTER 14
EXTERIOR WALLS

Add new text as follows:

<u>**1404.14.2** **Door systems with a Limited Water (LW) rating.** Door systems labeled with a Limited Water (LW) rating as specified in AAMA/WDMA/CSA 101/I.S.2/A440 shall be adequately protected from water exposure as determined by a registered design professional or other approved methods.</u>

Reason: The proposed code change introduces a requirement for doors labeled with a Limited Water (LW) rating, as defined under the AAMA/WDMA/CSA 101/I.S.2/A440 (NAFS) standard. This requirement aligns with the referenced NAFS standard and will help ensure that the LW designation is applied appropriately. The LW designation identifies products intended for use in locations where adequate protection from water exposure is provided.

Currently, the building code does not include any reference or requirements for LW-rated doors, as recommended by the NAFS standard. This lack of oversight could result in improper installations that fail to meet the intended water protection criteria. By requiring additional review and approval by a registered design professional or code official, this proposal will help prevent the misapplication of products with an LW designation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Since the NAFS standard already requires additional protection for LW-rated doors, this proposal does not increase the cost of construction for doors conforming to the NAFS standard.

Staff Analysis: CC # FS15-25 and CC # FS14-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

FS15-25

FS16-25

IFC: 903.2.3 (New); IBC: 903.2.3 (New)

Proponents: Greg Johnson, Johnson & Associates Consulting Services, representing self (gjohnsonconsulting@gmail.com); Jay Peters, representing Codes and Standards International (peters.jay@me.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Fire Code

Add new text as follows:

903.2.3 Group D. An *automatic sprinkler system* shall be provided throughout all *buildings* containing a Group D occupancy where one or more of the following conditions exists:

1. The Group D *fire area* exceeds 12,000 square feet (1115 m^2).
2. The Group D *fire area* is located more than three stories above *grade plane*.
3. The combined area of all Group D *fire areas* on all floors, including any *mezzanines*, exceeds 24,000 square feet (2230 m^2).

2024 International Building Code

Add new text as follows:

903.2.3 Group D. An *automatic sprinkler system* shall be provided throughout all *buildings* containing a Group D occupancy where one or more of the following conditions exists:

1. The Group D *fire area* exceeds 12,000 square feet (1115 m^2).
2. The Group D *fire area* is located more than three stories above *grade plane*.
3. The combined area of all Group D *fire areas* on all floors, including any *mezzanines*, exceeds 24,000 square feet (2230 m^2).

Reason: Data centers are unique uses and are being proposed to be added as a new occupancy classification. As such there needs to be clear direction for when sprinkler requirements are triggered. The triggers proposed are consistent with the most conservative occupancy classifications currently being assigned to these unique uses, Groups F-1 and S-1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Data centers are typically sprinklered throughout so this represents codification of current practices and no additional costs.

FS16-25

2025 GROUP B – PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE - GENERAL

GENERAL CODE COMMITTEE

Gary Lewis, *Chair*
Retired Building Official (Honorary Member)
Montville, NJ

Matt Belcher, *Vice Chair*
Rep: National Association of Home Builders
Owner/CEO
Verdatek Solutions LLC/Enhanced Building Systems LLC
Owensville, MO

Ali Almudhei
Loss Prevention Specialist
Saudi Aramco
Dhahran, Saudi Arabia

Kurt Beres
Principal – Studio Lead Technical Services And Industrial/ Plans Examiner
Cities of Westerville, Gahanna, Grandview Heights and Licking County
MA Design
Columbus, OH

Brian Bishop, CBO
Building Official
City of Des Moines, IA
Des Moines, IA

Micah Chappell, MBA, CBO
Code Development Manager
Seattle Department of Construction and Inspections
Bremerton, WA

Jeffrey (Jeff) Hugo, CBO
Vice President, Codes and Standards - Training and Education
National Fire Sprinkler Association
Essexville, MI

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Architect
Milwaukee, WI

Henry J. Kelly, Jr.
Retired
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Rep: International Association of Fire Chiefs
Fire Chief
Brighton Area Fire Authority
Brighton, MI

James Williams, AIA, RA, PE, CE, SE, LEED AP
President
AE URBIA
South Jordan, UT

Staff Secretariat:
Quinton Owens
Technical Staff
Codes and Standards Development
International Code Council
ICC Idaho Field Office

TENTATIVE ORDER OF DISCUSSION
2025 PROPOSED CHANGES TO THE
INTERNATIONAL BUILDING CODE – GENERAL

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some G code change proposals may not be included on this list, as they are being heard by another committee.

Number Not Used:
G61-25
G166-25

- G1-25 Part I
- G2-25
  - G198-25
- G3-25
- G4-25
- G8-25
- G10-25
- G11-25
- G12-25
- G13-25
- G15-25
- G16-25
- G17-25 Part I
- G18-25
- G19-25 Part I
- G21-25
- G22-25
- G23-25 Part I
- G25-25
- G26-25
- G28-25 Part I
- G29-25
- G30-25
- G33-25 Part I
- G34-25
- G36-25
- G37-25
  - G210-25
- G38-25
  - G97-25
  - G104-25
  - G109-25
  - G113-25
  - G209-25
  - FS16-25
- G40-25 Part I
  - G39-25 Part I
- G41-25
- G42-25 Part I
- G43-25
- G44-25
- G45-25
- G46-25 Part I
- G47-25
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- G94-25 Part I
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    S34-25
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G154-25 Part I
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G183-25 Part I
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    G86-25
G193-25
G194-25
    G85-25
G195-25 Part I
    G148-25
    G192-25
G196-25
    EB6-25 Part II
G197-25
G199-25
G200-25
G201-25
G202-25
G203-25
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G207-25

G1-25 Part I

IBC: SECTION 301, 301.1, SECTION 401, 401.1, 501.1, 601.1, 1201.1, 2701.1, 3001.1, 3101.1, 3201.1, 3301.1; IEBC: [BG] 1501.1

Proponents: Steven Orlowski, Sundowne Building Code Consultants, LLC, representing Self (sorlowski@sbcc.codes); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

THIS IS A 3 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART III WILL BE HEARD BY THE IPMC/IZC COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

CHAPTER 3
OCCUPANCY CLASSIFICATION AND USE

Revise as follows:

SECTION 301
~~SCOPE~~GENERAL

301.1 ~~General~~Scope. Classification of all buildings and structures as to occupancy and use shall comply with this chapter.~~The provisions of this chapter shall control the classification of all *buildings* and *structures* as to occupancy and use. Different classifications of occupancy and use represent varying levels of hazard and risk to *building* occupants and adjacent properties.~~

CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE

SECTION 401
~~SCOPE~~GENERAL

401.1 Scope~~Detailed occupancy and use requirements~~. Occupancies and use described herein in addition to the occupancy and construction requirements in this code shall comply with this chapter.~~In addition to the occupancy and construction requirements in this code, the provisions of this chapter apply to the occupancies and use described herein.~~

CHAPTER 5
GENERAL BUILDING HEIGHTS AND AREAS

SECTION 501
GENERAL

501.1 Scope. ~~The provisions of this chapter control the height~~Height and area of buildings and *structures* hereafter erected and *additions* to *existing structures* *shall comply with this chapter*.

CHAPTER 6
TYPES OF CONSTRUCTION

SECTION 601
GENERAL

601.1 Scope. ~~The provisions of this chapter shall control the classification~~ Classification of *buildings* as to type of construction shall comply with this chapter.

CHAPTER 12
INTERIOR ENVIRONMENT

SECTION 1201
GENERAL

1201.1 Scope. Building features associated with the interior environment shall comply with this chapter.~~The provisions of this chapter shall govern ventilation, temperature control, lighting, *yards* and *courts*, sound transmission, enhanced classroom acoustics, interior space dimensions, access to unoccupied spaces, toilet and bathroom requirements and ultraviolet (UV) germicidal irradiation systems associated with the interior spaces of *buildings*.~~

CHAPTER 27
ELECTRICAL

SECTION 2701
GENERAL

2701.1 Scope. ~~The provisions of~~ Electrical systems and equipment shall comply with this chapter and NFPA 70. ~~shall govern the design, construction, erection and installation of the electrical components, appliances, equipment and systems used in *buildings* and structures covered by this code. The *International Fire Code*, the *International Property Maintenance Code* and NFPA 70 shall govern the use and maintenance of electrical components, appliances, equipment and systems. The *International Existing Building Code* and NFPA 70 shall govern the *alteration*, *repair*, relocation, replacement and addition of electrical components, appliances, or equipment and systems.~~

CHAPTER 30
ELEVATORS AND CONVEYING SYSTEMS

SECTION 3001
GENERAL

3001.1 Scope. ~~This chapter governs the design~~Design, ~~construction,~~ installation, and construction~~*alteration* and *repair*~~ of elevators and conveying systems and their components shall comply with this chapter.

CHAPTER 31
SPECIAL CONSTRUCTION

SECTION 3101
GENERAL

3101.1 Scope. ~~The provisions of this chapter shall govern special~~Special *building* construction elements and components included in the building and structures covered by this code shall also comply with this chapter. ~~including membrane *structures*, *temporary structures*, *pedestrian walkways* and tunnels, *awnings* and *canopies*, *marquees*, signs, telecommunications and broadcast towers, *swimming pools* , spas and hot tubs, automatic vehicular gates, solar energy systems, *greenhouses*, relocatable buildings and *intermodal shipping containers*.~~

CHAPTER 32
ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY

SECTION 3201
GENERAL

3201.1 Scope. ~~The provisions of this chapter shall govern the encroachment~~Encroachment of *structures* into the public right-of-way shall comply with this chapter.

CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION

SECTION 3301
GENERAL

3301.1 Scope. ~~The provisions of this chapter shall govern safety~~Safety during construction and the protection of adjacent public and private properties shall comply with this chapter. ~~Fire safety during construction shall also comply with the applicable provisions of Chapter 33 of the *International Fire Code*.~~

2024 International Existing Building Code

CHAPTER 15
CONSTRUCTION SAFEGUARDS

SECTION 1501
GENERAL

Revise as follows:

[BG] 1501.1 Scope. ~~The provisions of this chapter shall govern safety~~ Safety during construction and the protection of adjacent public and private properties shall comply with this chapter. ~~Fire safety during construction shall also comply with the applicable provisions of Chapter 33 of the *International Fire Code*.~~

G1-25 Part I

G1-25 Part II

IBC: 1501.1, 1601.1, 1701.1, 1801.1, 1901.1, 2001.1, 2101.1, 2201.1, 2301.1, 2401.1, 2501.1, 2601.1

Proponents: Steven Orlowski, Sundowne Building Code Consultants, LLC, representing Self (sorlowski@sbcc.codes); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

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CHAPTER 15
ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

SECTION 1501
GENERAL

1501.1 Scope. ~~The provisions of this chapter shall govern the design, materials, construction and quality of~~ ~~*roof*~~ Roof *assemblies*, and *rooftop structures* shall comply with this chapter.

CHAPTER 16
STRUCTURAL DESIGN

SECTION 1601
GENERAL

1601.1 Scope. ~~The provisions of this chapter shall govern the structural~~Structural design of *buildings*, *structures* and portions thereof shall comply with this chapter.

CHAPTER 17
SPECIAL INSPECTIONS AND TESTS

SECTION 1701
GENERAL

1701.1 Scope. Special inspections and tests shall comply with this chapter.~~The provisions of this chapter shall govern the quality, workmanship and requirements for materials covered. Materials of construction and tests shall conform to the applicable standards listed in this code.~~

CHAPTER 18
SOILS AND FOUNDATIONS

SECTION 1801
GENERAL

1801.1 Scope. Soils and foundations shall comply with this chapter.~~The provisions of this chapter shall apply to~~ ~~*building*~~ ~~and foundation systems.~~

CHAPTER 19
CONCRETE

SECTION 1901
GENERAL

1901.1 Scope. Use of concrete in structures shall comply with this chapter.~~The provisions of this chapter shall govern the materials, quality control, design and construction of concrete used in *structures*.~~

CHAPTER 20
ALUMINUM

SECTION 2001
GENERAL

2001.1 Scope. ~~This chapter shall govern the quality, design, fabrication and erection~~Use of aluminum in structures shall comply with this chapter.

CHAPTER 21
MASONRY

SECTION 2101
GENERAL

2101.1 Scope. ~~This chapter shall govern the materials, design, construction and quality~~Use of *masonry*in structures shall comply with this chapter.

CHAPTER 22
STEEL

SECTION 2201
GENERAL

2201.1 Scope. ~~The provisions of this chapter govern the quality, design, fabrication and erection of steel construction~~Use of steel in structures shall comply with this chapter.

CHAPTER 23
WOOD

SECTION 2301
GENERAL

2301.1 Scope. ~~The provisions of this chapter shall govern the materials, design, construction and quality of wood members and their fasteners~~Use of wood in structures shall comply with this chapter.

CHAPTER 24
GLASS AND GLAZING

SECTION 2401
GENERAL

2401.1 Scope. ~~The provisions of this chapter shall govern the materials, design, construction and quality of glass, light-transmitting ceramic and light-transmitting plastic panels for exterior and interior use in both vertical and sloped applications in *buildings* and *structures*.~~Use of glass and glazing in structures shall comply with this chapter. Light-transmitting *plastic glazing* shall also ~~meet the~~ comply with the applicable requirements of Chapter 26.

CHAPTER 25
GYPSUM PANEL PRODUCTS AND PLASTER

SECTION 2501
GENERAL

2501.1 Scope. ~~Provisions of this chapter shall govern the materials, design, construction and quality of *gypsum panel products* , lath, *gypsum plaster*, *cement plaster* and reinforced gypsum concrete.~~ Use of gypsum panel products and plaster in structures shall comply with this chapter.

CHAPTER 26
PLASTIC

SECTION 2601
GENERAL

2601.1 Scope. ~~These provisions shall govern the materials, design, application, construction and installation of foam plastic, *foam plastic insulation*, plastic *veneer*, interior plastic finish and *trim*, light-transmitting plastics and plastic composites, including *plastic lumber*.~~Use of plastics in structures shall comply with this chapter.

Reason: Currently, there is inconsistency among all the I-Codes in how the scoping sections are written at the beginning of each chapter. The Code Correlation Committee requested a task group be formed to review the scoping section in all the I-Codes and determine if there would be a way to harmonize both the language and style across the model codes. The Scoping Task Group was formed and consisted of several members from the various Code Action Committees and interested parties (some with no client interest). The task group reviewed each chapter of the I-codes and after careful consideration, developed a format that could be incorporated and repeated for all the I-Codes.

As you will see in the proposed changes above, most of the chapters began with a style and format that was already consistent and was only slightly changed to give the scoping a more authoritative infliction. Where the chapter contained no scoping provisions, the task group added scoping language based on the content of the chapter. Where the existing scoping sections provided a laundry list of what is contained in the chapter, these list were reformatted into a list form to make it easier for users to see what information was contained.

The Scoping Task group proposes that the recommended changes will improve the code by:

1. Create consistency in language used in the scope for all the I-Codes.
2. Creates a scoping section for chapters that did not have one before to clarify what is covered by the chapter.
3. Clarify the items covered and not covered in the chapter, using consistent format to send the user to different chapter(s) or code(s).
4. Remove redundant administrative language from existing scoping sections.
5. Where there were extensive number of items outlined in the scoping section, the items are now broken out into a list format to make

it easier for the reader to indicate what is contained in the chapter.

To the best of the task groups knowledge the proposed changes are editorial in nature and no requirements not already addressed in the existing scoping or in the chapter being referenced were added. As these proposed changes are editorial, there is no cost impact on the cost of construction.

This proposal is submitted with the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

As stated in our reason statement, these proposed changes are editorial and there is no cost impact on the cost of construction.

G1-25 Part II

G1-25 Part III

IZC: SECTION 301, 301.1 (New), 301.1, SECTION 401 (New), 401.1 (New), SECTION 401, 401.1, SECTION 501 (New), 501.1 (New), SECTION 501, 501.1, SECTION 601 (New), 601.1 (New), SECTION 601, 601.1, SECTION 701 (New), 701.1 (New), SECTION 701, 701.1, SECTION 801 (New), 801.1 (New), SECTION 801, 801.1, SECTION 901 (New), 901.1 (New), SECTION 901, 901.1, SECTION 1001, 1001.1, 1101.1 (New), 1101.1, 1201.1 (New), 1201.1, 1301.1 (New), 1301.1, 1301.2

Proponents: Steven Orlowski, Sundowne Building Code Consultants, LLC, representing Self (sorlowski@sbcc.codes); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Zoning Code

CHAPTER 3
USE DISTRICTS

Revise as follows:

SECTION 301
~~DISTRICT CLASSIFICATIONS~~ GENERAL

Add new text as follows:

301.1 Scope. Use Districts shall comply with this chapter.

Revise as follows:

~~301.1~~301.2 District classification ~~Classification~~. In order to classify, regulate and restrict the locations of *uses* and locations of *buildings* designated for specific areas; and to regulate and determine the areas of *yards*, *courts* and other *open spaces* within or surrounding such *buildings*, property ~~is hereby~~ shall be classified into districts ~~as prescribed in this chapter~~.

CHAPTER 4
AGRICULTURAL ZONES

Add new text as follows:

SECTION 401
GENERAL

401.1 Scope. Agricultural zones shall comply with this chapter.

Revise as follows:

SECTION ~~401~~ 402
AGRICULTURAL ZONE DIVISION ~~ZONES DEFINED~~

~~401.1~~ 402.1 Agricultural zone. Allowable agricultural (A) zone *uses* shall be:

Division 1. Any designated *open space* as set forth in this code.

Division 2. Any agricultural *use*, including, but not limited to, dwellings, maintenance/storage *buildings* and other such *uses* necessary for the *principal use*.

Division 3. Any public *park* land or other similar recreational *use*, including, but not limited to, amusement rides, office *buildings*, retail *buildings* and dwellings necessary for the maintenance of the *principal use*.

CHAPTER 5
RESIDENTIAL ZONES

Add new text as follows:

<u>SECTION 501</u>
<u>GENERAL</u>

<u>501.1</u> <u>Scope</u>. <u>Residential zones shall comply with this chapter.</u>

Revise as follows:

SECTION ~~501~~<u>502</u>
RESIDENTIAL<u> ZONE DIVISION</u> ~~ZONES DEFINED~~

~~501.1~~ <u>502.1</u> Residential zone. Allowable residential (R) zone *uses* shall be:

Division 1. The following *uses* are permitted in an R, Division 1 zone:
Single-family dwellings, publicly owned and operated *parks*, *recreation* centers, swimming pools and playgrounds, police and fire department stations, public and governmental services, public libraries, schools and colleges (excluding colleges or trade schools operated for profit), public *parking lots*, *private garages*, *buildings* accessory to the above permitted *uses* (including *private garages* , *accessory dwelling units* and *accessory living quarters*), and temporary *buildings*.

Division 2. The following *uses* are permitted in an R, Division 2 zone:
Any *use* permitted in R, Division 1 zones and two-family dwellings.

Division 3. The following *uses* are permitted in an R, Division 3 zone:
All *uses* permitted in R, Division 2 zones, multiple-unit dwellings, such as *apartment houses*, *boarding houses*, *condominiums* and *congregate residences*.

CHAPTER 6
COMMERCIAL AND COMMERCIAL/RESIDENTIAL ZONES

Add new text as follows:

<u>SECTION 601</u>
<u>GENERAL</u>

<u>601.1</u> <u>Scope</u>. <u>Commercial and commercial/residential zones shall comply with this chapter.</u>

Revise as follows:

SECTION ~~601~~ 602
COMMERCIAL AND COMMERCIAL/RESIDENTIAL ZONES DEFINED

~~601.1~~ 602.1 **Commercial and commercial/residential zones.** Allowable commercial (C) zone and commercial/residential (CR) zone *uses* shall be:

C Zone

Division 1. The following *uses* are permitted in a C, Division 1 zone:
Minor automotive repair, automotive motor fuel dispensing facilities, *automotive self-service motor fuel dispensing facilities*, *business or financial services*, convenience and *neighborhood commercial centers* (excluding wholesale sales), family and *group day care* facilities, libraries, *mortuary* and funeral homes, public and governmental services, police and fire department stations, places of religious worship, *public utility stations*, and *restaurants*.

Division 2. The following *uses* are permitted in a C, Division 2 zone:
Any *uses* permitted in C, Division 1 zones, and *light commercial* (excluding wholesale sales), *group care facilities*, physical fitness centers, *religious*, cultural and fraternal activities, *rehabilitation centers*, and schools and colleges operated for profit (including commercial, vocational and trade schools).

Division 3. The following *uses* are permitted in a C, Division 3 zone:
Any *uses* permitted in C, Division 2 zones, and *amusement centers* (including bowling alleys, golf driving ranges, miniature golf courses, ice rinks, pool and billiard halls, and similar recreational uses), automotive sales, building material supply sales (wholesale and retail), cultural institutions (such as museums and art galleries), *community commercial centers* (including wholesale and retail sales), health and medical institutions (such as *hospitals*), *hotels* and *motels* (excluding other residential occupancies), commercial printing and publishing, taverns and cocktail lounges, indoor *theaters*, and self-*storage warehouses*.

Division 4. The following *uses* are permitted in a C, Division 4 zone:
Any *uses* permitted in C, Division 3 zones, and *major automotive repair*, commercial bakeries, *regional commercial centers* (including wholesale and retail sales), plastic products design, molding and assembly, small metal products design, casting, fabricating, and processing, manufacture and finishing, storage yards, and wood products manufacture and finishing.

CR Zone Permitted (commercial/residential) (CR) zone *uses* shall be:

Division 1. The following *uses* are permitted in a CR, Division 1 zone:
Any *use* permitted in a C, Division 1 zone, and residential *use* permitted, except in the *story* or *basement* abutting *street grade*.

Division 2. The following *uses* are permitted in a CR, Division 2 zone:
Any *use* permitted in a C, Division 2 zone, and residential *use* permitted, except in the *story* or *basement* abutting *street grade*.

CHAPTER 7
FACTORY/INDUSTRIAL ZONES

Add new text as follows:

SECTION 701
GENERAL

701.1 Scope. Factory/industrial zones shall comply with this chapter.

Revise as follows:

SECTION ~~701~~ 702
FACTORY/INDUSTRIAL ZONES DEFINED

~~701.1~~ 702.1 FI zones. Allowable factory/*industrial* (FI) zone *uses* shall be:

Division 1. Any *light-manufacturing* or industrial *use*, such as *warehouses*, research or testing laboratories, product distribution centers, woodworking shops, auto body shops, furniture assembly, dry cleaning plants, places of religious worship, public and governmental services, machine shops, and boat building storage yards.

Division 2. Any *use* permitted in the FI, Division 1 zone and stadiums and arenas, indoor swap meets, breweries, liquid fertilizer manufacturing, carpet manufacturing, monument works, and a regional recycling center.

Division 3. Any *use* permitted in the FI, Division 2 zone and auto-dismantling yards, alcohol manufacturing, cotton gins, paper manufacturing, quarries, salt works, petroleum refining, and other similar *uses*.

CHAPTER 8
GENERAL PROVISIONS

Add new text as follows:

SECTION 801
GENERAL

801.1 Scope. General zoning provisions shall comply with this chapter.

Revise as follows:

SECTION ~~801~~ 802
OFF-STREET PARKING

~~801.1~~ 802.1 General. Off-*street* parking shall be provided in compliance with this chapter where any *building* is erected, altered, enlarged, converted or increased in size or capacity.

CHAPTER 9
SPECIAL REGULATIONS

Add new text as follows:

SECTION 901
GENERAL

901.1 Scope. Special zoning regulations shall comply with this chapter.

Revise as follows:

SECTION ~~901~~ 902

HOME OCCUPATIONS

~~901.1~~ 902.1 General. *Home occupations* shall be permitted in all zones, provided that the *home occupation* is clearly and obviously subordinate to the main *use* or *dwelling unit* for residential purposes. *Home occupations* shall be conducted wholly within the primary *structure* on the premises.

CHAPTER 10
SIGN REGULATIONS

SECTION 1001
GENERAL ~~PURPOSE~~

1001.1 ~~Purpose~~ Scope. ~~The purpose of this chapter is to protect the safety and orderly development of the community through the regulation of *signs*~~*Signs* and *sign* structures shall comply with this chapter.

CHAPTER 11
NONCONFORMING STRUCTURES AND USES

SECTION 1101
GENERAL

Add new text as follows:

1101.1 Scope. Nonconforming Structures and uses shall comply with this chapter.

Revise as follows:

~~1101.1~~ 1101.2 Continuance. Except as otherwise required by law, a *structure* or *use* legally established prior to the adoption date of this code be maintained unchanged. In other than criminal proceedings, the owner, occupant or user shall have the burden to show that the *structure*, *lot* or *use* was lawfully established.

CHAPTER 12
CONDITIONAL USES

SECTION 1201
GENERAL

Add new text as follows:

1201.1 Scope. Conditional-use permit requests shall comply with this chapter.

Revise as follows:

~~1201.1~~ 1201.2 Conditional-use permit. A *conditional-use* permit shall be obtained for certain *uses*, which would become harmonious or compatible with neighboring *uses* through the application and maintenance of qualifying conditions and located in specific locations within a zone, but shall not be allowed under the general conditions of the zone as stated in this code.

CHAPTER 13
PLANNED UNIT DEVELOPMENT

SECTION 1301
GENERAL

Add new text as follows:

1301.1 Scope. Planned unit developments (PUDs) shall comply with this chapter.

Revise as follows:

~~**1301.1**~~ **1301.2 Approval.** *Planned unit developments* (PUDs) shall be allowed by planning commission approval in any zoning district. Such *planned unit development* permit shall not be granted unless such development will meet the *use* limitations of the zoning district in which it is located and meet the *density* and other limitations of such districts, except as such requirements may be lawfully modified as provided by this code. Compliance with the regulations of this code in no way excuses the developer from the applicable requirements of a *subdivision* ordinance, except as modifications thereof are specifically authorized in the approval of the application for the *planned unit development*.

Delete without substitution:

~~**1301.2 Intent.** These regulations are to encourage and provide means for effecting desirable and quality development by permitting greater flexibility and design freedom than that permitted under the basic district regulations, and to accomplish a well-balanced, aesthetically satisfying city and economically desirable development of building sites within a PUD. These regulations are established to permit latitude in the development of the building site if such development is found to be in accordance with the purpose, spirit and intent of this ordinance and is found not to be hazardous, harmful, offensive or otherwise adverse to the environment, property values or the character of the neighborhood or the health, safety and welfare of the community. It is intended to permit and encourage diversification, variation and imagination in the relationship of uses, *structures*, *open spaces* and heights of *structures* for developments conceived and implemented as comprehensive and cohesive unified projects. It is further intended to encourage more rational and economic development with relationship to *public services*, and to encourage and facilitate the preservation of open lands.~~

Reason: Currently, there is inconsistency among all the I-Codes in how the scoping sections are written at the beginning of each chapter. The Code Correlation Committee requested a task group be formed to review the scoping section in all the I-Codes and determine if there would be a way to harmonize both the language and style across the model codes. The Scoping Task Group was formed and consisted of several members from the various Code Action Committees and interested parties (some with no client interest). The task group reviewed each chapter of the I-codes and after careful consideration, developed a format that could be incorporated and repeated for all the I-Codes.

As you will see in the proposed changes above, most of the chapters began with a style and format that was already consistent and was only slightly changed to give the scoping a more authoritative infliction. Where the chapter contained no scoping provisions, the task group added scoping language based on the content of the chapter. Where the existing scoping sections provided a laundry list of what is contained in the chapter, these list were reformatted into a list form to make it easier for users to see what information was contained.

The Scoping Task group proposes that the recommended changes will improve the code by:
1. Create consistency in language used in the scope for all the I-Codes.
2. Creates a scoping section for chapters that did not have one before to clarify what is covered by the chapter.
3. Clarify the items covered and not covered in the chapter, using consistent format to send the user to different chapter(s) or code(s).
4. Remove redundant administrative language from existing scoping sections.
5. Where there were extensive number of items outlined in the scoping section, the items are now broken out into a list format to make it easier for the reader to indicate what is contained in the chapter.

To the best of the task groups knowledge the proposed changes are editorial in nature and no requirements not already addressed in the existing scoping or in the chapter being referenced were added. As these proposed changes are editorial, there is no cost impact on the cost of construction.

This proposal is submitted with the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

As stated in our reason statement, these proposed changes are editorial, there is no cost impact on the cost of construction.

G1-25 Part III

G2-25

IBC: SECTION 202 (New), SECTION 202, 306.3, 312.1, C101.1; IFC: [BG] 203.5.2, [BG] 203.11

Proponents: Joe Scibetta, representing Self

2024 International Building Code

Revise as follows:

[BG] AGRICULTURAL BUILDING. A *structure* designed and constructed to house farm implements, hay, grain, ~~poultry, livestock~~ or other horticultural products. This *structure* shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

Add new definition as follows:

<u>**ANIMAL HOUSING FACILITIES.**</u> <u>Area of a building or structure, including interior and exterior adjacent spaces, where animals are fed, rested, worked, exercised, treated, exhibited or used for production.</u>

SECTION 306 FACTORY GROUP F

Revise as follows:

306.3 Low-hazard factory industrial, Group F-2. Factory industrial uses that involve <u>the care of animals or</u> the fabrication or manufacturing of noncombustible materials that during finishing, packing or processing do not involve a significant fire hazard shall be classified as Group F-2 occupancies and shall include, but not be limited to, the following:

<u>Animal housing facilities</u>

Beverages: up to and including 20-percent alcohol content

Brick and *masonry*

Ceramic products

Foundries

Glass products

Gypsum

Ice

Metal products (fabrication and assembly)

SECTION 312 UTILITY AND MISCELLANEOUS GROUP U

312.1 General. *Buildings* and *structures* of an accessory character and miscellaneous *structures* not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings

Aircraft hangars, accessory to a one- or two-family residence (see Section 412.4)

Barns

Carports

Communication equipment *structures* with a *gross floor area* of less than 1,500 square feet (139 m^2)

Fences more than 7 feet (2134 mm) in height

Grain silos, accessory to a residential occupancy

~~Livestock shelters~~

Private garages

Retaining walls

Sheds

~~Stables~~

Tanks

Towers

APPENDIX C
GROUP U—AGRICULTURAL BUILDINGS

SECTION C101
GENERAL

C101.1 Scope. The provisions of this appendix shall apply exclusively to *agricultural buildings*. Such *buildings* shall be classified as Group U and shall include the following uses:

~~1.~~ ~~Livestock shelters or *buildings*, including shade *structures* and milking barns.~~

~~2.~~ ~~Poultry *buildings* or shelters.~~

~~3~~ 1. Barns for storage other than animals.

~~4~~ 2. Storage of equipment and machinery used exclusively in agriculture.

~~5~~ 3. Horticultural *structures*, including detached production *greenhouses* and crop protection shelters.

~~6~~ 4. Sheds.

~~7~~ 5. Grain silos.

~~8.~~ ~~Stables~~.

2024 International Fire Code

Revise as follows:

[BG] AGRICULTURAL BUILDING. A structure designed and constructed to house farm implements, hay, grain~~, poultry, livestock~~ or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

Add new definition as follows:

ANIMAL HOUSING FACILITIES. Area of a building or structure, including interior and exterior adjacent spaces, where animals are fed, rested, worked, exercised, treated, exhibited or used for production.

SECTION 203

OCCUPANCY CLASSIFICATION AND USE

Revise as follows:

[BG] 203.5.2 Low-hazard factory industrial, Group F-2. Factory industrial uses that involve the the care of animals or fabrication or manufacturing of noncombustible materials that during finishing, packing or processing does not involve a significant fire hazard shall be classified as Group F-2 occupancies and shall include, but not be limited to, the following:

Animal housing facilities

Beverages: up to and including 20-percent alcohol content

Brick and masonry

Ceramic products

Foundries

Glass products

Gypsum

Ice

Metal products (fabrication and assembly)

[BG] 203.11 Miscellaneous Group U. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings

Aircraft hangar, accessory to a one- or two-family residence (see Section 412.4 of the *International Building Code*)

Barns

Carports

Communication equipment structures with a gross floor area of less than 1,500 square feet (139 m^3)

Fences more than 7 feet (2134 mm) in height

Grain silos, accessory to a residential occupancy

~~Livestock shelters~~

Private garages

Retaining walls

Sheds

~~Stables~~

Tanks

Towers

Reason: This proposal would incorporate new animal housing facilities into the IBC as separate and distinct from agricultural buildings, where farm supplies and implements are stored. A definition has been added accordingly and Appendix C has been edited as the new definition of animal housing facilities would incorporate, in addition to to other types of animals, poultry and livestock. Poultry and livestock facilities would no longer be considered Group U/Agricultural Buildings. Obviously, this proposal would **not** apply to existing animal housing facilities.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

G3-25

IBC: SECTION 202; IEBC: SECTION 202; IFC: SECTION 202; IMC®: SECTION 202; IPC: SECTION 202

Proponents: Sandie Hastings, representing Self (sandiehastings@gmail.com)

2024 International Building Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less-than-24-hour basis to persons who are rendered *incapable of self-preservation by* the services provided or staff has accepted responsibility for care <u>of</u> recipients <u>who are</u> already incapable.

2024 International Existing Building Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less-than-24-hour basis to persons who are rendered *incapable of self-preservation by* the services provided or staff has accepted responsibility for care <u>of</u> recipients <u>who are</u> already incapable.

2024 International Fire Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less-than-24-hour basis to persons who are rendered *incapable of self-preservation by* the services provided or staff has accepted responsibility for care <u>of</u> recipients <u>who are</u> already incapable.

2024 International Mechanical Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less-than-24-hour basis to persons who are rendered *incapable of self-preservation by* the services provided or staff has accepted responsibility for care <u>of</u> recipients <u>who are</u> already incapable.

2024 International Plumbing Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less-than-24-hour basis to persons who are rendered *incapable of self-preservation by* the services provided or staff has accepted responsibility for care <u>of</u> recipients <u>who are</u> already incapable.

Reason: Change is editorial. Words are added for clarity.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change proposal is editorial in nature and has no impact on the cost of construction.

G3-25

G4-25

IBC: SECTION 202; IEBC: SECTION 202; IFC: SECTION 202; IMC®: SECTION 202; IPC: SECTION 202

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Building Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. *Buildings* or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than *24-hour basis* to *persons* who are ~~rendered~~ ~~*incapable of self-preservation*~~ ~~by the services provided or staff has accepted responsibility for care recipients already~~ incapable of self-preservation or are rendered incapable of self-preservation by the services provided.

2024 International Existing Building Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. *Buildings*or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than*24-hour basis*to*persons*who are~~rendered~~~~*incapable of self-preservation*~~~~by the services provided or staff has accepted responsibility for care recipients already~~incapable of self-preservation or are rendered incapable of self-preservation by the services provided.

2024 International Fire Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. *Buildings*or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than*24-hour basis*to*persons*who are~~rendered~~~~*incapable of self-preservation*~~~~by the services provided or staff has accepted responsibility for care recipients already~~incapable of self-preservation or are rendered incapable of self-preservation by the services provided.

2024 International Mechanical Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. *Buildings*or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than*24-hour basis*to*persons*who are~~rendered~~~~*incapable of self-preservation*~~~~by the services provided or staff has accepted responsibility for care recipients already~~incapable of self-preservation or are rendered incapable of self-preservation by the services provided.

2024 International Plumbing Code

Revise as follows:

[BG] AMBULATORY CARE FACILITY. *Buildings*or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than*24-hour basis*to*persons*who are~~rendered~~~~*incapable of self-preservation*~~~~by the services provided or staff has accepted responsibility for care recipients already~~incapable of self-preservation or are rendered incapable of self-preservation by the services provided.

Reason: This term is included in the IBC, IFC, IMC, IPC and IEBC.

This is a clarification of the existing definition. It was brought to our attention that the end of this definition is somewhat confusing and runs on. These are facilities such as outpatient surgery centers. These facilities could render someone incapable of leaving on their own during a procedure. Or someone could come in injured and be coming for care.

This proposal is submitted by the ICC Committee for Healthcare (CHC).

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial clarification for the definition and has no impact on construction.

G4-25

G5-25 Part I

IBC: SECTION 202

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Self (jcrandell@aresconsulting.biz)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] APPROVED SOURCE. An independent *person*, firm or corporation, *approved* by the *building official*, who is competent and experienced in the relevant subject matter and, where applicable, the application of engineering principles to materials, methods or systems analyses.

Reason: There are now uses of this defined term in the code where the application of engineering principles (or the implication of a licensed design professional) is not required for the subject matter in question. Competent and experienced is always required, but knowledge of engineering principles is not always required. This proposal makes the definition more consistent with the range of uses of this term in the ICC codes and the IECC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the definition with no change in requirements.

G5-25 Part I

G5-25 Part II

IRC: SECTION 202

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Self (jcrandell@aresconsulting.biz)

2024 International Residential Code

Revise as follows:

[RB] APPROVED SOURCE. An independent *person*, firm or corporation, *approved* by the *building official*, who is competent and experienced in the <u>relevant subject matter and, where applicable, the</u> application of engineering principles to materials, methods or systems analyses. For the definition applicable in Chapter 11, see Section N1101.6.

Reason: There are now uses of this defined term in the code where the application of engineering principles (or the implication of a licensed design professional) is not required for the subject matter in question. Competent and experienced is always required, but knowledge of engineering principles is not always required. This proposal makes the definition more consistent with the range of uses of this term in the ICC codes and the IECC. A separate proposal to the IECC-R committee has been submitted with respect to the same definition in Section N1101.6 of the IRC Chapter 11.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the definition and does not change requirements.

G5-25 Part II

G6-25

IBC: SECTION 202, 1805.2.2.1, 2109.2.4.8.9.4, 2510.7, 2512.8.1

Proponents: Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); James Farny, Portland Cement Association, representing US cement manufacturers (jfarny@cement.org); Dr. Julian Mills-Beale, representing National Ready Mixed Concrete Association (jmills-beale@nrmca.org); Nicholas Lang, representing Concrete Masonry & Hardscapes Association (nlang@masonryandhardscapes.org)

THIS CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] BRICK.

Calcium silicate (sand lime brick). A pressed and subsequently autoclaved unit that consists of sand and lime, with or without the inclusion of other materials.

Clay or shale. A solid or hollow *masonry unit* of *clay or shale*, usually formed into a rectangular *prism*, then burned or fired in a kiln; brick is a ceramic product.

Concrete. A concrete *masonry unit* made from ~~Portland~~ hydraulic cement, water, and suitable aggregates, with or without the inclusion of other materials.

[BS] CAST STONE. A building stone manufactured from ~~Portland~~hydraulic cement concrete precast and used as a *trim*, *veneer* or facing on or in *buildings* or *structures*.

[BS] CEMENT PLASTER. A mixture of hydraulic cement (~~Portland~~ portland,~~or~~ blended, or performance hydraulic cement),~~Portland cement or blended~~ hydraulic cement and hydrated lime, *masonry* cement or plastic cement and aggregate and other *approved* materials as specified in this code.

[BS] CONCRETE.

Carbonate aggregate. Concrete made with aggregates consisting mainly of calcium or magnesium carbonate, such as limestone or dolomite, and containing 40 percent or less quartz, chert or flint.

Cellular. A lightweight insulating concrete made by mixing a preformed foam with ~~Portland~~ hydraulic cement slurry and having a dry unit weight of approximately 30 pcf (480 kg/m^3).

Lightweight aggregate. Concrete made with aggregates of expanded clay, shale, slag or slate or sintered fly ash or any natural lightweight aggregate meeting ASTM C330 and possessing equivalent fire-resistance properties and weighing 85 to 115 pcf (1360 to 1840 kg/m^3).

Perlite. A lightweight insulating concrete having a dry unit weight of approximately 30 pcf (480 kg/m^3) made with *perlite* concrete aggregate. Perlite aggregate is produced from a volcanic rock which, when heated, expands to form a glass-like material of cellular structure.

Sand-lightweight. Concrete made with a combination of expanded clay, shale, slag, slate, sintered fly ash, or any natural lightweight aggregate meeting ASTM C330 and possessing equivalent fire-resistance properties and natural sand. Its unit weight is generally between 105 and 120 pcf (1680 and 1920 kg/m^3).

Siliceous aggregate. Concrete made with normal-weight aggregates consisting mainly of silica or compounds other than calcium or magnesium carbonate, which contains more than 40-percent quartz, chert or flint.

Vermiculite. A light weight insulating concrete made with *vermiculite* concrete aggregate which is laminated micaceous material produced by expanding the ore at high temperatures. When added to a ~~Portland~~ hydraulic cement slurry the resulting concrete has a dry unit weight of approximately 30 pcf (480 kg/m^3).

CHAPTER 18
SOILS AND FOUNDATIONS

1805.2.2.1 Surface preparation of walls. Prior to application of dampproofing materials on concrete walls, holes and recesses resulting from the removal of form ties shall be sealed with a bituminous material or other *approved* methods or materials. Unit *masonry* walls shall be parged on the exterior surface below ground level with not less than $^3/_8$ inch (9.5 mm) of ~~Portland~~ hydraulic (portland, blended, or performance hydraulic) cement *mortar*. The parging shall be coved at the footing.

Exception: Parging of unit *masonry* walls is not required where a material is *approved* for direct application to the *masonry*.

CHAPTER 21 MASONRY

2109.2.4.8.9.4 Prohibited finish coat. Plaster containing ~~Portland~~ hydraulic cement shall not be permitted as a finish over clay plaster.

CHAPTER 25 GYPSUM PANEL PRODUCTS AND PLASTER

2510.7 Preparation of masonry and concrete. Surfaces shall be clean, free from efflorescence, sufficiently damp and rough for proper bond. If the surface is insufficiently rough, *approved* bonding agents or a ~~Portland~~ cement dash bond coat mixed in proportions of not more than two parts volume of sand to one part volume of ~~Portland~~ cement or plastic cement shall be applied. The dash bond coat shall be left undisturbed and shall be moist cured not less than 24 hours.

2512.8.1 Admixtures. Where using this method of application, calcium aluminate cement up to 15 percent of the weight of the ~~Portland~~ cement is permitted to be added to the mix.

Reason: This proposal is part of a series of proposals to the IBC and IRC to update cement terminology in the building codes.

The brick definition change aligns the definition for concrete brick in the IBC with the that currently within ASTM standards. The definition for concrete brick refers to the definition for 'concrete masonry unit', which in turn uses the following language "manufactured masonry unit made of concrete in which the binder is a combination of water and cementitious materials." The change better aligns IBC and ASTM definitions.

The proposed cement related revisions reflect current cement technology and market conditions, which can vary across regions. Nationally, the market is no longer dominated by portland cement. More than sixty percent of the current cement market consists of blended cements, including portland-limestone cement (PLC) and other blended cements that meet the requirements of ASTM C595/C595M, Specification for Blended Hydraulic Cements (Portland Cement Association, 2025). ASTM C595/C595M is referenced in the International Building Code/ International Residential Code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed revision to the definition is editorial and will not impact the cost of construction. See reason statement.

G6-25

G7-25 Part I

IBC: SECTION 202 (New), SECTION 202, [A] 107.3.4, [A] 107.3.4.1, 1703.1.1, 1704.2.1, 1704.2.4, 1704.3, TABLE 1705.7, 1705.9; IEBC: SECTION 202 (New), SECTION 202, [A] 106.3.4, [A] 106.6

Proponents: Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com); Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org)

THIS IS A 2 PART CODE CHANGE.

PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE.

PART II WILL BE HEARD BY THE RESIDENTIAL BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new definition as follows:

BUILDING DESIGNER. A person engaged by the *owner* or the *owner*'s authorized agent to prepare construction documents. Where required by law, the *building designer* shall be a *registered design professional*.

Delete without substitution:

~~**DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE, REGISTERED.** See "Registered design professional in responsible charge."~~

Revise as follows:

[A] REGISTERED DESIGN PROFESSIONAL. ~~An individual~~ A *building designer* who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or *jurisdiction* in which the project is to be constructed.
[A] ~~REGISTERED DESIGN PROFESSIONAL~~ BUILDING DESIGNER IN RESPONSIBLE CHARGE. A ~~*registered design professional*~~ *building designer* engaged by the *owner* or the *owner*'s authorized agent to review and coordinate certain aspects of the project, as determined by the *building official*, for compatibility with the design of the building or *structure*, including submittal documents prepared by others, *deferred submittal* documents and phased submittal documents.

SECTION 107
CONSTRUCTION DOCUMENTS

[A] 107.3.4 ~~Design professional~~ Building designer in responsible charge. ~~Where it is required that documents be prepared by a *registered design professional*, the~~ The *building official* shall be authorized to require the *owner* or the *owner*'s authorized agent to engage and designate on the *building permit* application a *building designer* ~~*registered design professional*~~ who shall act as the ~~*registered design professional*~~ *building designer in responsible charge*. If the circumstances require, the *owner* or the *owner*'s authorized agent shall designate a substitute ~~*registered design professional*~~ *building designer in responsible charge* who shall perform the duties required of the original ~~*registered design professional*~~ *building designer in responsible charge*. The *building official* shall be notified in writing by the *owner* or the *owner*'s authorized agent if the ~~*registered design professional*~~ *building designer in responsible charge* is changed or is unable to continue to perform the duties.The ~~*registered design professional*~~ *building designer in responsible charge* shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and *deferred submittal* items, for compatibility with the design of the building. Where the laws of the jurisdiction require all construction documents to be prepared by a *registered design professional*, the *building designer in responsible charge* shall be a *registered design professional*.

[A] 107.3.4.1 Deferred submittals. Deferral of any submittal items shall have the prior approval of the *building official*. The ~~*registered design professional*~~ *building designer in responsible charge* shall list the *deferred submittals* on the *construction documents* for review by the *building official*.

Documents for *deferred submittal* items shall be submitted to the

~~*registered design professional*~~ building designer *in responsible charge* who shall review them and forward them to the *building official* with a notation indicating that the *deferred submittal* documents have been reviewed and found to be in general conformance to the design of the building. The *deferred submittal* items shall not be installed until the *deferred submittal* documents have been *approved* by the *building official*.

CHAPTER 17
SPECIAL INSPECTIONS AND TESTS

SECTION 1703
APPROVALS

1703.1.1 Independence. An *approved agency* shall be objective, competent and independent from the contractor responsible for the work being inspected. The agency shall disclose to the *building official* and the ~~*registered design professional*~~ building designer *in responsible charge* possible conflicts of interest so that objectivity can be confirmed.

SECTION 1704
SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION

1704.2.1 Special inspector qualifications. Prior to the start of the construction, the *approved agencies* shall provide written documentation to the *building official* demonstrating the competence and relevant experience or training of the *special inspectors* who will perform the *special inspections* and tests during construction. Experience or training shall be considered to be relevant where the documented experience or training is related in complexity to the same type of *special inspection* or testing activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code.

The ~~*registered design professional*~~ building designer *in responsible charge* and engineers of record involved in the design of the project are permitted to act as an *approved agency* and their personnel are permitted to act as *special inspectors* for the work designed by them, provided they qualify as *special inspectors*.

1704.2.4 Report requirement. *Approved agencies* shall keep records of *special inspections* and tests. The *approved agency* shall submit reports of *special inspections* and tests to the *building official* and to the ~~*registered design professional*~~ building designer *in responsible charge* at frequencies required by the approved *construction documents* or *building official* . All reports shall describe the nature and extent of inspections and tests, the location where the inspections and tests were performed, and indicate that work inspected or tested was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the ~~*registered design professional*~~ building designer *in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and tests, and correction of any discrepancies noted in the inspections or tests, shall be submitted at a point in time agreed upon prior to the start of work by the *owner* or the *owner 's* authorized agent to the *building official*.

1704.3 Statement of special inspections. Where *special inspections* or tests are required by Section 1705, ~~the~~ a *registered design professional* ~~*in responsible charge*~~ shall prepare a statement of *special inspections* in accordance with Section 1704.3.1 for submittal by the applicant in accordance with Section 1704.2.3.

> **Exception:** The statement of *special inspections* is permitted to be prepared by a qualified *person approved* by the *building official* for construction not designed by a *registered design professional*.

SECTION 1705
REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.7 Driven deep foundations. *Special inspections* and tests shall be performed during installation of driven *deep foundation* elements as specified in Table 1705.7. The *approved* geotechnical report and the *construction documents* prepared by the *registered design professionals* shall be used to determine compliance.

TABLE 1705.7 REQUIRED SPECIAL INSPECTIONS AND TESTS OF DRIVEN DEEP FOUNDATION ELEMENTS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify element materials, sizes and lengths comply with the requirements.	X	—
2. Determine capacities of test elements and conduct additional load tests, as required.	X	—
3. Inspect driving operations and maintain complete and accurate records for each element.	X	—
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element.	X	—
5. For steel elements, perform additional special inspections in accordance with Section 1705.2.	In accordance with Section 1705.2	
6. For concrete elements and concrete-filled elements, perform tests and additional special inspections in accordance with Section 1705.3.	In accordance with Section 1705.3	
7.For specialty elements, perform additional inspections as determined by the ~~registered design professionalin responsible charge~~ engineer of record.	In accordance with Statement of Special Inspections	

1705.9 Helical pile foundations. *Continuous special inspections* shall be performed during installation of *helical pile* foundations. The information recorded shall include installation equipment used, pile dimensions, tip elevations, final depth, final installation torque and other pertinent installation data as required by the ~~*registered design professional in responsible charge*~~ engineer of record for the foundation design. The *approved* geotechnical report and the *construction documents* prepared by the *registered design professional* shall be used to determine compliance.

2024 International Existing Building Code

Add new definition as follows:

BUILDING DESIGNER. A person engaged by the *owner* or the *owner*'s authorized agent to prepare construction documents. Where required by law, the *building designer* shall be a *registered design professional*.

Revise as follows:

[A] ~~REGISTERED DESIGN PROFESSIONAL~~ BUILDING DESIGNER IN RESPONSIBLE CHARGE. A ~~registered design professional~~ *building designer* engaged by the owner or the owner's authorized agent to review and coordinate certain aspects of the project, as determined by the *code official*, for compatibility with the design of the building or structure, including submittal documents prepared by others, *deferred submittal* documents and phased submittal documents.

SECTION 106
CONSTRUCTION DOCUMENTS

[A] 106.3.4 Deferred submittals. Deferral of any submittal items shall have the prior approval of the *code official*. The~~*registered design professional*~~ *building designer in responsible charge* shall list the *deferred submittals* on the construction documents for review by the *code official*.

Submittal documents for *deferred submittal* items shall be submitted to the ~~*registered design professional*~~ *building designer in responsible charge* who shall review them and forward them to the *code official* with a notation indicating that the *deferred submittal* documents have been reviewed and that they have been found to be in general conformance to the design of the building. The *deferred submittal* items shall not be installed until their *deferred submittal* documents have been *approved* by the *code official*.

[A] 106.6 ~~Design professional~~ Building designer in responsible charge. ~~Where it is required that documents be prepared by a registered design professional, the~~ The *code official* shall be authorized to require the owner or the owner's authorized agent to engage and designate on the building permit application a ~~registered design professional~~ building designer who shall act as the ~~*registered design professional*~~ *building designer in responsible charge*. Where the laws of the jurisdiction require all construction documents to be prepared by a *registered design professional*, the *building designer in responsible charge* shall be a *registered design professional*. If the circumstances require, the owner or the owner's authorized agent shall designate a substitute ~~*registered design professional*~~ *building designer in responsible charge* who shall perform the duties required of the original ~~*registered design professional*~~ *building* *designer in responsible charge*. The *code official* shall be notified in writing by the owner or the owner's authorized agent if the ~~*registered design professional*~~ *building designer in responsible charge* is changed or is unable to continue to perform the duties. The ~~*registered design professional*~~ *building designer in responsible charge* shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and *deferred submittal* items, for compatibility with the design of the building. Where structural observation is required, the inspection program shall name the individual or firms who are to perform structural observation and describe the stages of construction at which structural observation is to occur.

Reason: The new definitions proposed for Building Designer and Building Designer in Responsible Charge are intended to address multiple problems. First, the code and its many referenced standards presently do not have a uniform term to reference the person who prepares construction documents. The proposed term of 'Building Designer' is used in ANSI/TPI 1, so it already has some recognition in the industry. Second, most states allow unregistered persons to prepare construction documents for residential and small commercial construction. Many of these states extend the ability to property owners. Using the term 'Design Professional' as the generic version of Registered Design Professional adds an implied level of qualification that may not be appropriate in all cases; Building Designer is a more neutral term that is applicable in all cases. Extending the term to modify the existing defined term of Registered Design Professional in Responsible Charge allows the code to accommodate variations between jurisdictions and preserves consistency between the code and referenced standards.The revised definition of Registered Design Professional is offered to maintain consistency with the proposed new definitions while allowing the term to remain unaffected throughout its many uses within the code. By providing a broader defined term of Building Designer in Responsible Charge, the definition for Registered Design Professional in Responsible Charge is redundant. A related modification to edit IBC section 107.3.4 to utilize the proposed replacement term has been separately submitted by the proponent. Collectively, the proposed modifications will allow the code to be consistent with referenced standards and better recognize the varying jurisdictional requirements imposed on persons who prepare construction documents.

107.3 - The original title of the subsection appropriately omits the qualifier "registered"; so, too, should the text. State professional practice laws control who is authorized to produce construction documents and coordinate their delivery to the building official for review as part of the application and construction process. Persons other than registered design professionals are permitted to provide construction documents and oversee construction of residential and small commercial projects in almost all states. Requiring only registered design professionals to fulfill the responsible charge role is contrary to public policy is those states, particularly where the IBC chapter 1 is applied to residential construction. For example, it is common for a non-registered building designer or the property owner to prepare the basic construction documents for residential construction. State laws may require that components of these documents, such as foundations or roof trusses, be prepared by a licensed engineer hired by the building designer. In such cases, the non-registered design professional is the appropriate choice to be in responsible charge of the overall design effort, as the registered design professional would be generally unfamiliar with the overall project. In addition, the scope of their practice might not allow them to oversee other elements of the proposed construction. Requiring the owner to hire a third-party person to act as the owner's agent just to meet the code requirement adds a potential source of confusion rather than offering a means of reducing it. The revised language preserves the requirement for a registered design professional to serve in the role of responsible charge when justified by the laws of the jurisdiction.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change clarifies the original intent of the terms for which new and revised definitions are offered. Two new definitions provide more generic terms that provide consistency with state regulation of design professions (and their exemptions), as well as being more in line with referenced standards, such as ANSI/TPI 1. Two related definitions are no longer needed and are proposed for removal. Two other new definitions proposed in the modification reinforce the existing intent of the code relative to special conditions. The revised definitions seek to establish consistency with relevant state professional regulation laws and the proposed substitution of building designer for design professional as a reflection of the other proposed code modifications. The value of the added and revised definitions is not dependent on the adoption of the related proposed modifications from the same proponent.

G7-25 Part I

G7-25 Part II

IRC: SECTION 202 (New), SECTION 202

Proponents: Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com); Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org)

2024 International Residential Code

Add new definition as follows:

BUILDING DESIGNER. A person engaged by the *owner* or the *owner*'s authorized agent to prepare *construction documents.* Where required by law, the building designer shall be a *registered design professional*.

Delete without substitution:

~~**[RB] DESIGN PROFESSIONAL.** See " *Registered design professional* ."~~

Revise as follows:

[RB] REGISTERED DESIGN PROFESSIONAL. ~~An individual~~ A *building designer* who is registered or licensed to practice their respective design profession, as defined by the statutory requirements of the professional registration laws of the state or *jurisdiction* in which the project is to be constructed.

Reason: The new definition proposed for Building Designer is intended to address multiple problems. First, the code and its many referenced standards presently do not have a uniform term to reference the person who prepares construction documents. The proposed term of 'Building Designer' is used in ANSI/TPI 1 and IRC section R502.12.4, so it already has some recognition in the industry. Second, most states allow unregistered persons to prepare construction documents for residential construction. Many of these states extend the ability to property owners. Using the term 'Design Professional' as the generic version of Registered Design Professional adds an implied level of qualification that may not be appropriate in all cases; Building Designer is a more neutral term and does not imply any specific qualifications. The revised definition of Registered Design Professional is offered to maintain consistency with the proposed new definition for Building Designer while allowing the term to remain unaffected throughout its many uses within the code. Collectively, the proposed modifications will allow the code to be consistent with referenced standards and better recognize the varying jurisdictional requirements imposed on persons who prepare construction documents.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed changes clarify the original intent of the code. The revised definitions seek to establish consistency with relevant state professional regulation laws. The value of the added and revised definitions is not dependent on the adoption of the related proposals.

G7-25 Part II

G8-25

IBC: SECTION 202, 1103.2.13, 1105.1.5, [P] TABLE 2902.1, E106.4.8; IPC: TABLE 403.1

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov)

2024 International Building Code

Revise as follows:

[BG] CELL (Group I-3 occupancy). A room within a *housing unit* in a detention or correctional *facility* used to confine incarcerated individuals. ~~inmates or prisoners.~~

CHAPTER 11 ACCESSIBILITY

1103.2.13 Detention and correctional facilities. In detention and correctional *facilities*, *common use* areas that are used only by ~~inmates~~ incarcerated individuals or detainees and security personnel, and that do not serve holding *cells* or housing *cells* required to be *Accessible units*, are not required to comply with this chapter.

1105.1.5 Entrances for ~~inmates~~ incarcerated individuals or detainees. Where entrances used only by ~~inmates~~ incarcerated individuals or detainees and security personnel are provided at judicial *facilities*, detention *facilities* or correctional *facilities*, at least one such entrance shall be accessible.

CHAPTER 29 PLUMBING SYSTEMS

[P] TABLE 2902.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 2902.1.1 and 2902.2)
Portions of table not shown remain unchanged.

a. The fixtures shown are based on one fixture being the minimum required for the number of *persons* indicated or any fraction of the number of *persons* indicated. The number of occupants shall be determined by this code.

b. Toilet *facilities* for employees shall be separate from *facilities* for ~~inmates~~ incarcerated individuals or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient *sleeping units* shall be permitted, provided that each patient sleeping unit has direct access to the toilet room and provisions for privacy for the toilet room user are provided.

d. The *occupant load* for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of *facilities* required.

e. For business and mercantile classifications with an *occupant load* of 15 or fewer, a service sink shall not be required.

f. The required number and type of plumbing fixtures for indoor and outdoor swimming pools shall be in accordance with Section 609 of the *International Swimming Pool and Spa Code*.

[BE] APPENDIX E SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS

E106.4.8 Detention and correctional facilities. In detention and correctional *facilities*, where a public pay telephone is provided in a secured area used only by detainees or ~~inmates~~ incarcerated individuals and security personnel, then not fewer than one TTY shall be provided in not fewer than one secured area.

2024 International Plumbing Code

CHAPTER 4
FIXTURES, FAUCETS AND FIXTURE FITTINGS

Revise as follows:

TABLE 403.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)
Portions of table not shown remain unchanged.

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for ~~inmates~~ incarcerated individuals or care recipients.

c. A single-user toilet facility with one water closet and one lavatory serving not more than two adjacent care recipient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile classifications with an occupant load of 15 or fewer, service sinks shall not be required.

f. The required number and type of plumbing fixtures for indoor and outdoor public swimming pools shall be in accordance with Section 609 of the *International Swimming Pool and Spa Code*.

Reason: Criminal justice advocates have long called for utilizing "humanizing language" in regards to incarcerated or detained individuals. The change from "inmates" to "incarcerated individuals" provides such individuals with a measure of humanity that can otherwise be ignored. Terms like "inmate" or "detainee" reduce the person to the crime for which they have been charged, without consideration for the person as a whole human being. This also helps remove the stigmatization and ostracization of individuals who have not committed crimes, but have been detailed wrongfully and/or awaiting trial.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal has no cost impact, as it is only updating terms in the IBC to utilize humanizing language, and not changing any requirements.

G8-25

G9-25

IBC: SECTION 202

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

THIS CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] DESIGN FLOOD. The *flood* associated with the greater flood elevation of the following two areas:

1. Area with a flood plain subject to a 1-percent or greater chance of *flooding* in any year.
2. Area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

Reason: As the definition is currently written, the word "greater" appears to apply to the size of the areas specified in items 1 and 2. This proposal clarifies that "greater" is associated with the flood elevation specified by said areas, rather than the size of the areas themselves.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the intent of the definition and is purely editorial.

Staff Analysis: CC # G9-25 and CC # S97-25 Part I addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

G9-25

G10-25

IBC: SECTION 202 (New)

Proponents: Donald Monahan, Parking-Xpert.com, LLC, representing National Parking Association (don.monahan@comcast.net); mary smith, Walker consultants, representing National Parking Association (msmith@walkerconsultants.com)

2024 International Building Code

Add new definition as follows:

ELECTRIC VEHICLE (EV) CHARGER. A device with one or more charging ports and connectors for charging electric vehicles. The device may include a subscription user ID, payment provisions, and network/data communications.

Reason: This definition is the one currently proposed on 9/3/2024 by the ATBCB with the second sentence proposed by the National Parking Association/Parking Consultant's Council for clarification.

Bibliography: Document Number ATBCB 2024-0001, Federal Register 9/3/2024, Section 106.5 Definitions

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Adding EV charging terminology does not impact cost.

G10-25

G11-25

IBC: SECTION 202 (New)

Proponents: Donald Monahan, Parking-Xpert.com, LLC, representing National Parking Association (don.monahan@comcast.net); mary smith, Walker consultants, representing National Parking Association (msmith@walkerconsultants.com)

2024 International Building Code

Add new definition as follows:

ELECTRIC VEHICLE (EV) CHARGING SPACE. A space to park an electric vehicle while charging. Such space is a marked or an unmarked area next to an EV charger.

Reason: The National Parking Association recommends harmonizing the definitions in IBC, IgCC, and A117.1 to the same terms as the U.S. Access Board definition.

Bibliography: ADA and ABA Accessibility Guidelines, EV Charging Stations, ATBCB 36 CFR Part 1191 Docket Number ATBCB 2024-0001, Federal Register 9 3 2024 Section 106.5 Definitions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Adding terminology does not have a cost impact.

G11-25

G12-25

IBC: SECTION 202

Proponents: Donald Monahan, Parking-Xpert.com, LLC, representing National Parking Association (don.monahan@comcast.net); mary smith, Walker consultants, representing National Parking Association (msmith@walkerconsultants.com)

2024 International Building Code

Revise as follows:

[BG] ELECTRIC VEHICLE (EV) CHARGING STATION. ~~One or more vehicle spaces served by an electric vehicle charging system.~~The designated area surrounding EV chargers, including the chargers, supporting equipment, adjacent EV charging spaces, and access lanes for vehicle entry and exit.

Reason: The term 'Station' is used inconsistently across IBC, IgCC, and A117.1 and differs from the definition provided by the Access Board. It is advisable to adopt the Access Board's terminology and definition of 'EV Station,' which aligns with that of a gas station, and to use 'EV Charger' to refer to the device.

Bibliography: ADA and ABA Accessibility Guidelines EV Charging Stations, ATBCB 36 CFR Part 1191 Docket number ATBCB 2024-0001, Federal Register 93 2024 Section 106.5 Definitions

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Clarifying the difference between the EV charging device itself and all the collateral equipment required to deliver electricity to the EV charger and the vehicle.

G12-25

G13-25

IBC: SECTION 202 (New)

Proponents: Donald Monahan, Parking-Xpert.com, LLC, representing National Parking Association (don.monahan@comcast.net); mary smith, Walker consultants, representing National Parking Association (msmith@walkerconsultants.com)

2024 International Building Code

Add new definition as follows:

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). Equipment for the plug-in power transfer, including the ungrounded, grounded, and equipment grounding conductors, electric vehicle connectors, attachment plugs, personal protection system, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

Reason: The National Parking Association recommends harmonizing the definitions in IBC, IgCC, and A117.1 to the same terms as the U.S. Access Board definition.

Bibliography: ADA and ABA Accessibility Guidelines, EV Charging Stations, ATBCB 36 CFR Part 1191 Docket Number ATBCB 2024-0001, Federal Register 9 3 2024 Section 106.5 Definitions

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Clarifying the difference between the EV charging device itself and the collateral equipment required to deliver electricity to the EV charger and the vehicle has no cost impact.

G13-25

G14-25 Part I

IBC: SECTION 202; IEBC: SECTION 202

Proponents: Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov); Brian Tollisen, representing NYS Department of State, Division of Building Standards and Codes (brian.tollisen@dos.ny.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE ADMINISTRIVE CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] EXISTING BUILDING. A *building* ~~erected prior to the date of adoption of the appropriate code, or one for which a legal building *permit* has been~~ that is legally occupied or for which a certificate of occupancy authorizing its uses has been issued, without regard to the date on which such legal occupancy began or the date on which such certificate of occupancy was issued.
[A] EXISTING STRUCTURE. A *structure* ~~erected prior to the date of adoption of the appropriate code, or one for which a legal building *permit* has been~~ that is legally occupied or for which a certificate of occupancy authorizing its uses has been issued, without regard to the date on which such legal occupancy began or the date on which such certificate of occupancy was issued.

2024 International Existing Building Code

Revise as follows:

[A] EXISTING BUILDING. A building ~~erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been~~that is legally occupied or for which a certificate of occupancy authorizing its uses has been issued, without regard to the date on which such legal occupancy began or the date on which such certificate of occupancy was issued.
[A] EXISTING STRUCTURE. A structure ~~erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been~~that is legally occupied or for which a certificate of occupancy authorizing its uses has been issued, without regard to the date on which such legal occupancy began or the date on which such certificate of occupancy was issued.

G14-25 Part I

G14-25 Part II

IRC: SECTION 202

Proponents: Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov); Brian Tollisen, representing NYS Department of State, Division of Building Standards and Codes (brian.tollisen@dos.ny.gov)

2024 International Residential Code

Revise as follows:

[RB] EXISTING BUILDING. ~~*Existing building* is a~~ A building ~~erected prior to the adoption of this code, or one for which a legal *building permit* has been~~ that is legally occupied or for which a certificate of occupancy authorizing its uses has been issued, without regard to the date on which such legal occupancy began or the date on which such certificate of occupancy was issued.

Reason: This proposal will clarify when a building should be classified as an existing building and subject to the requirements for existing buildings. The current definition of existing building classifies any building that was erected prior to the adoption of the current code or has a legal building permit as an existing building. So, under the current definition a building that was illegally built (no permits) prior to the adoption of the current code would be considered an existing building and only subject to the requirements for existing buildings. Also, under the current definition any building with a legal building permit is an existing building, so as soon as a permit is issued for a building it can now be classified as existing.

The same modifications to the definition for existing building are being proposed for the residential provisions of the IECC and there is a proposal to add this definition back into the commercial provisions, as the exisiting building definition was removed in the 2024 IECC update.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is editorial (see reason statement).

G14-25 Part II

G15-25

IBC: SECTION 202 (New), SECTION 1412

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

2024 International Building Code

Add new definition as follows:

EXTERIOR SOFFIT. A material or assembly of materials applied on the underside of exterior overhangs, attached carports, ceilings of raised buildings that create a full story, and porch ceilings.

Revise as follows:

SECTION 1412 EXTERIOR SOFFITS AND FASCIAS AT ROOF OVERHANGS

Reason: This change helps to create stronger understanding of how exterior soffit is regulated by the code. The definition is similar to the IRC, and the minor edit simply identifies that this applied to exterior soffits.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change adds no additional requirements.

G15-25

G16-25

IBC: SECTION 202 (New)

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

Add new definition as follows:

[F] FIRE CODE OFFICIAL. The fire chief or other designated authority charged with the administration and enforcement of the *International Fire Code*, or a duly authorized representative.

Reason: The term “Fire Code Official” is used in dozens of locations in the 2024 IBC. However, this term is not formally defined in the 2024 IBC.

The proposed definition of “Fire Code Official” was taken verbatim from Section 202 of the 2024 *International Fire Code*, except that the phrase “the code” was replaced with the phrase “the *International Fire Code*”. This clarification is required since the phrase “the code” would otherwise signify the building code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal adds a necessary definition and has no impact to the cost of construction.

G16-25

G17-25 Part I

IBC: SECTION 202, 308.3; IFC: SECTION 202, [BG] 203.7.2

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IPMC/IZC CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[BG] HOSPITAL ~~HOSPITALS AND PSYCHIATRIC HOSPITALS~~. ~~*Facilities* that provide care or treatment for the~~ Buildings or portions thereof used to provide medical, psychiatric, obstetrical, or surgical or similar care on a *24-hour basis* to persons who are ~~treatment of care recipients who are~~ *incapable of self-preservation* or are rendered *incapable of self-preservation* by the services provided.

Delete without substitution:

~~**PSYCHIATRIC HOSPITALS.** See "Hospitals and psychiatric hospitals."~~

Revise as follows:

308.3 Institutional Group I-2. Institutional Group I-2 occupancy shall include *buildings* and *structures* used for *medical care* on a *24-hour basis* for more than five *persons* who are *incapable of self-preservation*. This group shall include, but not be limited to, the following:

Foster care facilities

Detoxification facilities

Hospitals

Nursing homes

~~*Psychiatric hospitals*~~

2024 International Fire Code

Revise as follows:

[BG] HOSPITAL~~HOSPITALS AND PSYCHIATRIC HOSPITALS~~. ~~*Facilities*that provide care or treatment for the~~Buildings or portions thereof used to provide medical, psychiatric, obstetrical, or surgical or similar care on a *24-hour basis* to persons who are ~~treatment of care recipients who are~~*incapable of self-preservation*or are rendered *incapable of self-preservation* by the services provided.

Delete without substitution:

~~**[B] PSYCHIATRIC HOSPITALS.** See "*Hospitals and psychiatric hospitals*."~~

Revise as follows:

[BG] 203.7.2 Institutional Group I-2. Institutional Group I-2 occupancy shall include buildings and structures used for medical care on a 24-hour basis for more than five persons who are incapable of self-preservation. This group shall include, but not be limited to, the following:

Foster care facilities

Detoxification facilities

Hospitals

Nursing homes

~~Psychiatric hospitals~~

G17-25 Part I

G17-25 Part II

IZC: SECTION 202

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Zoning Code

Revise as follows:

HOSPITAL. ~~An institution designed for the diagnosis, treatment and care of human illness or infirmity and providing health services, primarily for inpatients, and including as related facilities, laboratories, outpatient departments, training facilities and staff offices.~~ Buildings or portions thereof used to provide medical, psychiatric, obstetrical, or surgicalor similar care on a 24-hour basis to persons who are incapable of self-preservation or are rendered incapable of self-preservation by the services provided.

Reason: The term 'psychiatric hospital' is only used in Section 308.3. 'Psychiatric' is in the definition for a type of hospital treatment, so the definition and specific term are not needed. It is already addressed in the definition of 'hospital'. Psychiatric treatment areas are addressed in Section 407.2.3; which can be all or part of a hospital. There is a correllative change from this committee to improve the language in the definition of 'ambulatory care facilities'.

This are also aligning better with the federal definitions for hospitals. This better answers the questions where not all patients are incapable or self-preservation.

Existing related definitions are:

[BG] 24-HOUR BASIS. The actual time that a person is an occupant within a facility for the purpose of receiving care. It shall not include a facility that is open for 24 hours and is capable of providing care to someone visiting the facility during any segment of the 24 hours.

[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered incapable of self-preservation by the services provided or staff has accepted responsibility for care recipients already incapable.

[BG] DETOXIFICATION FACILITIES. Facilities that provide treatment for substance abuse, serving care recipients who are incapable of self-preservation or who are harmful to themselves or others.

[BG] FOSTER CARE FACILITIES. Facilities that provide care to more than five children, 21/2 years of age or less.

[BG]MEDICAL CARE. Care involving medical or surgical procedures, nursing or for psychiatric purposes.

[BG] NURSING HOMES. Facilities that provide care, including both intermediate care facilities and skilled nursing facilities where any of the persons are incapable of self-preservation.

International Zoning Code -

ICC staff identified that 'Hospital' is defined in the IZC. For consistency, the defintions should be the same across codes. It is hoped that this can be scoped to General by the CCC. The defintion is only used in the IZC defintions to say a hosptial is not a 'group care facility' or a 'congregate residence'; and as an example of a health and medical institution in CZone Division 3. The defintions should be consistent across codes to avoid possible confusion.

This proposal is submitted by the ICC Committee for Healthcare (CHC).

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of the definition with no change to construction requirements.

G17-25 Part II

G18-25

IBC: SECTION 202 (New)

Proponents: Jeff Bowlsby, representing Self (jabowlsby@gmail.com)

2024 International Building Code

Add new definition as follows:

OTHERWISE SPECIFIED. Where stated without context, term shall mean either of the following: 1. As alternatively specified within this subject code or referenced code or referenced standard. 2. As alternatively specified in mandatory language by the *registered design professional in responsible charge* where an alternative material, design, method of construction and equipment in accordance with Section 104.11 is *approved.*

Reason: This proposed code change includes a new definition for this currently undefined term "otherwise specified" where required context is not stated, to specify the required context in mandatory language, eliminating the terms's vagueness and ambiguity, and to support uniform code interpretation, application, compliance and enforcement. This proposed code change resolves these conflicts and conundrums.

Where used in the primary code documents (e.g. the IBC, referenced codes and referenced standards):

Use of this undefined term "otherwise specified" without required context does not establish minimum code requirements as set forth by IBC **101.3 Purpose.**

No context is given for the undefined term "otherwise specified." This undefined term is sometimes used without required context to provide mandatory language; therefore, the term does not comply with IBC **201.4 Terms not defined** and yet is codified. This undefined term is vague and ambiguous, and creates significant difficulties for code interpretation, application, compliance and enforcement.

> Example: 2021 IBC "**1408.9 Surface-burning characteristics.** Unless otherwise specified, HPL shall have a *flame spread index* of 75 or less and a *smoke-developed index* of 450 or less when tested in the minimum and maximum thicknesses intended for use in accordance with ASTM E84 or UL 723." A literal reading of this code section can cause a misinterpretation of this undefined term "otherwise specified" in that an implied 'specifier' entity has an implied, unrestricted authority and discretion to "otherwise specify" alternative specifications such as an HPL with a greater flame spread index and smoke-developed index than the limits specified in 1408.9 allow. Surely this is not the intent of the code.

Items "otherwise specified" may imply that a 'specifier' entity has unrestricted authority and discretion to create alternative specifications which may vary from the minimum requirements of the code because there is no stated condition of approval where this term is used.

> Example: ASTM F1667"10.1.4Mechanically deposited zinc coatings applied to fasteners after forming shall have a thickness in accordance with Specification B695, Class 40, unless otherwise specified." No condition of approval for this alternative specification is stated such as the review and approval requirements for alternatives in IBC **104.11 Alternative materials, design and methods of construction and equipment**. Surely this is not the intent of this referenced standard.

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This undefined term "otherwise specified" provides no helpful references to establish context.

For undefined terms, the 2021 IBC Commentarydirects the code user to rely on a dictionary definition, referenced standards, and the vague term 'published textbooks' to establish the context for defining this term. This undefined term "otherwise specified" is vague and ambiguous, and no definition or context establishing minimum codified requirements for this term can be gleaned from any of these documents.

This undefined term "otherwise specified" does not satisfy the requirement of mandatory language for use of defined terms in ICC

CP#28-05 for referenced standards. As applies to referenced standards, CP#28-05 – Code Development. 4.6.2.1 requires that "A standard or portions of a standard intended to be enforced shall be written in mandatory language" and 4.6.2.3 requires that "All terms shall be defined when they deviate from an ordinarily accepted meaning or a dictionary definition." Where this undefined term "otherwise specified" is used in referenced standards without additional required context written in mandatory language, its use conflicts with and does not satisfy either of these CP#28-05 requirements.

The term "specified" implies a "specifier," whose characteristics are undefined.

No qualifications or restrictions are stated or implied preventing any entity from functioning as a 'specifier'. The 'specifier' entity implied in this undefined term "otherwise specified" is without context for the specifier's qualifications or relationship to the permitted work. Therefore, the vague and ambiguous term 'specifier' can be (mis)interpreted and (mis)applied in the literal sense by code users to grant an unrestricted authority and discretion to any entity the code user determines to be a 'specifier' to 'specify otherwise.' A 'specifier' may be a licensed or unlicensed designer preparing construction documents, a contractor in a bid qualification, a manufacturer within their product data, a product or material supplier using their purchase order, a property developer or a homeowner, or any other entity. A 'specifier' entity may vary with the situation and may include legally or technically unqualified persons or the possibility that some of these 'specifiers' may have limited roles on the project.

The ordinarily accepted meaning of 'specifier' as used in the broader context of primary code documents is the *registered design professional in responsible charge* as defined in IBC Section 202. However, this undefined term "otherwise specified" does not limit the 'otherwise specifying' of an alternative to the *registered design professional in responsible charge* even though that professional is professionally responsible for the permitted work. Further, this 'specifier' may not be in a position to fulfill all the requirements of a *registered design professional in responsible charge* as required in Section 202.

The ubiquitous practice of omitting drawings or specifications from work requiring compliance with the requirements for permit approval, conflicts with the essential purpose and requirements of the primary code documents 'to establish minimum requirements' and is not compliant with IBC 101.3. Items requiring review and compliance and intentionally or unintentionally NOT depicted on drawings and specifications submitted for permit approval are oftentimes as important as the items depicted. Because this undefined term "otherwise specified" without additional context implies a 'specifier' has the unrestricted authority and discretion to 'specify otherwise,' the term can be interpreted in the opposite sense - to 'intentionally or unintentionally NOT specify something because it is not wanted' by the 'specifier,' even where code compliance may require it. Compliance with codified requirements in primary code documents may simply be intentionally or unintentionally omitted from drawings or specifications submitted for permit approval such as when they are aesthetically objectionable or to reduce construction costs.Some code users will (incorrectly) interpret the intentional or unintentional omissions from the 'approved for permit' documents as *approved* omissions. Silence on whether code compliance and building official review and approval of the item 'otherwise specified' is or is not required creates conflicts during construction.

Where this undefined term "otherwise specified" is used these combined factors cause misinterpretation and misapplication of the primary code documents and are a significant obstruction to effective code interpretation, application, compliance, and enforcement.

This undefined term "otherwise specified" has surreptitious functional similarities to the IBC 104.11 process, but the results of 'otherwise specified' are not *approved* unless the requirements of IBC 104.11 are satisfied.

This undefined term "otherwise specified" does not specifically mandate that 'specifying otherwise' shall comply with the full list of requirements of the IBC 104.11 process. Consider that the (mis)interpretation and (mis)application of this term may be a potential and intentional attempt at an unconditional, de facto approach to circumvent the IBC 104.11 process simply by "otherwise specifying" an alternative to minimum requirements of the primary code documents which is never presented to the building official for review or approval or for the testing and *approval* requirementsand authorityof the building official.

This undefined term "otherwise specified" does not establish the minimum requirements for WHERE the item 'otherwise specified' (alternative) shall be specified. Where the undefined term "otherwise specified" is used in a code or referenced standard, is the item specified within the same code or referenced standard or somewhere else? If the term means an Alternative is specified within an *approved* code or referenced standard then the context is established. However, this undefined term does not explicitly require in mandatory language: “unless otherwise specified within this code or referenced standard”.

This undefined term “otherwise specified” indicates no requirement to identify items “otherwise specified” or Alternatives on construction documents listed in IBC Section 107, or specifically in IBC **107.4 Amended construction documents**.

This undefined term “otherwise specified” in its current form where used without context in the code, referenced codes, or referenced standards, is illegal and void and a partial invalidity as specified in IBC **102.5 Partial invalidity**, but does not make void or illegal any of the other parts or provisions.

More broadly, this undefined term “otherwise specified” is used not only within the IBC, but also within the referenced codes and referenced standards. The number and various types of codified referenced documents using the term is significant enough that coordinating changes to each of the codified referenced documents by proponents will take many years if not decades to correct, justifying this proposed code change for a single new definition in the IBC as the most appropriate and expedient solution, for uniformity of interpretation, application, compliance, and enforcement of the primary code documents.

Going forward, the term “otherwise specified” without an ordinarily accepted meaning for context should not be allowed in code development of the primary code documents. CP#28-05 should also be considered for specific revision to not allow this term in reference standards for the same reason.

This proposed code change includes a new definition for this currently undefined term “otherwise specified” where required context is not stated, to specify the required context in mandatory language, eliminating the terms’s vagueness and ambiguity, and to support uniform code interpretation, application, compliance and enforcement. This proposed code change resolves these conflicts and conundrums.
A few examples:

Building Codes

- **2024 IBC @1406.9 Surface-burning characteristics.** Unless otherwise specified, MCM shall have a *flame spread index* of 75 or less and a *smoke-developed index* of 450 or less when tested in the maximum thickness intended for use in accordance with ASTM E84 or UL 723.

- **2024 IBC @1408.9 Surface-burning characteristics.** Unless otherwise specified, HPL shall have a *flame spread index* of 75 or less and a *smoke-developed index* of 450 or less when tested in the minimum and maximum thicknesses intended for use in accordance with ASTM E84 or UL 723.

- **2024 IBC @1607.4 Concentrated live loads.** Floors, roofs and other similar surfaces shall be designed to support the uniformly distributed *live loads* prescribed in Section 1607.3 or the concentrated *live loads*, given in Table 1607.1, whichever produces the greater *load effects*. Unless otherwise specified, the indicated concentration shall be assumed to be uniformly distributed over an area of 21/2 feet by 21/2 feet (762 mm by 762 mm) and shall be located so as to produce the maximum *load effects* in the structural members.

Referenced Codes

- **2024 IPC @ 301.2 Overlap.** Unless otherwise specified, clear floor spaces, clearances at fixtures, maneuvering clearances at doors, and turning spaces shall be permitted to overlap

- **2024 IPC @ 304.4 Door swing.** Unless otherwise specified, doors shall be permitted to swing into turning spaces.

- **2024 IPC @ 305.4 Knee and toe clearance.** Unless otherwise specified, clear floor space shall be permitted to include knee and toe clearance complying with Section 306.

- **2024 IPC @ 305.5 Position.** Unless otherwise specified, clear floor spaces shall be positioned for either forward or parallel approach to an element.

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Referenced Standards (excerpts from current edition of referenced standards listed in IBC Chapter 35)

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- **ASTM A36@ 5.1 Standard Specification for Carbon Structural Steel** Unless otherwise specified, plates used as bearing plates for bridges shall be subjected to mechanical tests and shall conform to the tensile requirements of Section 8.

- **ASTM B88 @ 1.2 Standard Specification for Seamless Copper Water Tube** The tube shall be produced from the following coppers, and the manufacturer has the option to supply any one of them, unless otherwise specified.

- **ASTM C844 @3.2.4 Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster** *framing member, n*—that portion of the framing, furring, blocking, and so forth, to which the gypsum base is attached. Unless otherwise specified, the surface to which abutting edges or ends are attached shall be not less than 11⁄2 in. (38 mm) wide for wood members, not less than 11⁄4 in. (32 mm) wide for steel members, and not less than 6 in. (152 mm) wide for gypsum studs. For internal corners or angles, the bearing surface shall be not less than 3⁄4 in. (19 mm).

- **ASTM C844 @ 14.4 Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster** "…Partitions shall be secured at the floor and ceiling in accordance with the gypsum base manufacturer's details or as otherwise required."

- **ASTM C926 @ 6.1 Standard Specification for Application of Portland Cement-Based Plaster** Metallic lath and lath fasteners used to receive plaster shall be installed in conformance with Specification C1063, except as otherwise specified.

- **ASTM C1063 @ 7.3.1.3Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster** Lath shall be installed with the long dimension at right angles to the framing members, unless otherwise specified.

- **ASTM C1280 @ 7.1Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing** Framing members shall be installed so that the surface will be in an even plane, unless otherwise specified, after the gypsum panel products have been applied.

- **ASTM F1667 @ 10.1.2.1Standard Specification for Driven Fasteners: Nails, Spikes, and Staples** Hot-dip galvanized steel wire for the manufacture of fasteners shall have a coating weight in accordance with Specification A641/A641M, Supplementary Requirements, Class 3S, when a heavier coating for exterior use and/or use in treated wood is specified. The minimum zinc coating shall be in accordance with Supplementary Requirements, Class 1, unless otherwise specified.

- **ASTM F1667 @ 10.1.3Standard Specification for Driven Fasteners: Nails, Spikes, and Staples** Electrogalvanized steel fasteners cut and formed from electrogalvanized steel wire or electrogalvanized after forming shall have a regular coating (no minimum weight of coating specified) in accordance with Specification A641/A641M, 9.2, unless otherwise specified.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

New defined term will assist in code interpretation, application, compliance and enforcement

G18-25

G19-25 Part I

IBC: SECTION 202 (New)

Proponents: Amanda Hickman, The Hickman Group, representing Anchor Products (amanda@thehickmangroup.com)

THIS IS A 2 PART CODE CHANGE.

PART I WILL BE HEARD BY THE IBC-GENERAL CODE COMMITTEE.

PART II WILL BE HEARD BY THE RESIDENTIAL BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new definition as follows:

POSITIVE CONNECTION. A connection that provides a continuous load path with sufficient strength and stiffness to transfer forces between structural elements without consideration of frictional resistance produced by the effects of gravity (see "*Positively Anchored*").

POSITIVELY ANCHORED. A connection that provides a continuous load path with sufficient strength and stiffness to transfer forces between structural elements without consideration of frictional resistance produced by the effects of gravity (see "*Positive connection"*).

G19-25 Part I

G19-25 Part II

IRC: SECTION 202 (New)

Proponents: Amanda Hickman, The Hickman Group, representing Anchor Products (amanda@thehickmangroup.com)

2024 International Residential Code

Add new definition as follows:

POSITIVE CONNECTION. A connection that provides a continuous load path with sufficient strength and stiffness to transfer forces between structural elements without consideration of frictional resistance produced by the effects of gravity (see "*Positively anchored*").
POSITIVELY ANCHORED. A connection that provides a continuous load path with sufficient strength and stiffness to transfer forces between structural elements without consideration of frictional resistance produced by the effects of gravity (see "*Positive connection*").

Reason: The terms "positive connection" and "positively anchored" are used in several places throughout the codes, however the terms are not defined and are very subjective to interpretation. In the IBC, these terms are specifically addressed in the Chapter 16 concerning deck attachment to the primary structure, and in Chapter 23 about the means of egress attachment to the primary structure. In the IRC, these terms can be found in chapter 3 for the attachment to primary structures for landings, decks, balconies, and decks and stairs.

Without a definition, the code official is forced to determine what "positive connection" or "positively anchored" should mean and if the installation they are reviewing and inspecting complies with the code. Since there is no definition and the term itself is so subjective this leaves a lot of room for interpretation. Adding the new definitions clarifies that a "positive connection" or "positive anchorage" is a connection that will provide a continuous load path to transmit forces between structural elements, thereby making enforcement and compliance with the code easier.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Adding this definition is a clarification to the code and will not result in cost changes as a result of including the definition in the code.

G19-25 Part II

G20-25 Part I

IBC: SECTION 202

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE.

PART I WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE.

PART II WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[BS] POSITIVE ROOF DRAINAGE. A design that accounts for deflections from all *design loads* and has sufficient ~~additional~~ slope to ensure that drainage of the roof occurs within 48 hours of precipitation.

G20-25 Part I

G20-25 Part II

IRC: SECTION 202

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

[RB] POSITIVE ROOF DRAINAGE. The drainage condition in which consideration has been made for the loading deflections of the *roof deck*, and <u>sufficient</u> ~~additional~~ slope has been provided to ensure drainage of the roof within 48 hours of precipitation.

Reason: The basic premise of positive drainage is that the roof drains water within 48 hours after precipitation ends. Additional slope is not always needed, but sufficient slope is always necessary. The current version of the definition implies that adding slope is always required. The proposed change clarifies that changes to add slope are not necessary if the existing slope is sufficient.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal offers a clarification to the existing definitions without making technical changes. As such, no impact on cost of construction is expected.

G20-25 Part II

G21-25

IBC: SECTION 202

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

PUBLIC-OCCUPANCY TEMPORARY STRUCTURE. ~~Any *building* or~~ A *temporary structure* designed for ~~erected for a period of 1 year or less that serves~~ an assembly occupancy or other public use with greater than 50 occupants .

Reason: Based on previous events resulting in injury as well as loss of life the definition should provide clear direction. The definition as currently proposed does not conclusively provide regulatory direction with regards to the focus of concern. The assignment of an occupant load of 50 individuals is aligned with the long standing understanding of an assembly concern. A temporary structure may not be used in a traditional assembly function but the proposed revision to the definition recognizes a gathering of 50 or more individuals. The specific term "Public-Occupancy" Temporary Structure should be addressed in the future. Adding the term "Public" potentially creates a unintentional categorization between public, employees and even volunteers. It should be noted that larger temporary shelters may require additional structural criteria and those should be higher than a 50 occupant threshold, but this is at least a starting point.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarfication and limit for size, not a change in requirements.

G21-25

G22-25

IBC: SECTION 202

Proponents: Jonathan Siu, Jon Siu Consulting, LLC, representing Washington Association of Building Officials Technical Code Development Committee; Constadino 'Gus' Sirakis, representing NYC Department of Buildings; Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov); Julius Carreon, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (jcarreon@bellevuewa.gov)

2024 International Building Code

Revise as follows:

PUBLIC-OCCUPANCY TEMPORARY STRUCTURE. ~~Any *building* or *structure* erected for a period of 1 year or less~~ A *temporary structure* that serves an assembly occupancy or other public use.
TEMPORARY STRUCTURE. Any *building* or *structure* erected for a ~~period of 180 days or less~~ limited period of time to support *temporary events*. *Temporary structures* include a range of *structure* types (*public-occupancy temporary structures*, temporary *special event structures*, *tents*, umbrellas and other membrane *structures*, *relocatable buildings*, temporary *bleachers*, etc.) for a range of purposes (storage, equipment protection, dining, workspace, assembly, etc.).

Reason: This proposal is being submitted to address a conflict and potential confusion in how long a temporary structure is allowed to be in place.

Under the current code, a temporary structure is defined to be one that is erected for 180 days or less. However, a public-occupancy temporary structure (hereinafter referred to as a POTS) is supposed to be a type of temporary structure, yet it is allowed to be erected for up to a year (IBC 3103.1, Exc. 1). This appears to be a direct conflict with the definition, and the proponents have received comments from people who are confused on this point. In addition, this appears to be a requirement contained in a definition.

This proposal simply deletes the requirement from the definition of temporary structure. IBC Section 3103 already contains scoping language that lays out the allowable time periods for temporary structures, so having this limitation in the definition isn't needed. (Note that a separate proposal is being submitted that makes IBC Section 108.1 on permits for temporary structures consistent with Section 3103.) However, to be clear that "temporary" is not intended to be "permanent," the definition refers to a "limited period of time," which, again, is determined in Sections 108.1 and 3103.

The definition of POTS is being simplified to indicate POTSs are a subset of temporary structures, as stated in the definition of temporary structures. The current definition also contains a requirement (the 1-year limit) that is covered in the scoping of Section 3103, so that is being deleted.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal merely removes a requirement from the definition. The requirement is covered elsewhere in the code.

G22-25

G23-25 Part I

IBC: 603.1, D102.2.4

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 3 PART CODE CHANGE.

PART I WILL BE HEARD BY THE IBC-GENERAL CODE COMMITTEE.

PART II WILL BE HEARD BY THE EXISTING BUILDING CODE COMMITTEE.

PART III WILL BE HEARD BY THE RESIDENTIAL BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 603 COMBUSTIBLE MATERIAL IN TYPES I AND II CONSTRUCTION

Revise as follows:

603.1 Allowable materials. Combustible materials shall be permitted in *buildings* of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* complying with Section 2303.2 shall be permitted in:
   1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less except in *shaft enclosures* within Group I-2 occupancies and *ambulatory care facilities.*

   1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.

   1.3. Roof construction, including girders, trusses, framing and decking.

   Exceptions:

   1. In *buildings* of Type IA construction exceeding two stories above grade plane, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
   2. Group I-2, roof construction containing *fire-retardant-treated wood* shall be covered by not less than a Class A _roof assembly_ ~~*roof covering* or roof assembly~~, and the roof assembly shall have a *fire-resistance rating* where required by the construction type.

   1.4. Balconies, porches, decks and exterior *stairways* not used as required exits on *buildings* three *stories* or less above *grade plane*.

2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

   Exceptions:

   1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
   2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.

3. Foam plastics in accordance with Chapter 26.
4. *Roof assemblies* ~~*Roof coverings*~~ that have ~~an~~ a Class A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Section 803.
8. *Trim* installed in accordance with Section 806.6.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated* wood complying with Section 2303.2, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. *Stages* and *platforms* constructed in accordance with Sections 410.2 and 410.3, respectively.
13. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic *veneer* installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.15.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.4.4 and 705.2.3.1.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.1.2.
21. Sprayed fire-resistive materials and intumescent fire-resistive materials, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.15 and 1705.16, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect *joints* in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of *buildings* of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code*.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the *building* is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
27. Wood nailers for parapet flashing and roof cants.
28. Vapor retarders as required by Section 1404.3.

APPENDIX D
FIRE DISTRICTS

SECTION D102

BUILDING RESTRICTIONS

D102.2.4 Roof covering. *Roof covering* in the fire district shall conform to the requirements of Class A or B *roof assemblies* ~~*roof coverings*~~ as defined in Section 1505.

G23-25 Part I

G23-25 Part II

IEBC: 1204.5

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Existing Building Code

SECTION 1204
CHANGE OF OCCUPANCY

Revise as follows:

1204.5 Roof covering. Regardless of occupancy or use group, *roof assemblies* ~~roof covering materials~~ not less than Class C, where tested in accordance with ASTM E108 or UL 790, shall be permitted where a fire-retardant roof covering is required.

G23-25 Part II

G23-25 Part III

IRC: R302.2.4

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.2.4 Parapets for townhouses. Parapets constructed in accordance with Section R302.2.5 shall be constructed for *townhouses* as an extension of exterior walls or common walls separating *townhouse units* in accordance with the following:

1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches (762 mm) above the roof decks.
2. Where roof decks adjacent to the wall or walls are at different elevations and the higher *roof deck* is not more than 30 inches (762 mm) above the lower *roof deck* , the parapet shall extend not less than 30 inches (762 mm) above the lower roof deck.

   Exception: A parapet is not required in the preceding two cases where the *roof assembly* ~~*roof covering*~~ complies with a minimum Class C rating as tested in accordance with ASTM E108 or UL 790 and the roof deck or sheathing is of *noncombustible materials* or *fire-retardant-treated wood* for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of $^{5}/_{8}$-inch (15.9 mm) *Type X gypsum board* is installed directly beneath the roof decking deck or sheathing, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a distance of not less than 4 feet (1219 mm) on each side of the wall or walls and any openings or penetrations in the roof deck are not within 4 feet (1219 mm) of the common walls. *Fire-retardant-treated wood* shall meet the requirements of Sections R302.15 and R803.2.1.2.
3. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher *roof deck* is more than 30 inches (762 mm) above the lower *roof deck* . The common wall construction from the lower *roof deck* to the underside of the higher *roof deck* shall have not less than a 1-hour fire-resistance rating. The wall shall be rated for exposure from both sides. Openings shall not be permitted in the wall.

Reason: This proposal advances work to improve and clarify terminology associated with roofing fire tests that started during the previous code development cycle (S1-21) and has continued during the Group A portion of the 2027 I-code cycle. Proposal FS19-24 (on the PCH consent agenda) addresses the issue described below for the Group A code sections. This proposal addresses the same issue for the relevant Group B sections.

The proposal corrects instances where results of ASTM E108 or UL 790 tests are associated with a *roof covering* or roof-covering materials instead of a *roof assembly*. ASTM E108 and UL 790 tests cannot be performed on a *roof covering,* but involve a *roof covering* (and sometimes other elements, such as insulation or underlayment) installed onto a *roof deck*. These tests are always performed on a *roof assembly,* which by definition includes a *roof covering* and a *roof deck*.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies existing code provisions without making any technical changes. Therefore, it is expected to have no effect on cost of construction.

G23-25 Part III

G24-25 Part I

IBC: SECTION 202; IEBC: SECTION 202

Proponents: Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov)

THIS IS A 3 PART CODE CHANGE.

PART I WILL BE HEARD BY THE STRUCTURAL CODE COMMITTEE.
PART II WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE.
PART III WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

[BS] ROOF REPAIR. ~~Reconstruction or~~ The renewal, restoration, or reinstallation of any part of an existing roof for ~~the purposes of correcting damage or restoring pre-damage condition~~its maintenance or for its preservation after damage
.

2024 International Existing Building Code

Revise as follows:

[BS] ROOF REPAIR. ~~Reconstruction or~~ The renewal, restoration, or reinstallation of any part of an existing roof for ~~the purpose of correcting damage or restoring the pre-damage condition~~its maintenance or for its preservation after damage
.

G24-25 Part I

G24-25 Part II

IBC: SECTION 202; IEBC: SECTION 202; ISPSC: SECTION 202

Proponents: Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov)

2024 International Building Code

Revise as follows:

[A] REPAIR. The ~~reconstruction, replacement or~~ renewal, restoration, or reinstallation of any part of an *existing building* for ~~the purpose of~~ its maintenance or ~~to correct damage~~for its preservation after damage .

2024 International Existing Building Code

Revise as follows:

[A] REPAIR. The ~~reconstruction, replacement or~~ renewal, restoration, or reinstallation of any part of an *existing building* for ~~the purpose of~~ its maintenance or ~~to correct damage~~for its preservation after damage .

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] REPAIR. The ~~reconstruction, replacement or~~ renewal, restoration, or reinstallation of any part of a pool or spa for ~~the purpose of~~ its maintenance or ~~to correct damage~~for its preservation after damage .

G24-25 Part II

G24-25 Part III

IRC: SECTION 202

Proponents: Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov)

2024 International Residential Code

Revise as follows:

[RB] REPAIR. The ~~reconstruction, replacement or~~ renewal, restoration, or reinstallation of any part of an *existing building* for ~~the purpose of~~ its maintenance or ~~to correct damage~~for its preservation after damage. For the definition applicable in Chapter 11, see Section N1101.6.
[RB] ROOF REPAIR. ~~Reconstruction or~~ The renewal, restoration, or reinstallation of any part of an existing roof for ~~the purposes of~~ its maintenance or for its preservation after damage . For the definition applicable in Chapter 11, see Section N1101.6.

Reason: The current definitions of "Repair" and "Roof Repair" in the International Building Code (IBC), International Residential Code (IRC), and International Existing Building Code (IEBC) may be ambiguous and lead to inconsistent interpretations and enforcement across these related codes. This proposed change aims to clarify the scope of both terms by:

- **Explicitly including "reinstallation"**: This addition emphasizes that removing and then reinstalling an existing component or replacing that component with an identical or equivalent one still constitutes a repair when it is only a part of an assembly or a component in equipment. This aligns with common industry practices and avoids unnecessary disputes over whether replacement constitutes repair or alteration, That is particularly relevant for a partial yet substantial “roof recover” or a partial yet substantial “roof replacement” where applicants may argue that they are repairs.
- **Clarifying the purpose of repair**: By specifying that repairs are for "maintenance or preservation," the definition provides a clear objective for repair activities. This helps distinguish routine maintenance and necessary repairs from more extensive alterations.
- **Addressing damage**: The addition of "after damage" further clarifies the scope of repair by limiting it to situations where the existing building component is no longer functional or has been compromised due to damage. This helps prevent the term "repair" from encompassing routine maintenance or minor improvements not addressing a specific damage.

These revised definitions will reduce confusion about when a repair is an alteration and visa-versa. It provides greater clarity and consistency in the interpretation and application of the International Building Code (IBC), International Residential Code (IRC), and International Existing Building Code (IEBC),leading to more predictable and equitable outcomes for building owners, contractors, code officials, and the public across all three code sets. Specifically, the clarified definition of "Roof Repair" will help ensure that roof replacement projects are appropriately categorized and evaluated, ensuring that necessary safety and performance requirements are met while avoiding unnecessary regulatory burdens on homeowners and contractors.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the intent of the definition and is purely editorial.

G24-25 Part III

G25-25

IBC: SECTION 202

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

[BG] RESIDENTIAL AIRCRAFT HANGAR. An accessory *building* ~~less than 2,000 square feet (186 m^2) and 20 feet (6096 mm) in~~ ~~*building height*~~ constructed on a one- or two-family property where aircraft are stored. Such use will be considered as a residential accessory use incidental to the *dwelling*.

SECTION 412
AIRCRAFT-RELATED OCCUPANCIES

412.4 Residential aircraft hangars. *Residential aircraft hangars* shall comply with Sections 412.4.1 through 412.4.5.

412.4.5 Height and area limits. *Residential aircraft hangars* shall be not greater than 2,000 square feet (186 m^2) in area and 20 feet (6096 mm) in *building height*.

Reason: This proposal removes technical requirements from the definition. These requirements are already listed in 412.4.5 (provided in this proposal for context).
This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is removal of redundant language. There is no change to construction.

G25-25

G26-25

IBC: SECTION 202

Proponents: Andrew Klein, A S Klein Engineering, PLLC, representing Self Storage Association (andrew@asklein.com)

2024 International Building Code

Revise as follows:

[BG] SELF-SERVICE STORAGE FACILITY. Real property designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing personal property<u>, including the long-term storage of a vehicle,</u> on a self-service basis.

Reason: Self-service storage units designed for car and RV storage are sometimes miscategorized as a Group S-2 Occupancy, parking garage. Parking garages, where vehicles frequently come-and-go, require additional mechanical ventilation that is not needed for the long-term storage of vehicles at self-service storage facilities.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Buildings used for car and RV storage at self-service storage facilities are intended to be self-service storage facilities, not parking garages.

G26-25

G27-25

IBC: SECTION 202, SECTION 202 (New), 507.6, 507.7

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

Revise as follows:

[BG] STAGE. A space within a *building* utilized for entertainment or presentations, which includes ~~overhead hanging curtains~~, ~~drops, scenery or stage effects other than~~ lighting, ~~and~~ sound, projections, and video display and the mounting provisions for them..

Type A stage. A stage that is designed and constructed for use with stage scenery.

Type B stage . A stage that is designed and constructed for use without stage scenery.

Add new definition as follows:

STAGE SCENERY. The constructed scenes or hangings used on a stage to form a theater set.

SECTION 507 UNLIMITED AREA BUILDINGS

Revise as follows:

507.6 Group A-3 buildings of Type II construction. The area of a Group A-3 *building* not more than one *story above grade plane*, used as a *place of religious worship*, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor *swimming pool* or tennis court of Type II construction, shall not be limited provided that the following criteria are met:

1. The *building* shall not have a *Type A* *stage* ~~other than a *platform*~~.
2. The *building* shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The *building* shall be surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

507.7 Group A-3 buildings of Type III and IV construction. The area of a Group A-3 *building* of Type III or IV construction, with not more than one *story above grade plane* and used as a *place of religious worship*, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor *swimming pool* or tennis court, shall not be limited provided that the following criteria are met:

1. The *building* shall not have a *Type A* *stage* ~~other than a *platform*~~.
2. The *building* shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The assembly floor shall be located 21 inches (533 mm) or less from street or grade level and all *exits* are provided with *ramps* complying with Section 1012 to the street or grade level.
4. The *building* shall be surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/

1. The term stage is often applied to areas which do not include “drops, scenery, and stage effects” such as recital and concert hall stages, raised floor areas in places of worship, raised areas in public places like malls and public transportation terminals and stations. The definition modification is an attempt to clarify that.

2. On the deletion of the platform definition in another proposal and introduction of type A and B stage changes, the existing platform definition alludes to a use and the contents of the space, whereas practically the only requirements in section 410 is for the construction of the raised floor area, permanent or temporary (403.3 and 403.3.1). This leaves any space used for entertainment and presentations designated as a platform with no requirements for the fire hazards of those uses, even with curtains.

3. Note also that not all stages and platforms are in fact even raised but just a floor area within a building. Further, today stages are

rarely raised above the floor but rather built at the same elevation as the adjacent floors.

4. The use of the term platform is further complicated by many uses of the term “platform” elsewhere in the IBC, regarding platform lifts, equipment platforms, transit and boarding platforms, several uses regarding accessibility (including fishing platforms among others), diving platforms, industrial steel work platforms, "platform decorative trim" (?), used as an equal for stairs to "landing", and item 37 in table 1607.1. The only uses in section 410 are 410.3 Platform construction and 410.3.1 Temporary platforms.

5. For coordination and clarity, every where the phrase "stage and platform" or more commonly "stages and platforms" appears, it should be edited to "stages".6. The revisions to 507.6 and 507.7 are for coordination with deletion of defined term "platform" and addition of Type A and Type B stages.

7. The term Stage Scenery has widely varying interpretations. We believe adding this definition will help narrow those. Furniture is not scenery. Flipcharts, tripods, podiums, lecterns, music stands, choral and band risers, musical instruments, portable projection screens, tables with objects, luggage, appliances, machines, etc. also, are not scenery. Scenery includes walls and ceilings, large three-dimensional objects, stairs and platforms creating multiple levels, and drops typically built with combustible materials for a stage setting. Hard to put in definition but we will suggest code commentary text and hope that will be sufficient.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial and for clarification.

G27-25

G28-25 Part I

IBC: SECTION 202, 423.3.2; IEBC: SECTION 202; IPMC: SECTION 202

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Marc Levitan, representing National Institute of Standards and Technology (marc.levitan@nist.gov)

THIS IS A 3 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE. PART III WILL BE HEARD BY THE IPMC/IZC COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[BG] STORM SHELTER. A *building*, *structure* or portions thereof, constructed in accordance with ICC 500 and ~~designated for use during~~ for protection from tornadoes hurricanes, ~~tornadoes or~~ and other severe windstorms.

Community storm shelter. A storm shelter not defined as a "Residential storm shelter."
This includes *storm shelters* intended for use by the general public, by building occupants or a combination of both.

Residential storm shelter. A storm shelter serving occupants of *dwelling units* and having an occupant load not exceeding 16 persons.

SECTION 423
STORM SHELTERS

423.3 Occupancy classification. The occupancy classification for a *storm shelter* shall be determined in accordance with this section.

423.3.1 Dedicated storm shelters. A *facility* designed to be occupied solely as a *storm shelter* shall be classified as Group A-3 for the determination of requirements other than those covered in ICC 500.

Exceptions:

1. The occupancy category for dedicated *storm shelters* with a design occupant capacity of less than 50 *persons* as determined in accordance with ICC 500 shall be in accordance with Section 303.
2. The occupancy category for a dedicated residential *storm shelter* shall be the Group R occupancy served.

423.3.2 Storm shelters occupied for other purposes ~~within host buildings~~. ~~Where designated *storm shelters* are constructed as a room or space within a host *building*~~ *Storm shelters* that will normally be occupied for other purposes shall comply with~~,~~ the requirements of this code for the occupancy of the *building*, or the individual rooms or spaces thereof, ~~shall apply~~ unless otherwise required by ICC 500.

2024 International Existing Building Code

Revise as follows:

[BG] STORM SHELTER. A *building*, *structure* or portions thereof, constructed in accordance with ICC 500 and~~designated for use during~~ for protection from tornadoes hurricanes,~~tornadoes or~~and other severe windstorms.

2024 International Property Maintenance Code

Revise as follows:

[BG] STORM SHELTER.
A *building*, *structure* or portions thereof, constructed in accordance with ICC 500 and~~designated for use during~~ for protection from tornadoes hurricanes,~~tornadoes or~~and other severe windstorms.

G28-25 Part II

IRC: SECTION 202

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Marc Levitan, representing National Institute of Standards and Technology (marc.levitan@nist.gov)

2024 International Residential Code

Revise as follows:

[RB] STORM SHELTER. A *building*, *structure* or portions thereof, constructed in accordance with ICC 500 and ~~designated for use during~~ for protection from tornadoes hurricanes, ~~tornadoes or~~ and other severe windstorms.

G28-25 Part II

G28-25 Part III

IPMC: , 311.3

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Marc Levitan, representing National Institute of Standards and Technology (marc.levitan@nist.gov)

2024 International Property Maintenance Code

SECTION 311 STORM SHELTERS

311.1 General. Community *storm shelters* shall be evaluated, maintained and repaired in accordance with this section and ICC 500.

311.2 Evaluation. Community *storm shelters* shall be evaluated annually and when requested by the authority having jurisdiction in accordance with ICC 500.

Revise as follows:

311.3 Maintenance and repairs. Community *storm shelters* shall be maintained in an ~~operable~~ operational condition. All structural ~~and operational~~ elements, impact-protective systems and critical support systems shall be repaired or replaced in accordance with ICC 500 where damaged or found to be inoperable.

Reason: Proposed changes to the next edition of ICC 500 include revising the definition to clarify the use of storm shelters. “Designating” a storm shelter is tied to classifying it for use after an event, which is makes what makes it an emergency shelter that needs to be classified as Risk Category IV. This change focuses on the primary purpose of an ICC 500-compliant storm shelter, which is protection from severe winds during an event.

The definition for 'storm shelter' also appears in the IEBC and IPMC. Since this is scoped to the IBC, the other codes will also be revised.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

The ICC 500 (Standard for the Design and Construction of Storm Shelters) development committee has held several virtual meetings during 2022 and 2023 to develop the 2023 edition. In addition, there were numerous virtual Working Group meetings. All meetings included members of the committee as well as interested parties. Related documents and reports are posted on the ICC 500 website at ICC 500.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial clarification for the definition and description for storm sheleters with no change to construction requirements.

G28-25 Part III

G29-25

IBC: [A] 105.2, 201.3, SECTION 202, SECTION 202 (New), 1010.2.3, 1110.18, 1111.4.14, 1808.7.3, 2406.2, 2406.4.5, 3101.1, SECTION 3109, 3109.1; IFC: [BE] 1010.2.3; IPC: SECTION 202; IFGC: SECTION 617 (IFGC), 617.1; IRC: SECTION G2441 (617), G2441.1 (617.1)

Proponents: Jeff Grove, Chair, representing Building Code Action Committee (BCAC) (bcac@iccsafe.org); Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org)

2024 International Building Code

Revise as follows:

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *International Energy Conservation Code* , *International Fuel Gas Code* , *International Fire Code* , *International Mechanical Code*, ~~or~~ *International Plumbing Code*, or the *International Swimming Pool and Spa Code*, such terms shall have the meanings ascribed to them as in those codes.

[BG] SWIMMING POOL. Any *structure* or product intended for swimming, ~~recreational~~ bathing or wading; ~~that contains water over 24 inches (610 mm) deep~~ designed and manufactured to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each use. ~~This includes in-ground, above-ground and on-ground pools; hot tubs; spas and fixed-in-place wading pools.~~

Add new definition as follows:

SPA. Any structure or product intended for the immersion of persons in temperature-controlled water for the purpose of relaxing, exercise, therapy or treatment; designed and manufactured to be connected to a circulation system; and not intended to be drained and filled with each use.

Revise as follows:

[A] 105.2 Work exempt from permit. Exemptions from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction*. *Permits* shall not be required for the following:

Building:

1. One-story detached accessory *structures* used as tool and storage sheds, playhouses and similar uses, provided that the floor area is not greater than 120 square feet (11 m^2).
2. Fences, other than swimming pool and spa barriers, not over 7 feet (2134 mm) high.
3. Oil derricks.
4. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
5. Water tanks supported directly on grade if the capacity is not greater than 5,000 gallons (18 925 L) and the ratio of height to diameter or width is not greater than 2:1.
6. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any *basement* or *story* below and are not part of an *accessible route*.
7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated *swimming pools* accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground.
10. Shade cloth *structures* constructed for nursery or agricultural purposes, not including service systems.
11. Swings and other playground equipment accessory to detached one- and two-family *dwellings*.
12. Window *awnings* in Group R-3 and U occupancies, supported by an *exterior wall* that do not project more than 54 inches (1372 mm) from the *exterior wall* and do not require additional support.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

1. ***Repairs* and maintenance:** Minor *repair* work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.
2. **Radio and television transmitting stations:** The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and antennas.
3. **Temporary testing systems:** A *permit* shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part that does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (4.54 kg) or less of refrigerant and actuated by motors of 1 horsepower (0.75 kW) or less.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided that such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

SECTION 1010
DOORS, GATES AND TURNSTILES

1010.2.3 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor.

Exceptions:

1. Locks used only for security purposes and not used for normal operation are permitted at any height.
2. Where the International Swimming Pool and Spa Code requires restricting access to a swimming pool ~~,~~ or spa ~~or hot tub~~, and where door and gate latch release mechanisms are accessed from the outside of the barrier and are not of the self-locking type, such a mechanism shall be located above the finished floor or ground surface not less than 52 inches (1219 mm) and not greater than 54 inches (1370 mm), provided that the latch release mechanism is not a self-locking type such as where the lock is operated by means of a key, electronic opener or the entry of a combination into an integral combination lock.

SECTION 1110
OTHER FEATURES AND FACILITIES

1110.18 Controls, operating mechanisms and hardware. Controls, operating mechanisms and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in accessible spaces, along *accessible routes* or as parts of accessible elements shall be accessible.

Exceptions:

1. Operable parts that are intended for use only by service or maintenance personnel shall not be required to be *accessible.*
2. Access doors or gates in barrier walls and fences protecting swimming pools ~~,~~ and spas ~~and hot tubs~~ shall be permitted to comply with Section 1010.2.3.
3. Operable parts exempted in accordance with ICC A117.1 are not required to be accessible.

SECTION 1111
RECREATIONAL FACILITIES

1111.4.14 Swimming pools~~, wading pools, cold baths, hot tubs~~ and spas. *Swimming pools*~~, wading pools, cold baths, hot tubs~~ and spas shall be *accessible* and be on an *accessible route*.

Exceptions:

1. A catch pool or a designated section of a pool used as a terminus for a water slide flume shall not be required to provide an *accessible* means of entry, provided that a portion of the catch pool edge is on an *accessible route* or, where the area at the catch pool edge is located on a raised platform restricted to use by staff and persons exiting the pool, an *accessible* route serves the gate or area where participants discharge from the activity.
2. Where spas~~, cold baths or hot tubs~~ are provided in a cluster, at least 5 percent, but not less than one of each type of spa~~, cold bath or hot tub~~ in each cluster, shall be *accessible* and be on an *accessible* route.
3. *Swimming pools*~~,~~ <u>and</u> ~~wading pools,~~ spas~~, cold baths and hot tubs~~ that are required to be *accessible* by Sections 1111.2.2 and 1111.2.3 are not required to provide *accessible* means of entry into the water.

SECTION 1808
FOUNDATIONS

1808.7.3 <u>Swimming pools</u> ~~Pools~~. The setback between <u>swimming</u> pools regulated by this code and slopes shall be equal to one-half the *building* footing setback distance required by this section. That portion of the <u>swimming</u> pool wall within a horizontal distance of 7 feet (2134 mm) from the top of the slope shall be capable of supporting the water in the <u>swimming</u> pool without soil support.

SECTION 2406
SAFETY GLAZING

2406.2 Impact test. Where required by other sections of this code, glazing shall be tested in accordance with CPSC 16 CFR Part 1201. Glazing shall comply with the test criteria for Category II, unless otherwise indicated in Table 2406.2(1).

Exception: Glazing not in doors or enclosures for ~~hot tubs, whirlpools~~ <u>spas</u>, saunas, steam rooms, bathtubs and showers shall be permitted to be tested in accordance with ANSI Z97.1. Glazing shall comply with the test criteria for Class A, unless otherwise indicated in Table 2406.2(2).

2406.4.5 Glazing and wet surfaces. Glazing in walls, enclosures or fences containing or facing ~~hot tubs,~~ spas, ~~whirlpools,~~ saunas, steam rooms, bathtubs, showers and indoor or outdoor *swimming pools* where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface shall be considered to be a hazardous location. This shall apply to single glazing and all panes in multiple glazing.

Exception: Glazing that is more than 60 inches (1524 mm), measured horizontally and in a straight line, from the water's edge of a bathtub, ~~hot tub,~~ spa~~, whirlpool~~ or *swimming pool*.

SECTION 3101
GENERAL

3101.1 Scope. The provisions of this chapter shall govern special *building* construction including membrane *structures*, *temporary structures*, *pedestrian walkways* and tunnels, *awnings* and *canopies*, *marquees*, signs, telecommunications and broadcast towers, *swimming pools*~~,~~ <u>and</u> spas ~~and hot tubs~~, automatic vehicular gates, solar energy systems, *greenhouses*, relocatable buildings and *intermodal shipping containers*.

SECTION 3109
SWIMMING POOLS~~,~~ AND SPAS ~~AND HOT TUBS~~

3109.1 General. The design and construction of *swimming pools*~~,~~ and spas ~~and hot tubs~~ shall comply with the *International Swimming Pool and Spa Code* .

2024 International Fire Code

Revise as follows:

[BE] 1010.2.3 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor.

Exceptions:

1. Locks used only for security purposes and not used for normal operation are permitted at any height.
2. Where the International Swimming Pool and Spa Code requires restricting access to a swimming pool ~~,~~ or spa ~~or hot tub~~, and where door and gate latch release mechanisms are accessed from the outside of the barrier and are not of the self-locking type, such a mechanism shall be located above the finished floor or ground surface, not less than 52 inches (1219 mm) and not greater than 54 inches (1370 mm), provided that the latch release mechanism is not a self-locking type such as where the lock is operated by means of a key, electronic opener or the entry of a combination into an integral combination lock.

2024 International Plumbing Code

Revise as follows:

[BG] SWIMMING POOL. ~~A permanent or temporary~~ Any structure or product ~~that is~~ intended to be used for swimming, bathing or wading; ~~and that is~~ designed and manufactured ~~or built~~ to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each use ~~A swimming pool can be open to the public regardless of whether a fee is charged for its use or can be accessory to a residential setting where the pool is available only to the household and guests of the household.~~

2024 International Fuel Gas Code

Revise as follows:

SECTION 617 (IFGC)
SWIMMING POOL AND SPA HEATERS

617.1 General. ~~Pool~~ Swimming Pool and spa heaters shall be *listed* in accordance with ANSI Z21.56/CSA 4.7 and shall be installed in accordance with the manufacturer's instructions.

2024 International Residential Code

Revise as follows:

SECTION G2441 (617)
SWIMMING POOL AND SPA HEATERS

G2441.1 (617.1) General. ~~Pool~~ Swimming pool and spa heaters shall be *listed* in accordance with ANSI Z21.56/CSA 4.7 and shall be installed in accordance with the manufacturer’s instructions.

Reason: This proposal is in coordination with the ISPSC new definitions for swimming pool and spa being proposed by the PMGCAC. This proposal also proposes to use the definitions consistently throughout the IBC. "Swimming pool" is already used in Section 105.2 Item 9, 303.4, 303.5, 507.6, 507.7, Table 1004.5 (in one location), 1202.3, 2609.4, 3102.8.3 and G112.5.

The definition for "spa" includes inground permanent spas and portable electric spas also known as hot tubs, as well as cold baths, all of which are connected to a circulation system and not intended to be drained and filled with each use. It does not include a whirlpool, which is a type of bathtub with jets that propel water, which is drained after each use. The proposal removes all references to “whirlpools” when addressing types of spas used in the aquatic industry. Using the definition will reduce 'laundry lists' in the code and provides consistency.

The BCAC will also be submitting coordinating proposals in Group B for the IRC, IZC and IECC.

This is also intended to be consistent with code changes proposed for the definitions in the ISPSC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) and the ICC Plumbing Mechanical Gas Code Action Committee (PMGCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 PMGCAC has held several virtual meetings open to any interested party. In addition, there were several virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the PMGCAC website at PMGCAC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is for consistent terminology for swimming pools and spas throughout the IBC. There are no technical changes.

Staff Analysis: The defintion for 'swimming pool' and 'spa' in the ISPSC was modified by SP1-24. IRC Chapter 24 is copied from the IFGC; see RB38-25.

G29-25

G30-25

IBC: SECTION 202

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

TEMPORARY STRUCTURE. Any *building* or *structure* erected ~~for a period of 180 days or less~~ to support *temporary events*. ~~*Temporary structures* include a range of *structure* types (*public-occupancy temporary structures*, temporary *special event structures*, *tents*, umbrellas and other membrane *structures*, *relocatable buildings*, temporary *bleachers*, etc.) for a range of purposes (storage, equipment protection, dining, workspace, assembly, etc.).~~

Reason: There are two issues with the defintion of temporary structure - the days and the list.
The provisions address 180 days to 365 days, but this definition sets the limit at 180 days. This is confusing and contradictory. The period of time is already addressed in Section 3103.1 - so why repeat it?

3103.1 General. The provisions of Sections 3103.1 through 3103.8 shall apply to *structures* erected for a period of less than 180 days. Temporary *special event structures*, *tents*, umbrella *structures* and other membrane *structures* erected for a period of less than 180 days shall also comply with the *International Fire Code*. *Temporary structures* erected for a longer period of time and *public-occupancy temporary structures* shall comply with applicable sections of this code.

Exceptions:

1. *Public-occupancy temporary structures* complying with Section 3103.1.1 shall be permitted to remain in service for 180 days or where *approved* by the *building official*.
2. *Public-occupancy temporary structures* within the confines of an *existing structure* are not required to comply with Section 3103

Why use 'umbrella' and not 'umbrella structures?' That is the defined term in the IFC and what is listed in 3103.1.

UMBRELLA STRUCTURE.
A structure, enclosure or shelter with or without sidewalls or drops, constructed of fabric or pliable material supported by a central pole or poles (see "*Tent*").

If these provisions are to protect the public why are we listing storage and equipment protection? Workspace?

No definition should include "etc." in a laundry list!

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a defintion. There are no changes to the construction requirements.

G30-25

G31-25

IBC: SECTION 202 (New)

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

THIS CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2024 International Building Code

Add new definition as follows:

TORNADO-PRONE REGION. The area of the conterminous United States most vulnerable to tornadoes, as shown in Figure 1609.5.

Reason: ASCE 7-22 introduced Chapter 32 Tornado Loads and related provisions in Chapter 1 General, Chapter 2 Combination of Loads, and Chapter 26 Wind Loads: General Requirements. While IBC 2024 generally adopted the new ASCE 7-22 provisions, several sections of IBC 2024 do not adequately clarify the tornado design requirements. This proposal includes adding a Chapter 2 Definition for the Tornado-Prone Region.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposed IBC code changes are generally editorial clarifications that improve the thoroughness of IBC for alignment to the introduction of tornado loads in ASCE 7-22 and IBC 2024.

Staff Analysis: The term 'tornado-prone region' is currently once used in Section 1609.5 and is the titel of Figure 1609.5.

G31-25

G32-25 Part I

IBC: SECTION 202; IFC: SECTION 202

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

THIS IS A 2 PART CODE CHANGE.

PART I WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE.

PART II WILL BE HEARD BY THE RESIDENTIAL BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[A] TOWNHOUSE UNIT. A single-family *dwelling* unit in a *townhouse* that extends from the foundation to the roof and has a *yard,court* or *public way* on not fewer than two sides.

2024 International Fire Code

Revise as follows:

[A] TOWNHOUSE UNIT. A single-family*dwelling*unit in a*townhouse*that extends from the foundation to the roof and has a*yard, court*or*public way*on not fewer than two sides.

G32-25 Part I

G32-25 Part II

IRC: SECTION 202

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Residential Code

Revise as follows:

[RB] TOWNHOUSE UNIT. A single-family *dwelling unit* in a *townhouse* that extends from foundation to roof and that has a *yard*,*court* or *public way* on not less than two sides.

Reason: The current definition of townhouse unit requires that the unit have a yard or public way on two sides, and the definition of yard requires the yard to be an open space other than a court. By definition, a court is a space bounded on three or more sides by walls or buildings. Based on these definitions, townhouses that are staggered front to back create courts which are not allowed. Given that IRC Section R302.1 requires a lot line or an imaginary line between townhouse units to measure fire separation distance to, exterior walls of the units adjacent to a court will be protected based on distance to these lines, preventing fire spread from one unit to another. Therefore, there is no hazard addressed by prohibiting a court to count as an open side for a townhouse. Note that the imaginary line requirement was added in the 2024 IRC and without this there may have been a hazard in previous codes if there was no lot line and the exterior walls were not protected to prevent spread of fire from one unit to another. See figure below showing the staggered townhouse configuration with a court.

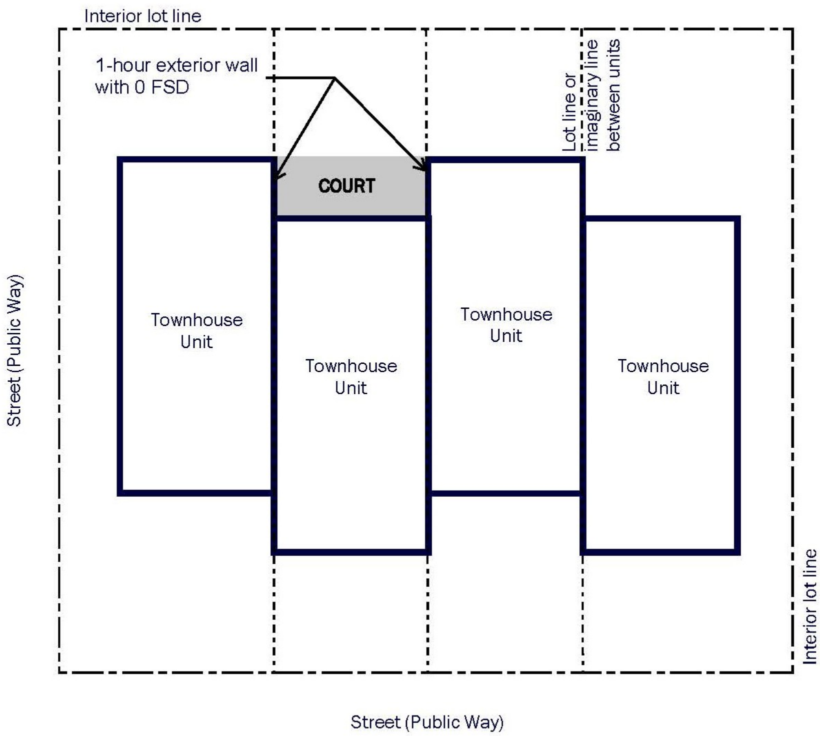
Note that if a townhouse unit has an emergency escape and rescue opening (EERO) on the court side of the unit, IRC Section R319.1 requires the court (or yard) to open to a public way, which will typically prohibit an enclosed court (i.e., all sides having a wall or building). However, if a condition exists where there are no EERO openings into the court, and exterior walls are protected based on lot lines or imaginary lines, an enclosed court would be allowed just as an enclosed yard is currently allowed.

The definitions of court and yard are included in this proposal for reference - there are no proposed changes to these definitions.

This proposal revises the definition of townhouse unit to include a court as one of the required open sides. As described above, this condition presents no hazard due to new requirements for lot lines or imaginary lines between units.

The following defintions are located here for reference:

> **[BG] COURT.** An open, uncovered space, unobstructed to the sky, bounded on three or more sides by exterior *building* walls or other enclosing devices.
>
> **[BG] YARD.** An open space, other than a *court*, unobstructed from the ground to the sky, except where specifically provided by this code, on the *lot* on which a *building* is situated.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply adds an option for an open side of a townhouse unit to be a court. This adds a design option not previously allowed but is not expected to change the cost of construction since either townhouse separation walls or fire-resistance rated exterior walls are currently required for adjacent townhouse units.

G32-25 Part II

G33-25 Part I

IBC: SECTION 202

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

[BS] WINDBORNE DEBRIS REGION. Areas within *hurricane-prone regions* located:

1. Within 1 mile (1.61 km) of the mean high-water line where an Exposure D condition exists upwind at the waterline and the basic wind speed, *V*, is 130 mph (58 m/s) or greater. ~~; or~~
2. In areas where the basic wind speed, *V*, is 140 mph (63 m/s) or greater.
3. Anywhere in the State of Hawaii.

For *Risk Category* II buildings and structures and Risk Category III buildings and structures, except health care facilities, the windborne debris region shall be based on Figure 1609.3.(1). For *Risk Category* IV buildings and structures and *Risk Category* III health care facilities, the windborne debris region shall be based on Figure 1609.3(2).

Reason: This coordination code change proposal will align the IBC with requirements of existing standards required in the State of Hawaii. Additionally, the revisions to ASCE 7 are occurring simultaneously, which will result in clear requirements in both the governing standards and the code.

Technical Rationale

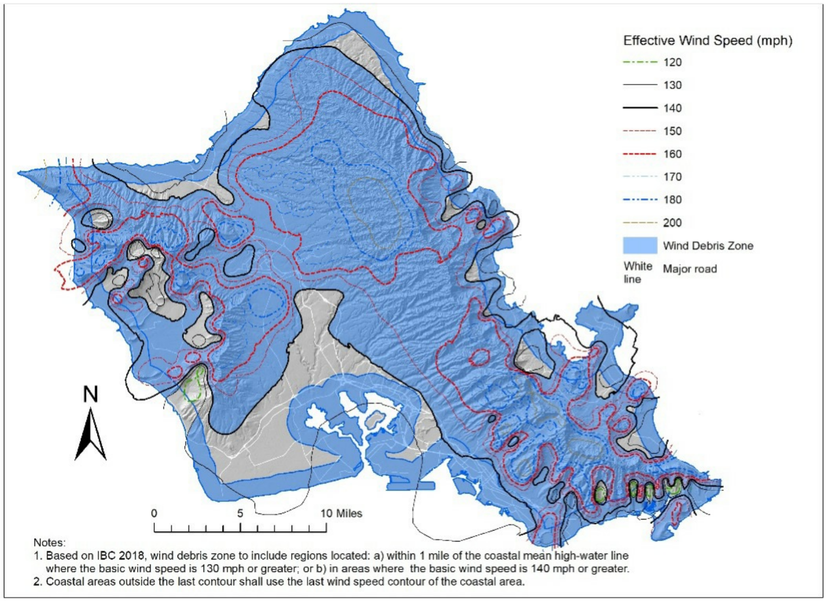
Physically implausible wind debris regions result in Hawaii when its micro-zoned Basic Wind Speed maps with complex topographic effects are used for defining the wind-borne debris region. As illustrated below, applying the wind maps with the criteria laid out in the ASCE 7-22, Section 26.12.3.1, which is also captured in the I-codes definition of a windborne debris region, results in very irregular debris zones with interspersed veins of excluded areas that have vanishing thin extents as well as small pockets of windborne debris zones.

Furthermore, on Kauai, the wind-borne debris region per ASCE 7-22 and the current I-code windborne debris region definition, excludes the town of Lihue that had photographic and video documentation of copius amounts of large wind-borne debris during Hurricane Iniki (1992). The relatively small dimensions of the islands in Hawaii generally do not result in degradation of the intensities of landfalling or near-landfalling hurricanes.

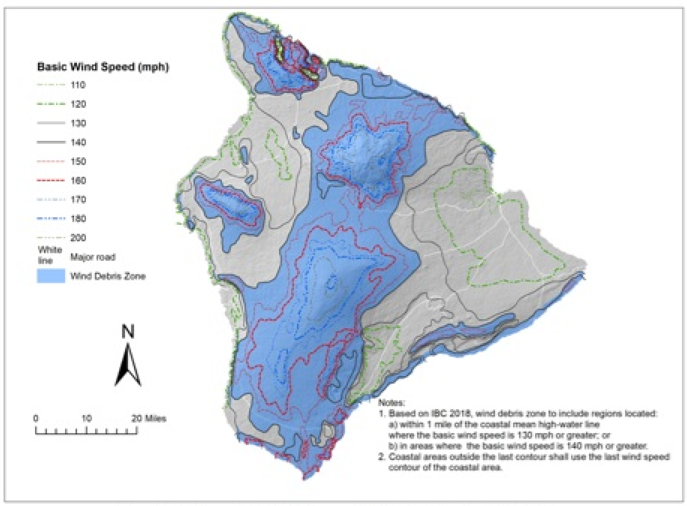
Since 2005 to the present, ASTM E1996, Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes, has defined all of Hawaii to be in Wind Zone 1. Further, most recently, a proposal to address this issue was put forth to the ASCE 7 Subcommittee on Wind Loads, where it passed both that subcommittee and the main committee for adoption into the next edition.

To avoid contradictions and to re-establish consistency with the simple and clear definition for Hawaii that has existed in ASTM E1996, and as proposed in what will be the 2028 edition of ASCE 7, this ICC proposal follows by adding a third category that makes it clear the entire state of Hawaii is within a wind-borne debris region. This also brings consistency with the windborne debris region definition in the IRC that does list Hawaii, although a corresponding code change to that definition has also been submitted to make the language completely identical.

Additional information with pictures that illustrate the problem follows.

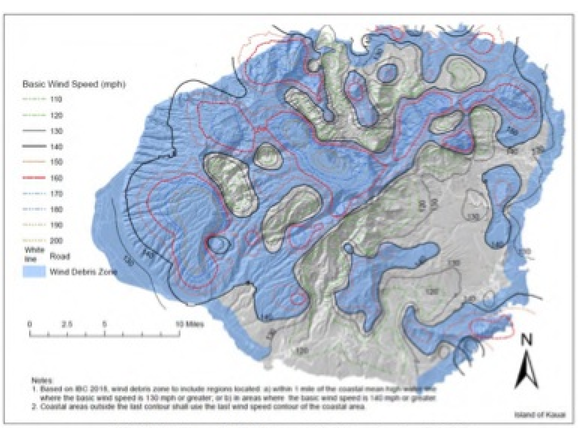


Wind Debris Zones for Risk Category II Buildings Based on IBC 2018



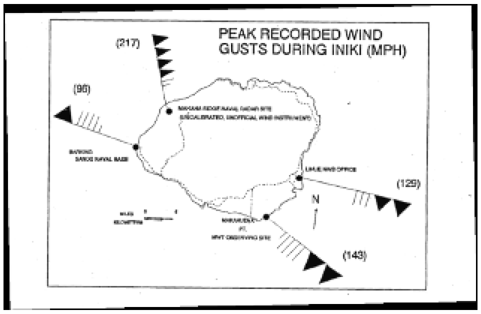
Wind Debris Zones for Risk Category II Buildings Based on IBC 2018

The above illustrates Hawaii windborne debris regions for RC II when applying the criteria of ASCE 7-16/ASCE 7-22/IBC 2018, 2021, and 2024.



Wind Debris Zones for Risk Category II Buildings Based on IBC 2018

The above illustrates the problematic Kauai windborne debris regions for RC II per ASCE 7-16/ASCE 7-22/IBC 2018, 2021, and 2024.



NOAA Natural Disaster Survey Report and NOAA Storm Data for September 1992

Wind-Borne Debris in Lihue, Kauai, during Hurricane Iniki (1992). Figure insert caption states, “Sheets of roofing iron, a pallet, broken plants and other debris fly though the air at height of Hurricane Iniki in Lihue, Kauai.”

Hurricane Iniki –Preliminary Observations of Wind Engineering Research Council Post-Disaster Team (Perry, Chiu, and Schroeder): “With few exceptions, loss of windows and roof coverings of all types was common, resulting in major water damage to building contents and interiors. Most glass breakage appeared to be due to wind borne debris.”

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no resulting cost implication from this code change proposal because these requirements are already existing and required by the State of Hawaii.

G33-25 Part I

G33-25 Part II

IRC: SECTION 202

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Residential Code

[RB] WINDBORNE DEBRIS REGION. Areas within *hurricane-prone regions* located ~~in accordance with one of the following~~:

1. Within 1 mile (1.61 km) of the mean high-water line where an Exposure D condition exists upwind at the water line and the ultimate design wind speed, V_{ult}, is 130 mph (58 m/s) or greater.

2. In areas where the ultimate design wind speed, V_{ult}, is 140 mph (63 m/s) or greater~~; or Hawaii~~.

3. <u>Anywhere in the state of Hawaii.</u>

Reason: This coordination code change proposal will align the IBC with requirements of existing standards required in the State of Hawaii. Additionally, the revisions to ASCE 7 are occurring simultaneously, which will result in clear requirements in both the governing standards and the code. This change is also being proposed in the IBC for consistency.

<u>Technical Rationale</u> Physically implausible wind debris regions result in Hawaii when its micro-zoned Basic Wind Speed maps with complex topographic effects are used for defining the windborne debris region. Applying the wind maps with the criteria laid out in the ASCE 7-22, Section 26.12.3.1, results in very irregular debris zones with interspersed veins of excluded areas that have vanishingly thin extents as well as small pockets of windborne debris zones. Furthermore, on Kauai, the 2022 edition of ASCE 7 excludes the town of Lihue that had photographic and video documentation of copius amounts of large windborne debris during Hurricane Iniki (1992). The relatively small dimensions of the islands in Hawaii generally do not result in degradation of intensities of landfalling or near-falling hurricanes.

Since 2005 to the present, ASTM E1996, Standard for Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes, has defined all of Hawaii to be in Wind Zone 1. Further, most recently, a proposal to address this issue was put forth to the ASCE 7 Subcommittee on Wind Loads, where it passed both that subcommittee and the main ASCE 7 committee for adoption in what will be the 2028 edition.

A corresponding proposal in the IBC, where the windborne debris region definition is completely silent on Hawaii, has been submitted based on the above reasoning and clearly adds anywhere in the State of Hawaii as the 3rd area classified a windborne debris region. The IRC is not silent about Hawaii, but this proposal aligns the IRC definition to be consistent with the IBC proposal, and make it clear that anywhere in the State of Hawaii falls within the windborne debris region.

This proposal and its corresponding IBC proposal, if adopted, would then have the I-codes align with how Hawaii will be treated in the 2028 edition of ASCE 7 as well as how the state is currently classified in the ASTM E1996 Standard.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no resulting cost implication from this code change proposal because these requirements are already existing and required by the State of Hawaii.

G33-25 Part II

G34-25

IBC: 303.1.2; IFC: [BG] 203.2.2

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 303 ASSEMBLY GROUP A

Delete and substitute as follows:

~~**303.1.2 Small assembly spaces.** The following rooms and spaces shall not be classified as Assembly occupancies:~~

1. ~~A room or space used for assembly purposes with an *occupant load* of less than 50 *persons* and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.~~
2. ~~A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.~~

<u>**303.1.2 Small assembly spaces.** Rooms or spaces used for assembly purposes that are less than 750 square feet (70 m^2) in area, or with an occupant load less than 50 persons, shall be classified as Group B or part of the main occupancy.</u>

2024 International Fire Code

Delete and substitute as follows:

~~**[BG] 203.2.2 Small assembly spaces.** The following rooms and spaces shall not be classified as Assembly occupancies:~~

1. ~~A room or space used for assembly purposes with an *occupant load* of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.~~
2. ~~A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.~~

<u>**[BG] 203.2.2 Small assembly spaces.** Rooms or spaces used for assembly purposes that are less than 750 square feet (70 m^2) in area, or with an occupant load less than 50 persons, shall be classified as Group B or part of the main occupancy.</u>

Reason: The change will clarify the intent of the provision is that the assembly space is a support space for the main occupancy, such as conference rooms in office buildings and fitness rooms in residential buildings. Some jurisdictions use the 10 percent of the area of the story threshold of Section 508.2 when applying this provision because the word "accessory" is used. The misinterpretation unnecessarily limits the size of conference rooms in small office buildings.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change would not increase the cost of construction because it is clarifying that the code permits small assembly spaces in smaller buildings.

G34-25

G35-25

IBC: 303.1.2, TABLE 1607.1; IFC: [BG] 203.2.2

Proponents: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

THIS CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2024 International Building Code

Revise as follows:

303.1.2 Small assembly ~~spaces~~ areas. The following rooms and spaces shall not be classified as Assembly occupancies:

1. A room or space used for assembly purposes with an *occupant load* of less than 50 *persons* and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
2. A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.

TABLE 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_0, AND MINIMUM CONCENTRATED LIVE LOADS

OCCUPANCY OR USE		UNIFORM (psf)	CONCENTRATED (pounds)	ALSO SEE SECTION
1. Apartments (see residential)		—	—	—
2. Access floor systems	Office use	50	2,000	—
	Computer use	100	2,000	—
3. Armories and drill rooms		150[a]	—	—
4. Assembly areas	Fixed seats (fastened to floor) <u>and small assembly areas in accordance with Section 303.1.2</u>	60[a]	—	—
	Lobbies	100[a]		
	Movable seats	100[a]		
	Stage floors	150[a]		
	Platforms (assembly)	100[a]		
	Bleachers, folding and telescopic seating and grandstands	100[a] (See Section 1607.18)		
	Stadiums and arenas with fixed seats (fastened to the floor)	60[a] (See Section 1607.18)		
	Other assembly areas	100[a]		
5. Balconies and decks		1.5 times the live load for the area served, not required to exceed 100	—	—
6. Catwalks for maintenance and service access		40	300	—
7. Cornices		60	—	—
8. Corridors	First floor	100	—	—
	Other floors	Same as occupancy served except as indicated		
9. Dining rooms and restaurants		100[a]	—	—
10. Dwellings (see residential)		—	—	—
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)		—	300	—
12. Finish light floor plate construction (on area of 1 inch by 1 inch)		—	200	—
13. Fire escapes		100	—	—
	On single-family dwellings only	40		
14. Fixed ladders		See Section 1607.10		—
15. Garages and vehicle floors	Passenger vehicle garages	40[c]	See Section 1607.7	—
	Trucks and buses	See Section 1607.8		
	Fire trucks and emergency vehicles	See Section 1607.8		
	Forklifts and movable equipment	See Section 1607.8		
16. Handrails, guards and grab bars		See Section 1607.9		—
17. Helipads	Helicopter takeoff weight 3,000 pounds or less	40[a]	See Section 1607.6.1	Section 1607.6
	Helicopter takeoff weight more than 3,000 pounds	60[a]	See Section 1607.6.1	Section 1607.6
	Corridors above first floor	80	1,000	
	Operating rooms, laboratories	60	1,000	

OCCUPANCY OR USE		UNIFORM (psf)	CONCENTRATED (pounds)	ALSO SEE SECTION
18. Hospitals	Patient rooms	40	1,000	
19. Hotels (see residential)		—	—	—
20. Libraries	Corridors above first floor	80	1,000	—
	Reading rooms	60	1,000	—
	Stack rooms	150[b]	1,000	Section 1607.17
21. Manufacturing	Heavy	250[b]	3,000	—
	Light	125[b]	2,000	
22. Marquees, except one- and two-family dwellings		75	—	—
23. Office buildings	Corridors above first floor	80	2,000	—
	File and computer rooms shall be designed for heavier loads based on anticipated occupancy	—	—	
	Lobbies and first-floor corridors	100	2,000	
	Offices	50	2,000	
24. Penal institutions	Cell blocks	40	—	—
	Corridors	100		
25. Public restrooms		Same as live load for area served but not required to exceed 60 psf	—	—
26. Recreational uses	Bowling alleys, poolrooms and similar uses	75[a]	—	—
	Dance halls and ballrooms	100[a]		
	Gymnasiums	100[a]		
	Theater projection, control, and follow spot rooms	50		
	Ice skating rinks	250[b]		
	Roller skating rinks	100[a]		
27. Residential	One- and two-family dwellings:		—	Section 1607.21
	Uninhabitable attics without storage	10		
	Uninhabitable attics with storage	20		
	Habitable attics and sleeping areas	30		
	Canopies, including marquees	20		
	All other areas	40		
	Hotels and multifamily dwellings:			
	Private rooms and corridors serving them	40		
	Public rooms	100 [a]		
	Corridors serving public rooms	100		
28. Roofs	Ordinary flat, pitched, and curved roofs (that are not occupiable)	20	—	Section 1607.14
	Roof areas used for assembly purposes	100[a]	—	
	Roof areas used for occupancies other than assembly	Same as occupancy served	—	
	Vegetative and landscaped roofs:			
	Roof areas not intended for occupancy	20	—	
	Roof areas used for assembly purposes	100[a]	—	
	Roof areas used for occupancies other than assembly	Same as occupancy served	—	
	Awnings and canopies:			
	Fabric construction supported by a skeleton structure	5[a]	—	
	All other construction, except one- and two-family dwellings	20	—	
	Primary roof members exposed to a work floor:			Section 1607.15
	Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs over manufacturing, storage warehouses, and repair garages	—	2,000	
	All other primary roof members	—	300	
	All roof surfaces subject to maintenance workers	—	300	
29. Schools	Classrooms	40	1,000	—
	Corridors above first floor	80	1,000	
	First-floor corridors	100	1,000	
30. Scuttles, skylight ribs and accessible ceilings		—	200	—
31. Sidewalks, vehicular driveways and yards, subject to trucking		250[b]	8,000	Section 1607.19
32. Stairs and exits	One- and two-family dwellings	40	300	Section 1607.20
	All other	100	300	Section 1607.20
33. Storage areas above ceilings		20	—	—
34. Storage warehouses (shall be designed for heavier loads if required for anticipated storage)	Heavy	250[b]	—	—
	Light	125[b]		
	Retail:			

	OCCUPANCY OR USE		UNIFORM (psf)	CONCENTRATED (pounds)	ALSO SEE SECTION
35.	Stores				—
		First floor	100	1,000	
		Upper floors	75	1,000	
		Wholesale, all floors	125[b]	1,000	
36.	Vehicle barriers		See Section 1607.11		—
37.	Walkways and elevated platforms (other than exitways)		60	—	—
38.	Yards and terraces, pedestrian		100[a]	—	—

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm^2, 1 square foot = 0.0929 m^2, 1 pound per square foot = 0.0479 kN/m^2, 1 pound = 0.004448 kN.

a. Live load reduction is not permitted.

b. Live load reduction is only permitted in accordance with Section 1607.13.1.2 or Item 1 of Section 1607.13.2.

c. Live load reduction is only permitted in accordance with Section 1607.13.1.3 or Item 2 of Section 1607.13.2.

2024 International Fire Code

Revise as follows:

[BG] 203.2.2 Small assembly ~~spaces~~ areas. The following rooms and spaces shall not be classified as Assembly occupancies:

1. A room or space used for assembly purposes with an *occupant load* of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
2. A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.

Attached Files

- **ASCE 2023 Structural Journal Article Corotis-et-al reduced part 2.pdf**
  https://www.cdpaccess.com/proposal/11073/35127/files/download/8924/
- **ASCE 2023 Structural Journal Article Corotis-et-al reduced part 1.pdf**
  https://www.cdpaccess.com/proposal/11073/35127/files/download/8923/

Reason: The proposed code change is intended to avoid confusion caused when an assembly area is classified as a occupancy Group B and not occupancy Group A2 or A-3. This allowance dates back to the legacy codes. The floor live load table in IBC Table 1607.1 displays live loads based on uses based and not based on occupancy and generalizes all assembly areas.

Assembly areas with fixed seating are assigned a lower live load since the seating area is better defined. When the floor live load for an assembly area using fixed seats is shown at 60 psf a logical reason is the location of the load is defined and not moveable and by defining the seating an aisle is collaterally defined.

When 7 psf per occupant is multiplied by 7 results in 700 lb per occupant it is clear that the load builds in a level of conservatism to account for occupant comfort due to floor vibrations, deflection and also the possibly of the occupants clustered in one area of the floor and not others.

Small assembly areas are similar to areas of fixed seating and when employee lunch areas, small conference rooms and small restaurants like a fast-food subway sandwich store are proposed; the small space has a floor area less than 750 sq ft in the assembly areas is self-limiting, a 25 by 30 area that includes seating, merchandizing shelving etc.

My jurisdiction during the 1990's assigned a floor live load of 75 psf similar to what a legacy code required for retail spaces.

There is limited literature on this subject however proponent is aware of proposals to ASCE 7 for a similar subject area for huddle rooms. An article "Design Live Loads for Office Gathering Spaces published in the Journal of Structural Engineering in 2023 recommends revisiting the building code requirements and using a 50 pfs floor live load for huddle rooms that are small assembly areas.

Small assembly areas include furniture like seating, conference tables etc to make the space useable and as a result the load is forced to be distributed.

Bibliography: ASCE Structural

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This code change will reduce confusion and will reduce the cost of construction since office buildings include floors designed for 70 psf LL (office live load plus partition loads). Floor live load has changed over the decades, and since the legacy Uniform Building Code, and as a result the cost reduction is zero in an existing building since the floor will most likely be compliant with the proposed 60 psf live load. With the proposed live load existing and proposed floors will certainly more compliant than if the 100 pf live load required by the 2024 IBC is implemented; the 2024 IBC will require significant strengthening of the existing floor, or heavier framing for new floors. In an existing building this could cost $300,000 or more in a steel framed building or $100,000 to $200,000 in a wood framed building. In accordance with "Building Valuation Data – FEBRUARY 2024" for a Group B occupancy Type IA construction is 38% more costly than Type VA construction. Concrete buildings tend have floors with additional capacity since a large portion of the gravity load is the dead load due to the heavy weight of reinforced concrete. In a new building the cost increase will be 20% if constructed with structural steel and less if constructed with concrete since additional reinforcing and concrete may be required with roughly the same labor costs; if prestressed concrete it can assumed to be less costly than reinforced concrete since additional pre-stressing and slightly thicker slabs may be require.

Estimated Immediate Cost Impact Justification (methodology and variables):

Lower live load requires smaller floor framing and as a result reduces cost of compliance with the 2024 IBC. The costs include after hours work to access the underside of floors if tenant spaces below are occupied, removal and replacement of ceiling finishes and HVAC if any exists below the floor. If the floor is wood framed strengthening to comply with the 2024 IBC will be simpler than strengthening floors framed with structural steel framing due to the weight of framing materials and steel plates and the need for welding equipment to field welding to weld reinforcing plates. It is assumed that the cost is $300 per square foot under the 700 sq ft room above and accounting for framing that spans to receiving columns beyond the small assembly area.

G35-25

G36-25

IBC: 303.4; IFC: [BG] 203.2.8

Proponents: Steve Thomas, Shums Coda Associates, representing Colorado Chapter Code Development Committee (sthomas@coloradocode.net)

2024 International Building Code

Revise as follows:

303.4 Assembly Group A-3. Group A-3 occupancy includes assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A, including but not limited to:

Amusement arcades

Art galleries

Bowling alleys

Community halls

Courtrooms

Dance halls (not including food or drink consumption)

Exhibition halls

Funeral parlors

Greenhouses for the conservation and exhibition of plants that provide public access

Gymnasiums (without spectator seating)

<u>Classrooms having an occupant load of 50 or more and used for educational purposes above the 12th grade</u>

Indoor *swimming pools* (without spectator seating)

Indoor tennis courts (without spectator seating)

Lecture halls

Libraries

Museums

Places of religious worship

Pool and billiard parlors

Waiting areas in transportation terminals

2024 International Fire Code

Revise as follows:

[BG] 203.2.8 Assembly Group A-3. Group A-3 occupancy includes assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A, including but not limited to:

Amusement arcades

Art galleries

Bowling alleys

Community halls

Courtrooms

Dance halls (not including food or drink consumption)

Exhibition halls

Funeral parlors

Greenhouses for the conservation and exhibition of plants that provide public access

Gymnasiums (without spectator seating)

<u>Classrooms having an occupant load of 50 or more and used for educational purposes above the 12th grade</u>

Indoor swimming pools (without spectator seating)

Indoor tennis courts (without spectator seating)

Lecture halls

Libraries

Museums

Places of religious worship

Pool and billiard parlors

Waiting areas in transportation terminals

Reason: There is no clear understanding on what a lecture hall is. In speaking with many people that regulate colleges and universities, they tell me that if they have a classroom with an occupant load of 50 or more, they classify the spaces as a Group A-3 Occupancy. Some lecture halls and classrooms can have very large occupant loads and it does not seem logical to call them B occupancies. The intent of the change is to clarify how to handle a classroom in a higher education facility with an occupant load greater than 49. This is consistent with other assembly uses with larger occupant loads.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Since most jurisdictions already classify large classrooms as Group A-3 occupancies already, there should be not any increase or decrease in the cost of construction. This is intended to be a clarification to make the code read the way people are enforcing it.

G36-25

G37-25

IBC: 303.4; IFC: [BG] 203.2.8

Proponents: Steve Thomas, Shums Coda Associates, representing Colorado Chapter Code Development Committee (sthomas@coloradocode.net)

2024 International Building Code

Revise as follows:

303.4 Assembly Group A-3. Group A-3 occupancy includes assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A, including but not limited to:

Amusement arcades

Art galleries

Bowling alleys

Community halls

Courtrooms

Dance halls (not including food or drink consumption)

Exhibition halls

Funeral parlors

Greenhouses for the conservation and exhibition of plants that provide public access

Gymnasiums (without spectator seating)

Indoor or outdoor *swimming pools* (without spectator seating)

Indoor or outdoor tennis courts (without spectator seating)

Lecture halls

Libraries

Museums

Places of religious worship

Pool and billiard parlors

Waiting areas in transportation terminals

2024 International Fire Code

Revise as follows:

[BG] 203.2.8 Assembly Group A-3. Group A-3 occupancy includes assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A, including but not limited to:

Amusement arcades

Art galleries

Bowling alleys

Community halls

Courtrooms

Dance halls (not including food or drink consumption)

Exhibition halls

Funeral parlors

Greenhouses for the conservation and exhibition of plants that provide public access

Gymnasiums (without spectator seating)

Indoor or outdoor swimming pools (without spectator seating)

Indoor or outdoor tennis courts (without spectator seating)

Lecture halls

Libraries

Museums

Places of religious worship

Pool and billiard parlors

Waiting areas in transportation terminals

Reason: Many buildings are now constructing swimming pools and tennis courts on occupiable roofs. It is our position that these spaces should have an occupancy classification. We selected Group A-3 occupancies since indoor swimming pools and indoor tennis courts are already listed in that occupancy. The hazards are the same whether the use is indoors or outdoors. By classifying the areas as an occupancy, the rest of the code can be applied consistently. For example, much of the means of egress requirements are based on the occupancy classification. This will provide the user of the code a clear understanding of the requirements to be applied to these uses.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This clarifies what occupany classification a pool falls under, whether it indoors and outdoors. This will not change how most buildings are designed and how the code is enforced.

G37-25

G38-25

IBC: SECTION 305 (New), 305.1 (New); IFC: 203.4 (New)

Proponents: Greg Johnson, Johnson & Associates Consulting Services, representing self (gjohnsonconsulting@gmail.com); Robert Buchetto, HED, representing Self (rbuchetto@hed.design); Jay Peters, representing Codes and Standards International (peters.jay@me.com)

2024 International Building Code

Add new text as follows:

SECTION 305 DATA CENTERS GROUP D

305.1 Data Centers Group D. *Data center* Group D includes the use of of a *building*, or portion thereof, for the housing of information technology equipment engaged in data processing where not classified as a *computer room*.

2024 International Fire Code

Add new text as follows:

203.4 Data Centers Group D. *Data center* Group D includes the use of of a*building*, or portion thereof, for the housing of information technology equipment engaged in data processing where not classified as a*computer room*.

Reason: Data centers are unique building uses that do not neatly fall into any other occupancy classification. AHJ currently assign various classifications (B, F-2, S-1, S-2) to these buildings which are characterized by only intermittent occupancy in the frequently very large data halls, accessory B uses, and accessory energy storage systems. Providing an occupancy classification specific to this unique use will facilitate the development of code provisions appropriate to the specific hazards. Note that data centers and computer rooms are both information technology equipment facilities with individual definitions making it possible to readily assign 'Group D', without capturing computer rooms in the occupancy classification.

This proposal is the first of several addressing data centers.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These buildings are already being constructed. Assigning a unique occupancy classification to data centers does not automatically affect costs.

G38-25

G39-25 Part I

IBC: 305.2.2, 305.2.3, 308.5.3, 308.5.4, 310.4.1; IFC: [BG] 203.4.2.2, [BG] 203.4.2.3, [BG] 203.7.4.3, [BG] 203.7.4.4, [BG] 203.9.3.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 305
EDUCATIONAL GROUP E

305.2 Group E, day care facilities. This group includes *buildings* and *structures* or portions thereof occupied by more than five children older than 2$^1/_2$ years of age who receive educational, supervision or *personal care services* for fewer than 24 hours per day.

305.2.1 Within places of religious worship. Rooms and spaces within *places of religious worship* providing such day care during religious functions shall be classified as part of the primary occupancy.

Revise as follows:

305.2.2 Five or fewer children. A *facility* having five or fewer children receiving such day care shall be classified as part of the primary occupancy. Such a facility, located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or the *International Residential Code* provided such facilities are protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code.*

Delete without substitution:

~~**305.2.3 Five or fewer children in a dwelling unit.** A *facility* such as the above within a *dwelling unit* and having five or fewer children receiving such day care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.~~

SECTION 308
INSTITUTIONAL GROUP I

308.5 Institutional Group I-4, day care facilities. Institutional Group I-4 occupancy shall include *buildings* and *structures* occupied by more than five *persons* of any age who receive *custodial care* for fewer than 24 hours per day by *persons* other than parents or guardians; relatives by blood, marriage or adoption; and in a place other than the home of the *person* cared for. This group shall include, but not be limited to, the following:

Adult day care

Child day care

308.5.1 Classification as Group E. A child day care *facility* that provides care for more than five but not more than 100 children 2$^1/_2$ years or less of age, where the rooms in which the children are cared for are located on a *level of exit discharge* serving such rooms and each of these child care rooms has an *exit* door directly to the exterior, shall be classified as Group E.

308.5.2 Within a place of religious worship. Rooms and spaces within *places of religious worship* providing such care during religious functions shall be classified as part of the primary occupancy.

Revise as follows:

308.5.3 Five or fewer persons receiving care. A *facility* having five or fewer *persons* receiving *custodial care* shall be classified as part of the primary occupancy. Such a facility, located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or the *International Residential Code* provided such facilities are protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code.*

Delete without substitution:

~~**308.5.4 Five or fewer persons receiving care in a dwelling unit.** A *facility* such as the above within a *dwelling unit* and having five or fewer *persons* receiving *custodial care* shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code.*~~

SECTION 310
RESIDENTIAL GROUP R

Revise as follows:

~~**310.4.1**~~ **310.1.1 Care facilities within a dwelling.** Care *facilities* for five or fewer *persons* receiving care or a day care that are located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or ~~single-family *dwelling* are permitted to comply~~ with the *International Residential Code* provided such facilities are protected by an *automatic sprinkler system* ~~is~~ installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

2024 International Fire Code

Revise as follows:

[BG] 203.4.2.2 Five or fewer children. A facility having five or fewer children receiving such day care shall be classified as part of the primary occupancy. Such a facility, located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or the *International Residential Code* provided such facilities are protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code.*

Delete without substitution:

~~**[BG] 203.4.2.3 Five or fewer children in a dwelling unit.** A facility such as the above within a *dwelling unit* and having five or fewer children receiving such day care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code* .~~

Revise as follows:

[BG] 203.7.4.3 Five or fewer persons receiving care. A facility having five or fewer persons receiving *custodial care* shall be classified as part of the primary occupancy. Such a facility, located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or the *International Residential Code* provided such facilities are protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code.*

Delete without substitution:

~~**[BG] 203.7.4.4 Five or fewer persons receiving care in a dwelling unit.** A facility such as the above within a *dwelling unit* and having five or fewer persons receiving *custodial care* shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code* .~~

Revise as follows:

[BG] ~~203.9.3.1~~ 203.9.1 Care facilities within a dwelling. Care *facilities* for five or fewer *persons* receiving care or a day care that are located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or ~~single-family~~ ~~*dwelling*~~ ~~are permitted to comply~~ with the *International Residential Code* provided such facilities are protected by an *automatic sprinkler system* ~~is~~ installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

G39-25 Part I

G39-25 Part II

IRC: R101.2

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* <u>or *townhouse unit*</u>.

Reason: The purpose of this code change is to clarify how the occupancy classification for small child day care or adult day care facilities is determined. The proposal allows small daycare or adult care facilities serving five or fewer persons to be classified as part of the primary occupancy of a building housing such a facility, and to note that where they are contained in one- and two-family dwellings or townhouses falling within the scope of the International Residential Code they are permitted to be constructed either per the IBC or IRC.

Consolidating the requirements recognizes Group R-2 townhouses or apartments may also have contain a small day care facility and allows for such facilities serving 5 or fewer occupants to match the main occupancy. This fixes a glitch where the literal text in current Sections 305.2.3 and 308.5.4 says a day care in a dwelling unit make this an R-3 even though the building may be Group R-2.

For facilities that meet the scoping of the IRC (detached single family dwellings, duplexes, and townhouses three stories or less above grade plane), the day care facilities can continue to be constructed under the IRC.A similar BCAC proposal submitted last cycle, G34-21, was disapproved over concerns the original proposal expanded the scope of IRC to include apartment buildings, and that it could be argued a dwelling unit in an apartment building is within the scope of the IRC. Also, some felt the proposal language implied that dwelling units can be included in Group I facilities. BCAC worked with the opponents to develop a public comment to explicitly recognize the types of buildings covered in the IRC scope but was not able to overturn the committee disapproval. This new proposal reflects the clarifications requested by the opponents and committee last cycle.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) the ICC Committee for Healthcare (CHC). .

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at <u>BCAC webpage</u>.

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at <u>CHC webpage</u>.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is basically a coordination item for what facilities can use IRC. This should not change construction requirements.

G39-25 Part II

G40-25 Part I

IBC: 308.2.4, 308.3.2, 310.4.1, 310.4.2; IFC: [BG] 203.7.1.4, [BG] 203.7.2.2, [BG] 203.9.3.1, [BG] 203.9.3.2

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Kota Wharton, representing Self (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE.

PART I WILL BE HEARD BY THE IBC-GENERAL CODE COMMITTEE.

PART II WILL BE HEARD BY THE RESIDENTIAL BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 305 EDUCATIONAL GROUP E

305.2.3 Five or fewer children in a dwelling unit. A *facility* such as the above within a *dwelling unit* and having five or fewer children receiving such day care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.

SECTION 308 INSTITUTIONAL GROUP I

308.2 Institutional Group I-1. Institutional Group I-1 occupancy shall include *buildings*, *structures* or portions thereof for more than 16 *persons*, excluding staff, who reside on a *24-hour basis* in a supervised environment and receive *custodial care* . *Buildings* of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.2.1 or 308.2.2 and shall comply with Section 420. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living *facilities*

Congregate care *facilities*

Group homes

Halfway houses

Residential board and care *facilities*

Social rehabilitation *facilities*

Revise as follows:

308.2.4 Five or fewer persons receiving custodial care. A *facility* with five or fewer *persons* receiving *custodial care* shall be classified as Group R-3 or shall comply with the *International Residential Code* ~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*~~.

308.3 Institutional Group I-2. Institutional Group I-2 occupancy shall include *buildings* and *structures* used for *medical care* on a *24-hour basis* for more than five *persons* who are *incapable of self-preservation*. This group shall include, but not be limited to, the following:

Foster care facilities

Detoxification facilities

Hospitals

Nursing homes

Psychiatric hospitals

308.3.2 Five or fewer persons receiving medical care. A facility with five or fewer *persons* receiving *medical care* shall be classified as Group R-3 or shall comply with the *International Residential Code* ~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*~~.

308.5 Institutional Group I-4, day care facilities. Institutional Group I-4 occupancy shall include *buildings* and *structures* occupied by more than five *persons* of any age who receive *custodial care* for fewer than 24 hours per day by *persons* other than parents or guardians; relatives by blood, marriage or adoption; and in a place other than the home of the *person* cared for. This group shall include, but not be limited to, the following:

Adult day care

Child day care

308.5.4 Five or fewer persons receiving care in a dwelling unit. A *facility* such as the above within a *dwelling unit* and having five or fewer *persons* receiving *custodial care* shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.

SECTION 310
RESIDENTIAL GROUP R

310.4 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units*

Care *facilities* that provide accommodations for five or fewer *persons* receiving care

Congregate living facilities (nontransient) with 16 or fewer occupants

Boarding houses (nontransient)

Convents

Dormitories

Emergency services living quarters

Fraternities and sororities

Monasteries

Congregate living facilities (*transient*) with 10 or fewer occupants

Boarding houses (*transient*)

Lodging houses with five or fewer *guest rooms*

Hotels (nontransient) with five or fewer *guest rooms*

Motels (nontransient) with five or fewer *guest rooms*

310.4.1 Care facilities within a dwelling. Care *facilities* for five or fewer *persons* receiving care that are within a single-family *dwelling* are permitted to comply with the *International Residential Code* ~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*~~.

310.4.2 Lodging houses. *Owner*-occupied *lodging houses* with five or fewer *guest rooms* shall be constructed in accordance with this code or the *International Residential Code*~~, provided that *facilities* constructed using the *International Residential Code* are protected by an *automatic sprinkler system* installed in accordance with Section P2904 of the *International Residential Code*~~.

2024 International Fire Code

Revise as follows:

[BG] 203.7.1.4 Five or fewer persons receiving custodial care. A facility with five or fewer persons receiving *custodial care* shall be classified as Group R-3 or shall comply with the *International Residential Code* ~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*~~.

[BG] 203.7.2.2 Five or fewer persons receiving medical care. A facility with five or fewer persons receiving medical care shall be classified as Group R-3 or shall comply with the *International Residential Code* ~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*~~.

[BG] 203.9.3.1 Care facilities within a dwelling. Care facilities for five or fewer persons receiving care that are within a single-family *dwelling* are permitted to comply with the *International Residential Code* ~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*~~.

[BG] 203.9.3.2 Lodging houses. Owner-occupied *lodging houses* with five or fewer *guestrooms* shall be constructed in accordance with the *International Building Code* or the *International Residential Code*~~, provided that facilities constructed using the *International Residential Code* are protected by an *automatic sprinkler system* installed in accordance with Section P2904 of the *International Residential Code*~~.

G40-25 Part I

G40-25 Part II

IRC: R101.2

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Kota Wharton, representing Self (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code ~~where provided with an automatic sprinkler system complying with Section P2904~~:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .

Reason: This code change clarifies the sprinkler trigger point between the residential and building code. The intent is to push the trigger point for sprinklers back to the International Residential Code which would allow for jurisdictional preemption to integrate seamlessly with the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is removing inconsistent and redundant language. There is no change to technical criteria.

G40-25 Part II

G41-25

IBC: 308.1; IFC: [BG] 203.7

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 308 INSTITUTIONAL GROUP I

Revise as follows:

308.1 Institutional Group I. Institutional Group I occupancy includes, among others, the use of a *building* or *structure*, or a portion thereof, in which care or supervision is provided to *persons* who are are receiving custodial care or medical care ~~or are *incapable of self-preservation* without physical assistance~~ or in which *persons* are detained for penal or correctional purposes or in which the liberty of the occupants is restricted. Institutional occupancies shall be classified as Group I-1, I-2, I-3 or I-4.

308.2 Institutional Group I-1. Institutional Group I-1 occupancy shall include *buildings*, *structures* or portions thereof for more than 16 *persons*, excluding staff, who reside on a *24-hour basis* in a supervised environment and receive *custodial care* . *Buildings* of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.2.1 or 308.2.2 and shall comply with Section 420. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living *facilities*

Congregate care *facilities*

Group homes

Halfway houses

Residential board and care *facilities*

Social rehabilitation *facilities*

308.2.1 Condition 1. This occupancy condition shall include *buildings* in which all *persons* receiving *custodial care* who, without any assistance, are capable of responding to an emergency situation to complete building evacuation.

308.2.2 Condition 2. This occupancy condition shall include *buildings* in which there are any *persons* receiving *custodial care* who require *limited verbal or physical assistance* while responding to an emergency situation to complete *building* evacuation.

308.2.3 Six to 16 persons receiving custodial care. A *facility* housing not fewer than six and not more than 16 *persons* receiving *custodial care* shall be classified as Group R-4.

308.2.4 Five or fewer persons receiving custodial care. A *facility* with five or fewer *persons* receiving *custodial care* shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

308.5 Institutional Group I-4, day care facilities. Institutional Group I-4 occupancy shall include *buildings* and *structures* occupied by more than five *persons* of any age who receive *custodial care* for fewer than 24 hours per day by *persons* other than parents or guardians; relatives by blood, marriage or adoption; and in a place other than the home of the *person* cared for. This group shall include, but not be limited to, the following:

Adult day care

Child day care

2024 International Fire Code

Revise as follows:

[BG] 203.7 Institutional Group I. Institutional Group I occupancy includes, among others, the use of a *building*or*structure*, or a portion thereof, in which care or supervision is provided to *persons* who are are receiving custodial care or medical care~~or are~~~~*incapable of self-preservation*~~~~without physical assistance~~or in which *persons* are detained for penal or correctional purposes or in which the liberty of the occupants is restricted. Institutional occupancies shall be classified as Group I-1, I-2, I-3 or I-4.

Reason: The main scope of Group I is not accurate. Group I-1 are persons that are capable of self-preservation.

This proposal is submitted by the ICC Committee for Healthcare (CHC).

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a correlation of Section 308.1 with Section 308.2. There are no change to construction requirements.

G41-25

G42-25 Part I

IBC: 308.2.4, 308.3.2, 310.4.1; IFC: [BG] 203.7.1.4, [BG] 203.7.2.2, [BG] 203.9.3.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 308
INSTITUTIONAL GROUP I

Revise as follows:

308.2.4 Five or fewer persons receiving custodial care. A *facility* with five or fewer *persons* receiving *custodial care* shall be classified as Group R-2 or Group R-3 based on the primary occupancy of the building. ~~or shall comply~~ Such a facility, located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or with the *International Residential Code* provided such facilities shall be protected by an *automatic sprinkler system* ~~is~~ installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

308.3.2 Five or fewer persons receiving medical care. A facility with five or fewer *persons* receiving *medical care* shall be classified as Group R-2 or Group R-3 based on the primary occupancy of the building. ~~or shall comply~~ Such a facility, located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or with the *International Residential Code* provided such facilities shall be protected by an *automatic sprinkler system* ~~is~~ installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

SECTION 310
RESIDENTIAL GROUP R

~~310.4.1~~310.1.1 Care facilities within a dwelling. Care *facilities* for five or fewer *persons* receiving medical care or custodial care that are located within a ~~single-family *dwelling* are permitted to comply~~ detached one- or two- family dwelling or townhouse unit that is within the scope of the *International Residential Code*, shall be constructed in accordance with this code or with the *International Residential Code* provided such facilities shall be protected by an *automatic sprinkler system* ~~is~~ installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

2024 International Fire Code

Revise as follows:

[BG] 203.7.1.4 Five or fewer persons receiving custodial care. A *facility* with five or fewer *persons* receiving *custodial care* shall be classified as Group R-2 or Group R-3based on the primary occupancy of the building.~~or shall comply~~Such a facility, located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the*International Residential Code*, shall be constructed in accordance with this code orwith the *International Residential Code*provided such facilities shall be protected by an *automatic sprinkler system* ~~is~~ installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

[BG] 203.7.2.2 Five or fewer persons receiving medical care. A facility with five or fewer *persons* receiving *medical care* shall be classified as Group R-2 or Group R-3based on the primary occupancy of the building.~~or shall comply~~Such a facility, located within a detached one- or two- family dwelling or townhouse unit that is within the scope of the*International Residential Code*, shall be constructed in accordance with this code or with the *International Residential Code* providedsuch facilities shall be protected by an *automatic sprinkler system* ~~is~~ installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

[BG] ~~203.9.3.1~~ 203.9.1 Care facilities within a dwelling. Care *facilities* for five or fewer *persons* receiving medical care or custodial care that are located within a ~~single-family~~*~~dwelling~~*~~are permitted to comply~~ detached one- or two- family dwelling or townhouse unit that is within the scope of the*International Residential Code*, shall be constructed in accordance with this code or with the *International Residential Code* provided such facilities shall be protected by an*automatic sprinkler system* ~~is~~ installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the*International Residential Code*.

G42-25 Part I

G42-25 Part II

IRC: R101.2

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*<u>or *townhouse unit*</u>.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit* <u>or *townhouse unit*</u>.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .

Reason: The purpose of this code change is to clarify how the occupancy classification for small medical or custodial care facilities is determined. The proposal allows these small care facilities serving five or fewer persons to be classified as part of the primary occupancy of any home environment, be it a detached single-family dwelling, townhouse, apartment or condominium, housing such a facility, and to note that where they are contained in one- and two-family dwellings or townhouses falling within the scope of the International Residential Code they are permitted to be constructed either per the IBC or IRC.

The Fair Housing Act does not allow for “family” to be defined by blood or marriage. Multiple court cases have confirmed that people have the right to live in a home environment instead of an institutional facility if they so choose. If this is a business, this small group home is most likely operating as a family; and would fall below the licensure rules of most states. However, in most cases, this will be couple with foster children or someone taking care of a friend who needs assistance - not a business. The IBC does not typically go into issues on licensure or who is paying what – it looks at the use of the space.

This proposal does not change what sorts of care facilities can currently be constructed under the IRC, however, in the past there have been arguments that these care facilities should not be permitted under the IRC. This proposal clarifies that such care facilities in dwellings that meet the scoping of the IRC (detached single family dwellings, duplexes, and townhouses three stories or less above grade plane), can continue to be constructed under the IRC.A similar BCAC proposal submitted last cycle, G42-21, was disapproved over concerns the original proposal expanded the scope of IRC to include apartment buildings, and that it could be argued a dwelling unit in an apartment building is within the scope of the IRC. Also, some felt the proposal language implied that dwelling units can be included in Group I-2 facilities. BCAC worked with the opponents to develop a public comment to explicitly recognize the types of buildings covered in the IRC scope but was not able to overturn the committee disapproval. This new proposal reflects the clarifications requested by the opponents and committee last cycle.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) the ICC Committee for Healthcare (CHC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is basically a coordination item for what facilities can use the IRC. This should not change construction requirements.

G42-25 Part II

G43-25

IBC: 310.3; IFC: [BG] 203.9.2

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Building Code

Revise as follows:

310.3 Residential Group R-2. Residential Group R-2 occupancies containing *sleeping units* or more than two *dwelling units* per tract of land where the occupants are primarily permanent in nature, including:

Apartment houses

Condominiums

Townhouse dwelling units on a single tract of land as defined by metes and bounds

Congregate living facilities (nontransient) with more than 16 occupants

Boarding houses (*nontransient*)

Convents

Dormitories

Emergency services living quarters

Fraternities and sororities

Monasteries

Hotels (nontransient) with more than five *guest rooms*

Live/work units

Motels (nontransient) with more than five *guest rooms*

Vacation timeshare properties

2024 International Fire Code

Revise as follows:

[BG] 203.9.2 Residential Group R-2. Residential Group R-2 occupancies containing sleeping units or more than two *dwelling units* per tract of land where the occupants are primarily permanent in nature, including:

Apartment houses

Condominiums

Townhouse dwelling units on a single tract of land as defined by metes and bounds

Congregate living facilities (nontransient) with more than 16 occupants

Boarding houses (nontransient)

Boarding houses (nontransient)

Convents

Dormitories

Emergency services living quarters

Fraternities and sororities

Monasteries

Hotels (nontransient) with more than five guestrooms

Live/work units

Motels (nontransient) with more than five guestrooms

Vacation timeshare properties

Reason: This is one part of a multi-part proposal to further define the parameters when determining if a building can be permitted under the IRC or IBC. See proposal RB58-25.

The phrase “Townhouse” is littered throughout the IRC publication, but no attention has been addressed as to when a townhouse can be permitted as a R-2 or R-3 Building Classification. By adding the tract of land phrase, it will become clearer. It is my understanding that the IRC is inclusive to R-3 Building Classifications.

On a separate subject:

“Condominiums” is a glorified way to say separate entities can own the dwelling space inside an apartment house or other types of dwelling structures. I know of some instances where an apartment was converted to a condominium and some instances where a building was intentionally designed as a condominium. I have even seen hotels and motels converted to condominiums. This sleeping unit type shall be added to this section.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is for clarification purposes only (see reason statement).

G43-25

G44-25

IBC: 310.4; IFC: [BG] 203.9.3

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Building Code

Revise as follows:

310.4 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units* <u>on a single tract of land as defined by metes and bounds</u>

Care *facilities* that provide accommodations for five or fewer *persons* receiving care

Congregate living facilities (nontransient) with 16 or fewer occupants

Boarding houses (nontransient)

Convents

Dormitories

Emergency services living quarters

Fraternities and sororities

Monasteries

Congregate living facilities (*transient*) with 10 or fewer occupants

Boarding houses (*transient*)

Lodging houses with five or fewer *guest rooms*

Hotels (nontransient) with five or fewer *guest rooms*

Motels (nontransient) with five or fewer *guest rooms*

2024 International Fire Code

Revise as follows:

[BG] 203.9.3 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units* <u>on a single tract of land as defined by metes and bounds</u>

Care facilities that provide accommodations for five or fewer persons receiving care

Congregate living facilities (nontransient) with 16 or fewer occupants

Boarding houses (nontransient)

Convents

Dormitories

Emergency services living quarters

Fraternities and sororities

Monasteries

Congregate living facilities (transient) with 10 or fewer occupants

Boarding houses (transient)

Lodging houses with five or fewer guestrooms

Hotels (nontransient) with five or fewer guestrooms

Motels (nontransient) with five or fewer guestrooms

Reason: This is one part of a multi-part proposal to further define the parameters when determining if a building can be permitted under the IRC or IBC. See proposal RB58-25.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is for clarification purposes only (see reason statement).

G44-25

G45-25 Part I

IBC: 310.4; IFC: [BG] 203.9.3

Proponents: Jeffrey Shapiro, P.E., FSFPE, LTFR, representing Lake Travis Fire Rescue (jeff.shapiro@intlcodeconsultants.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC-GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE ADMINISTRATIVE CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

310.4 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units*

Townhouse units

Care *facilities* that provide accommodations for five or fewer *persons* receiving care

Congregate living facilities (nontransient) with 16 or fewer occupants

Boarding houses (nontransient)

Convents

Dormitories

Emergency services living quarters

Fraternities and sororities

Monasteries

Congregate living facilities (*transient*) with 10 or fewer occupants

Boarding houses (*transient*)

Lodging houses with five or fewer *guest rooms*

Hotels (nontransient) with five or fewer *guest rooms*

Motels (nontransient) with five or fewer *guest rooms*

2024 International Fire Code

Revise as follows:

[BG] 203.9.3 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units*

Townhouse units

Care facilities that provide accommodations for five or fewer persons receiving care

Congregate living facilities (nontransient) with 16 or fewer occupants

Boarding houses (nontransient)

Convents

Dormitories

Emergency services living quarters

Fraternities and sororities

Monasteries

Congregate living facilities (transient) with 10 or fewer occupants

Boarding houses (transient)

Lodging houses with five or fewer guestrooms

Hotels (nontransient) with five or fewer guestrooms

Motels (nontransient) with five or fewer guestrooms

G45-25 Part I

G45-25 Part II

IFC: [A] 102.5

Proponents: Jeffrey Shapiro, P.E., FSFPE, LTFR, representing Lake Travis Fire Rescue (jeff.shapiro@intlcodeconsultants.com)

2024 International Fire Code

Revise as follows:

[A] 102.5 Application of residential code. Where structures are designed and constructed in accordance with the *International Residential Code*, the provisions of this code shall apply as follows:

1. Construction and design provisions of this code pertaining to the exterior of the structure shall apply including, but not limited to, premises identification, fire apparatus access and water supplies. Where interior or exterior systems or devices are installed, construction permits required by Section 105.6 shall apply.
2. Administrative, operational and maintenance provisions of this code shall apply.
3. Sections 1103.8 and 1103.9 of this code shall apply. For the purpose of applying these sections, buildings classified as one- and two-family dwellings and townhouses in accordance with the *International Residential Code* shall be regulated as Group R occupancies.

Reason: This proposal addresses a couple holes in the code with respect to ensuring proper protection of existing one- and two-family dwellings and townhouses with respect to providing smoke alarms and carbon monoxide alarms. It has always been the intent of the IFC to require that smoke alarms, and now CO alarms, be retrofitted into existing dwelling units, regardless of whether they are built under the IRC or IBC. IFC Chapter 11 makes this somewhat clear by including provisions for Group R-3 occupancies, and one can assign Group R-3 to IRC one- and two-family dwellings and townhouse units for purposes of applying Sections 1103.8 and 1103.9. However, that could be seen as a stretch since the IRC doesn't assign occupancy classifications and IFC Section 102.5 creates a path to arguably avoid compliance via the IRC since the IRC doesn't specifically address retrofitting of alarms into existing dwellings. The intent of this proposal is to close that apparent loophole.

In reviewing this issue, I noticed that townhouse units also need to be better addressed when it comes to occupancy classification. Townhouse units that are constructed as separate buildings, rather than as part of larger Group R-1 or Group R-2 multifamily occupancy townhouse structures, currently fall into an occupancy classification hole. In any case, three or more townhouse units will create a townhouse, but depending on the fire separations between townhouse units, the townhouse structure might be a single multifamily occupancy or an accumulation of multiple individual occupancies, presumably R-3, but the code doesn't currently state that. The proposed change to the R-3 definition should fix that.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The intent is to clarify current code provisions by eliminating ambiguities in the text. See reason statement.

G45-25 Part II

G46-25 Part I

IBC: 310.5; IFC: [BG] 203.9.4

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org); Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Kota Wharton, representing Self (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE.

PART I WILL BE HEARD BY THE IBC-GENERAL CODE COMMITTEE.

PART II WILL BE HEARD BY THE RESIDENTIAL BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 310
RESIDENTIAL GROUP R

Revise as follows:

310.5 Residential Group R-4. Residential Group R-4 occupancy shall include *buildings*, *structures* or portions thereof for more than five but not more than 16 *persons*, excluding staff, who reside on a *24-hour basis* in a supervised residential environment and receive *custodial care*. *Buildings* of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.5.1 or 310.5.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living *facilities*

Congregate care *facilities*

Group homes

Halfway houses

Residential board and care *facilities*

Social rehabilitation *facilities*

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.

<u>Such a facility, located within a dwelling unit that is within the scope of the I*nternational Residential Code*, shall be permitted to be constructed in accordance with this code or with the International Residential Code</u>.

2024 International Fire Code

Revise as follows:

[BG] 203.9.4 Residential Group R-4. Residential Group R-4 shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive custodial care. Buildings of Group R-4 shall be classified as one of the occupancy conditions specified inSection 203.9.4.1 or 203.9.4.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in the *International Building Code*.
Such a facility, located within a dwelling unit that is within the scope of the I*nternational Residential Code*, shall be permitted to be constructed in accordance with this code or with the International Residential Code.

G46-25 Part I

G46-25 Part II

IRC: R101.2, SECTION 202 (New)

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org); Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Kota Wharton, representing Self (kwharton@grovecityohio.gov)

2024 International Residential Code

SECTION R101
SCOPE AND GENERAL REQUIREMENTS

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit*.
6. <u>A care facility within a dwelling unit or townhouse unit with more than five but not more than 16 *persons*, excluding staff, who reside in a supervised residential environment and receive *custodial care.*</u>

Add new definition as follows:

<u>**CUSTODIAL CARE.** Describes *persons* who receive assistance with day-to-day living tasks such as cooking, taking medication, bathing, using toilet *facilities* and other tasks of daily living. *Custodial care* includes *persons* receiving care who have the ability to respond to emergency situations and may receive *limited verbal or physical assistance*. These care recipients may evacuate at a slower rate and/or who have mental and psychiatric complications.</u>

Reason: The intent of this proposal is to restore to the codes an allowance for a Group R-4 Group home to be constructed under the IRC. This was permitted in the code from 2000 through 2009.

We would like to stress that Group R-4 is limited to 16 occupants, and residents are required to be capable of self-preservation. This was occupant limit was originally based on 1) the allowances for an NFPA13D sprinkler system, and 2) that in the national census, 98% of the homes that identified themselves as a family, were 16 or few occupants. A group home could be a home for young adults recovering from addiction, a home for batter women and their children, or a group of elderly adults. These facilities are not a Nursing home.

There is a serious issue with homelessness in the United States. Many of these individuals would benefit from the opportunity to live in a supervised environment, either on a permanent basis, or a temporary basis to help them get back on their feet. The ADA includes an 'integration mandate' that requires state and local governments the provide services in a residential setting - not just in institutions - Community Integration | ADA.gov. The Fair Housing Act specified that families cannot be determined only by 'blood or marriage', therefor, a people that live in a group home should be treated equally as a family. Fair Housing and Related Law | HUD.gov / U.S. Department of Housing and Urban Development (HUD)The Department of Justice is suing the state of Pennsylvania over discrimination that restricts community-based housing. Middle District of Pennsylvania | Justice Department Sues Pennsylvania Over Discriminatory

Code Requirements That Restrict Community-Based Housing for People with Disabilities | United States Department of Justice

There are reports from other states over similar lawsuits.

While the building code provides minimum life safety requirements for all housing, the concern is that the specific needs and capabilities of the residents in Group Homes are not being considered in the development of requirements.G20-09/10 removed the option for Group R-4 to be constructed under the IRC in Section 310.1 as part of a comprehensive overhaul for care facilities. This change was not explained in the reason statement. The reason did state that "Federal regulations and state licensing provisions were considered, but primarily in terms of avoiding conflicting requirements." There was not a similar change to the IRC because the scopes were not coordinated at that time.

The following is provided for context - Specifically Section 308.2.3 would send a user to Section 310.5 for Group R-4 requirements.

SECTION308
INSTITUTIONAL GROUP I

308.2 Institutional Group I-1. Institutional Group I-1 occupancy shall include *buildings*, *structures* or portions thereof for more than 16 *persons*, excluding staff, who reside on a *24-hour basis* in a supervised environment and receive *custodial care*. *Buildings* of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.2.1 or 308.2.2 and shall comply with Section 420. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living *facilities*

Congregate care *facilities*

Group homes

Halfway houses

Residential board and care *facilities*

Social rehabilitation *facilities*

308.2.1 Condition 1. This occupancy condition shall include *buildings* in which all *persons* receiving *custodial care* who, without any assistance, are capable of responding to an emergency situation to complete building evacuation.

308.2.2 Condition 2. This occupancy condition shall include *buildings* in which there are any *persons* receiving *custodial care* who require *limited verbal or physical assistance* while responding to an emergency situation to complete *building* evacuation.

308.2.3 Six to 16 persons receiving custodial care. A *facility* housing not fewer than six and not more than 16 *persons* receiving *custodial care* shall be classified as Group R-4.

308.2.4 Five or fewer persons receiving custodial care. A *facility* with five or fewer *persons* receiving *custodial care* shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 of this code or Section P2904 of the *International Residential Code*.

SECTION310
RESIDENTIAL GROUP R

310.1 Residential Group R. Residential Group R includes, among others, the use of a *building* or *structure*, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International Residential Code*. Group R occupancies not constructed in accordance with the *International Residential Code* as permitted by Sections 310.4.1 and 310.4.2 shall comply with Section 420.

This proposal is submitted by the ICC Committee for Healthcare (CHC).

This proposal is submitted by the The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is restoring an option for Group homes that is consistent with single family homes. The construction requirements should be the same.

G46-25 Part II

G47-25

IBC: 311.1.1; IFC: [BG] 203.10.1

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

SECTION 311
STORAGE GROUP S

Revise as follows:

311.1.1 Accessory storage spaces. A room or space used for storage purposes that is accessory to another occupancy, and does not exceed the square footage of the main occupancy shall be classified as part of that occupancy.

2024 International Fire Code

Revise as follows:

[BG] 203.10.1 Accessory storage spaces. A room or space used for storag, and does not exceed the square footage of the main occupancy shall be classified as part of that occupancy.

Reason: The code removed any size limitations for accessory storage spaces and then failed to define the term Accessory Storage Space. It could be argued that storage is always accessory to something – factory, retail use, business, etc. Drawn to its logical extreme conclusion, the code allows a large warehouse with a small office and a Group B classification. The removal of the size limitation effectively removes the S occupancy designation from the code.

There is no guideline to determining the significantly higher hazard of the storage activity.

This new approach to classifying storage spaces does not vary based upon the size of the storage space. There is no square footage or percentage threshold, such as 100 square feet or 10%, over which the Group S classification will be applied. Where the storage use is considered as accessory to the other uses in building, it shall be classified in accordance with those other uses. The key point is the hazard level that storage brings to the building. It is assumed that accessory storage uses pose little additional hazard above the occupancies which they serve. Where storage activities pose a significantly higher hazard than the other uses in the building, they would typically not be considered accessory and therefore classified as a Group S occupancy.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal is a clarification of the intent of the code and is not anticipated to increase or decrease the cost of construction.

G47-25

G48-25

IBC: 311.1.1; IFC: [BG] 203.10.1

Proponents: Raymond Steadward Jr, Town of Enfield CT, representing Myself (rsteadward@enfield.org)

2024 International Building Code

Delete without substitution:

~~**311.1.1 Accessory storage spaces.** A room or space used for storage purposes that is accessory to another occupancy shall be classified as part of that occupancy.~~

2024 International Fire Code

Delete without substitution:

~~**[BG] 203.10.1 Accessory storage spaces.** A room or space used for storage purposes that is accessory to another occupancy shall be classified as part of that occupancy.~~

Reason: This section has introduced confusion since it came in. The committee reasoning from the approval seemed to indicate that these accessory storage spaces were already covered in 508 and this clarification was arguably unnecessary. If the desire is to raise the allowable storage to greater than 10% and stay accessory, that should be addressed in 508. If the intent is to not call certain storage rooms a storage use, that is best to go back to 509 and spell it out specifically there with incidental. The unintended consequences of this section and the way the commentary was written for it are as follows.

If this section truly waives the accessory limits on storage uses, you can build a car dealership and call the repair garage bays accessory under this section, and not sprinkler them under the B use…With no size limit or Ch. 9 restrictions.

Bibliography: 2018 IBC code insights to section 311.1.1

2018 IBC Commentary

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

I believe this to be a clarification of what the intent was supposed to be.

G48-25

G49-25

IBC: 312.1; IFC: [BG] 203.11

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

2024 International Building Code

SECTION 312
UTILITY AND MISCELLANEOUS GROUP U

Revise as follows:

312.1 General. *Buildings* and *structures*, or portions thereof, of an accessory character and miscellaneous *structures*, or portions thereof, not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings

Aircraft hangars, accessory to a one- or two-family residence (see Section 412.4)

Barns

Carports

Communication equipment *structures* with a *gross floor area* of less than 1,500 square feet (139 m^2)

Fences more than 7 feet (2134 mm) in height

Grain silos, accessory to a residential occupancy

Livestock shelters

Private garages

Retaining walls

Sheds

Stables

Tanks

Towers

2024 International Fire Code

Revise as follows:

[BG] 203.11 Miscellaneous Group U. *Buildings* and *structures*, or portions thereof, of an accessory character and miscellaneous *structures*,or portions thereof, not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings

Aircraft hangar, accessory to a one- or two-family residence (see Section 412.4 of the *International Building Code*)

Barns

Carports

Communication equipment structures with a gross floor area of less than 1,500 square feet (139 m^3)

Fences more than 7 feet (2134 mm) in height

Grain silos, accessory to a residential occupancy

Livestock shelters

Private garages

Retaining walls

Sheds

Stables

Tanks

Towers

Reason: All occupancy types except Group U make it clear that the occupancy type applies to portions of buildings that fall under that occupancy. Despite Group U lacking this language, Table 508.4 includes Group U in the occupancy fire separation provisions, which clearly implies that Group U is intended to apply to portions of a building which fall under the scope of Group U. Due to "or portions thereof" being omitted from Section 312.1, there has been confusion brought to NYS regarding whether or not Group U can apply to portions of a building, such as utility rooms. This proposal adds this language in a similar manner to all the other occupancy types, thus clarifying that Group U can apply to portions of a building.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This edit simply clarifies that portions of buildings can qualify as U occupancies.

G49-25

G50-25

IBC: 402.6.2

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Building Code

SECTION 402
COVERED MALL AND OPEN MALL BUILDINGS

402.6.2 Kiosks. Kiosks and similar *structures* (temporary or permanent) located within the *mall* of a *covered mall building* or within the perimeter line of an *open mall building* shall meet the following requirements:

1. Combustible kiosks or other *structures* shall not be located within a *covered* or *open mall* unless constructed of any of the following materials:
   1.1. *Fire-retardant-treated* wood complying with Section 2303.2.
   1.2. Foam plastics having a maximum heat release rate not greater than 100 kW (105 Btu/h) when tested in accordance with the exhibit booth protocol in UL 1975 or when tested in accordance with NFPA 289 using the 20 kW ignition source.
   1.3. Aluminum composite material (ACM) meeting the requirements of Class A *interior finish* in accordance with Chapter 8 when tested as an assembly in the maximum thickness intended.
   1.4 Laminated panels complying with the requirements for laminated products in Section 803.11, except that, when tested in accordance with ASTM E84 or UL 723, the laminated panel shall have a Class A classification.
2. Kiosks or similar *structures* located within the *mall* shall be provided with *approved automatic sprinkler system* and detection devices.
3. The horizontal separation between kiosks or groupings thereof and other *structures* within the *mall* shall be not less than 20 feet (6096 mm).
4. Each kiosk or similar *structure* or groupings thereof shall have an area not greater than 300 square feet (28 m^2).

Reason: The list of materials that are permitted in kiosks does not address materials that are commonly used in such areas, namely laminated panels. Such panels are typically composed of a factory-produced laminated product with a wood substrate and a plastic laminate. It is very rare for such panels to be made with fire-retardant treated wood (FRTW) substrates and the list does not cover laminated FRTW panels either. Therefore this addition is important to the list.

The proposal bases the requirements on what is required for laminated products in section 803.11 of the IBC, with the added requirement that the panels must exhibit a flame spread index of not more than 25 (meaning a Class A) in accordance with ASTM E84 (while 803.11 allows Class A, B, or C) or meet the chapter 8 requirements based on testing to NFPA 286. The smoke requirement is the same for Classes A, B, and C, and remains a requirement. A Class A laminated panel would be consistent with the fire safety requirements associated with other materials in the list.

Note that the proposal is specific about factory produced laminated products, meaning that it would not apply to a veneer or a facing applied on site, covered by Section 803.12.

IBC 803.11 reads as follows:

803.11 Laminated products factory produced with a wood substrate, *Laminated products factory produced with a wood substrate shall comply with one of the following:*
1. The laminated product shall meet the criteria of Section 803.1.1.1 when tested in accordance with NFPA 286 using the product-mounting system, including adhesive, as described in Section 5.8 of NFPA 286.
2. The laminated product shall have a Class A, B, or C flame spread index and smoke-developed index, based on the requirements of Table 803.13, in accordance with ASTM E84 or UL 723. Test specimen preparation and mounting shall be in accordance with ASTM E2579.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

It is likely that such laminated panels are actually in use now.

G50-25

G51-25

IBC: 402.8.9 (New)

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

SECTION 402
COVERED MALL AND OPEN MALL BUILDINGS

Add new text as follows:

402.8.9 Stairway door operation. Stairway doors, other than the exit discharge doors, shall be permitted to be locked from the stairway side. Stairway doors that are locked from the stairway side shall be capable of being unlocked without unlatching where any of the following conditions occur:

1. Shall be capable of being unlocked individually or simultaneously upon a signal from the fire command center, where present, or a signal by emergency personnel from a single location inside the main entrance to the building.
2. Simultaneously upon activation of a fire alarm signal in an area served by the stairway.
3. Upon failure of the power supply to the lock or locking system.

Exception: Stairway doors opening directly into tenant spaces are permitted to unlock without unlatching only upon a signal from the fire command center, where present, or a signal by emergency personnel from a single location inside the main entrance to the building.

Reason: The conditions above create a possible security and insurance risk for stairs to unlock automatically upon alarm when the access door is directly into a privately leased or owner tenant space. Tenant spaces may have only certain hours of operation and are closed during off hours leaving these spaces unprotected. These areas are at risk of intentional or unintentional alarms providing free access to their units / tenant space. A savvy criminal could pull a fire alarm and gain access to businesses and burglarize the space. Therefore, it is reasonable to allow these types of spaces to utilize only the manual function from the fire command center to unlock the associated doors to their spaces, so only trained personnel (either fire department or facility personnel) can provide this necessary access.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The power and controls for the equipment outlined in the code change proposal will be present based if the doors are elected to be locked in the non-egress direction. The modifications required as part of the code change proposal can be handled by the applicable installing contractors.

G51-25

G52-25

IBC: 403.6.1, Table 403.6.1 (New), 3002.4, [F] 3003.1.3

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

SECTION 403 HIGH-RISE BUILDINGS

Revise as follows:

403.6.1 Fire service access elevator. In *buildings* with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, not fewer than two fire service access elevators, or all elevators, whichever is less, shall be provided in accordance with Section 3007. Each fire service access elevator shall have a capacity of not less than 3,500 pounds (1588 kg) and shall comply with Section 3002.4.

Exception: Where a building is provided with multiple ambulance stretcher-sized elevator cars in accordance with Section 3002.4 in the quantities prescribed in Table 403.6.1, fire service access elevators shall not be required.

Add new text as follows:

TABLE 403.6.1 AMBULANCE STRETCHER-SIZED ELEVATOR CAR

HIGHEST FLOOR LEVEL SERVED ABOVE THE LOWEST LEVEL OF FIRE DEPARMTNE ACCESS (feet)	NUMBER OF ELEVATOR CLARS TO ACCOMMODATE AN AMBULANCE STRETCHER[a]
120 - 599	3
600 - 899	4
900 and greater	5

For SI: 1 foot = 0.348 m

SECTION 3002 HOISTWAY ENCLOSURES

Revise as follows:

3002.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in *buildings* four or more *stories* above, or four or more *stories* below, *grade plane*, not fewer than one elevator, or the number specified in Table 403.6.1 for high-rise buildings, shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall be not less than 3 inches (76 mm) in height and shall be placed inside on both sides of the hoistway door frame.

SECTION 3003 EMERGENCY OPERATIONS

[F] 3003.1.3 Two or more elevators. Where two or more elevators are controlled by a common operating system, all elevators shall automatically transfer to standby power within 60 seconds after failure of normal power where the standby power source is of sufficient capacity to operate all elevators at the same time. Where the standby power source is not of sufficient capacity to operate all elevators at the same time, all elevators shall transfer to standby power in sequence, return to the designated landing and disconnect from the standby power source. After all elevators have been returned to the designated level, not less than one elevator, and all elevators installed in accordance with the Exception to Section 403.6.1, shall remain operable from the standby power source.

Reason: The use of these elevators have been incorporated into every high-rise greater than 120 feet in Southern Nevada since the adoption of the 2000 IBC.

Base IBC Section 403.6.1 requires a minimum of two (2) fire service access elevators, or all elevators, whichever is less, to be provided in buildings with an occupied floor more than 120' above the lowest level of fire department access. Per the commentary to the 2021 IBC, this is based on past experience that has shown that elevators are often not available due to shutdowns for various reasons. Requiring two (2) fire service access elevators increases the likelihood there will be an elevator available for fire department use in an emergency event.

High rise elevator cores are typically located centrally within a tower, and exit stairs are typically located on either end of the tower. Depending on the size and occupant load of the tower, a tertiary (or more) stair may be located centrally within the tower; however, such stairs are typically not necessary and therefore not provided, many times resulting in a modification to the tower design to accommodate a stair and elevator adjacent to each other.

The design and economic implications of providing a minimum of two (2) fire service access elevators in high-rise buildings is significant when taking into consideration all of the required support features in addition to the elevators themselves, such as enclosed lobbies with direct access to an interior exit stair. Requiring fire service access elevators to open into an enclosed lobby with direct access to an interior exit stair could potentially eliminate a guestroom from each level, or leasable space from each level, etc., due to the footprint required for the lobby and stair. IBC Section 3007.6.4 requires fire service access elevator lobbies to have a minimum size of 150 square feet with a minimum dimension of 8 feet, and interior exit stairs are required to be sized in accordance with IBC Section 1009.2.

Further, the base code only mandates two (2) fire service access elevators for fire department use, including "supertall" buildings, which could have a negative impact on firefighter response & operations. The proposed Exception to Section 403.6.1 would require additional stretcher elevators based on floor height instead of providing only (2) fire service access elevators regardless of building height. It is important to provide tools for firefighting in large structures. It is important to maximum protection to large/tall facilities. If a major event occurs, this proposed amendment will provide multiple means of access for emergency responders beyond that which is required by base code, providing for efficient and effective response. By amending Section 403.6.1 and 3002.4 as proposed, not only would larger elevators be required, but also additional elevators would be required for the various heights of high-rise facilities.

Section 3003.1.3 would also require updates to correspond with changes to earlier part of the code and ties it back to the Exception to Section 403.6.1 to be provided with secondary power simultaneously so that all elevators are available. Simultaneous access is necessary as emergency responders utilize multiple teams performing various functions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal provides an alternative to the base code provisions that is not mandatory. It is an option to the base code provisions. The base code provisions do not change.

G52-25

G53-25

IBC: 404.5

Proponents: William Warlick, representing Self (william.warlick@slcgov.com)

2024 International Building Code

SECTION 404
ATRIUMS

Revise as follows:

404.5 Smoke control. A smoke control system shall be installed in accordance with Section 909.

Exceptions:

1. In other than Group I-2, and Group I-1, Condition 2, smoke control is not required for *atriums* that connect only two *stories.*
2. A smoke control system is not required for *atriums* connecting more than two *stories* when all of the following are met:
   2.1. Only the two lowest *stories*shall be permitted to be open to the *atrium.*
   2.2. All *stories* above the lowest two *stories*shall be separated from the *atrium* in accordance with the provisions for a *shaft* in Section 713.4.
   2.3 The *atrium* does not contain any *means of egress* component above the two lowest stories.

Reason: Starting with the 2015 IBC, components of the means of egress system have been allowed to be in an atrium: 1019.3 Exception 5, 1023.2 Exception 2 (E139-12). It is important to note that the reason statement for change proposal E139-12 assumed that an atrium would be "protected by various active systems including … smoke control features."

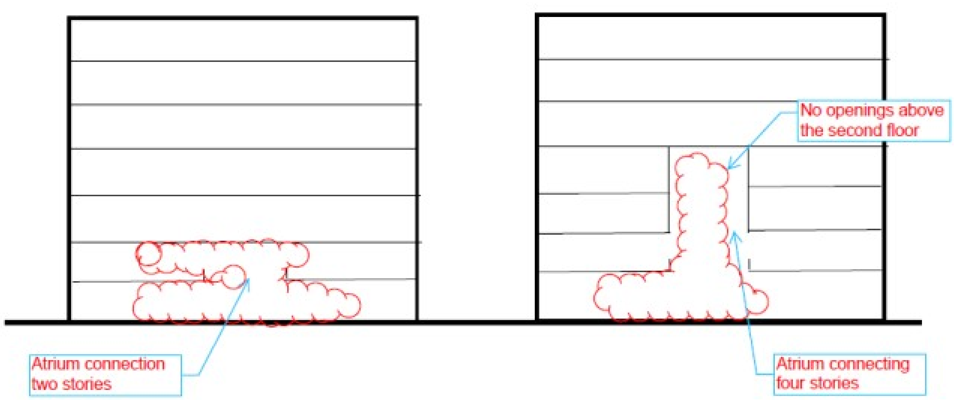
Later, the 2021 IBC introduced a revised Section 404.5 (G32-18) providing another exception allowing no smoke control for atriums taller than two stories.

The intent of the smoke control system (according to the G32-18 reason statement) is "to provide a tenable environment for the evacuation or relocation of occupants," and to maintain "the height of the lowest horizontal surface of the smoke layer interface to at least 6 feet above any walking surface that forms a portion of a required egress system within the smoke zone."

The proposed smoke control exception was envisioned to apply where "there are no walking surfaces in the atrium above the 2 lowest stories," and "there are no operable windows or doors above the 2 lowest stories in the atrium." (G32-18)

To guarantee of life safety, the proponent relied on the concept of a "smoke reservoir" according to the 2012 version of the proposal:

"In a simple 2-story atria smoke will migrate up through the atrium until it reaches the underside of the ceiling where then it will across the underside of the ceiling on the 2nd floor. By raising the "ceiling" of the atrium, a "smoke reservoir" is created where smoke will move into thus keeping the walking surfaces on the 1st, and more importantly the 2nd story, tenable for a longer period of time." (G56-12)



Drawing from G56-12

The Committee Action modifications to the proposal in the 2018 cycle focused on the shaft construction and the relationship of atrium provisions to Sections 712 and 713 (a theme in that cycle). Unfortunately in this process a problem with Section 404 was overlooked: that separate provisions put both the means of egress and the smoke hazard within the same shaft/atrium enclosure.

The intent of this change proposal is to clarify that egress components cannot be located in the portion of an atrium that is intended to be used as a smoke reservoir.

Bibliography: Change proposal E139-12, ICC Public Hearing April – May 2012.

Change proposal G56-12, 2012 ICC Final Action Agenda.

Change proposal G32-18, 2018 Group A Committee Action Hearings.

Change proposal G32-18, 2018 Group A Public Comment Agenda.

Change proposal G35-18, 2018 Group A Committee Action Hearings.

Change proposal G35-18, 2018 Group A Public Comment Agenda.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code never intended for an *interior exit stairway* to extend through a smoke reservoir. In spite of the recent code changes affecting atriums, their smoke control, their enclosure, and egress through them, this is still not allowed. Per IBC 1022.1: An *exit* shall not be used for any purpose that interferes with its function as a *means of egress*. And, an *exit access stairway* could not be used for egress through more than one adjacent story (1006.3.2) regardless of this code change.

G53-25

G54-25

IBC: 404.6

Proponents: Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov); Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com)

2024 International Building Code

SECTION 404 ATRIUMS

Revise as follows:

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a *smoke partition* is provided. The glass wall shall comply with all of the following:
   1.1. *Automatic* sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction.

   1.2. The glass wall shall be installed in a ~~gasketed~~ frame in a manner that limits the passage of smoke and allows the framing system ~~deflects~~ to deflect without breaking (loading) the glass before the sprinkler system operates.

   1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.
2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^{3}/_{4}$-hour *fire protection rating* is provided.
3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of up to three floors of the *atrium* provided that such spaces are accounted for in the design of the smoke control system.
4. In other than Group I-2 and Group I-1, Condition 2, a *fire barrier* is not required between the *atrium* and the adjoining spaces where the *atrium* is not required to be provided with a smoke control system.
5. In Group I-2 and Group I-1, Condition 2, a *fire barrier* is not required between the *atrium* and the adjoining spaces, other than care recipient sleeping or treatment rooms, for up to three *stories* of the *atrium* provided that such spaces are accounted for in the design of the smoke control system and do not provide access to care recipient sleeping or treatment rooms.
6. A *horizontal assembly* is not required between the *atrium* and openings for escalators complying with Section 712.1.3.
7. A *horizontal assembly* is not required between the *atrium* and openings for *exit access stairways* and *ramps* complying with Item 4 of Section 1019.3.

Reason: This code change proposal proposes to delete the word “gasketed”. The word gasketed does not allow for structural or wet-set glazed systems to be used. There are tested assemblies, even for rated glass, that do not have gaskets. For example, PLO/WA90-01 uses PVC tape, sealant, and angle stops. The frame is still being loaded but no gaskets are used. The current language is too restrictive on designers when there are proven technologies available that produce the same results but would address unique designs or systems not anticipated in the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not remove any existing options. It only adds options for the designer.

G54-25

G55-25

IBC: 404.6

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

SECTION 404
ATRIUMS

Revise as follows:

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a *smoke partition* is provided. The glass wall shall comply with all of the following:
   - 1.1. ~~*Automatic* sprinklers are~~ A separately zoned *automatic sprinkler system* is provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction.
   - 1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates.
   - 1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.
2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^3/_4$-hour *fire protection rating* is provided.
3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of up to three floors of the *atrium* provided that such spaces are accounted for in the design of the smoke control system.
4. In other than Group I-2 and Group I-1, Condition 2, a *fire barrier* is not required between the *atrium* and the adjoining spaces where the *atrium* is not required to be provided with a smoke control system.
5. In Group I-2 and Group I-1, Condition 2, a *fire barrier* is not required between the *atrium* and the adjoining spaces, other than care recipient sleeping or treatment rooms, for up to three *stories* of the *atrium* provided that such spaces are accounted for in the design of the smoke control system and do not provide access to care recipient sleeping or treatment rooms.
6. A *horizontal assembly* is not required between the *atrium* and openings for escalators complying with Section 712.1.3.
7. A *horizontal assembly* is not required between the *atrium* and openings for *exit access stairways* and *ramps* complying with Item 4 of Section 1019.3.

Reason: This code change proposal requires a separately zoned sprinkler system when the design approach described in Exception No. 1 is used. This provides correlation with NFPA 13.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The sprinklers and the sprinkler piping at the atrium enclosure are provided based upon current code language.

Increased costs could include the following:

- Additional dedicated main/line for the sprinklers (instead of sprinklers feeding from the adjacent system and branch lines)
- Additional system connection to the riser manifold.
- Additional valve for dedicated system.
- Additional testing for the dedicated system including commissioning and hydrostatic testing.

The added cost for each system would be approximately $2,500 - $5,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

Cost estimate is based upon industry experience and interface with installing contractors.

G55-25

G56-25

IBC: 405.1

Proponents: Daniel Nichols, representing MTA Construction and Development (dnichols@mnr.org)

2024 International Building Code

SECTION 405
UNDERGROUND BUILDINGS

Revise as follows:

405.1 General. The provisions of Sections 405.2 through 405.9 apply to *building* spaces having a floor level used for human occupancy more than 30 feet (9144 mm) below the finished floor of the lowest *level of exit discharge*.

Exceptions: The provisions of Section 405 are not applicable to the following *buildings* or portions of *buildings*:

1. One- and two-family *dwellings*, sprinklered in accordance with Section 903.3.1.3.
2. Parking garages provided with *automatic sprinkler systems* in compliance with Section 405.3.
3. Fixed guideway transit and passenger rail systems.
4. *Grandstands, bleachers*, stadiums, arenas and similar *facilities*.
5. Where the lowest *story* is the only *story* that would qualify the *building* as an underground *building* and has an area not greater than 1,500 square feet (139 m^2) and has an *occupant load* less than 10.
6. Pumping stations and other similar mechanical spaces intended only for limited periodic use by service or maintenance personnel.

Reason: The term "fixed guideway transit systems" was the original name of NFPA 130, but was expanded in scope to include "passenger rail". This code change proposal matches the current title of the document that adequately reflects the same level of exemption needed in the IBC.

Bibliography: NFPA 130 - Fixed Guideway Transit and Passenger Rail Systems, 2023 edition

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial change to reflect the current title of the intended standard.

G56-25

G57-25

IBC: SECTION 202, SECTION 202 (New), 406.2.7, 406.2.7.1 (New), 406.2.7.2 (New), 406.2.7.3 (New), 406.2.7.4 (New), 406.2.7.5 (New), 406.2.7.6 (New), UL Chapter 35 (New)

Proponents: Robert Davidson, Davidson Code Concepts LLC, representing Self (rjd@davidsoncodeconcepts.com); Robert Marshall, representing FCAC (fcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 202
DEFINITIONS

Revise as follows:

[BG] ELECTRIC VEHICLE CHARGING STATION. One or more vehicle spaces served by an electric vehicle charging system equipment, electric vehicle supply equipment, electric vehicle power export equipment, or wireless power transfer equipment.

Add new definition as follows:

ELECTRIC VEHICLE POWER EXPORT EQUIPMENT (EVPE). The electrical equipment, including the outlet on the vehicle, that is used to provide electrical power at voltages equal to or greater than 30 volts AC or 60 volts DC to an external loads from the vehicle, where the vehicle is the source of supply.

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

Revise as follows:

406.2.7 Electric vehicle charging stations and systems. Where provided, *electric vehicle charging* ~~systems~~ *stations* shall ~~be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be *listed* and *labeled* in accordance with UL 2202. Electric vehicle supply equipment shall be *listed* and *labeled* in accordance with UL 2594. Accessibility to *electric vehicle charging stations* shall be provided in accordance with Section 1107~~comply with 406.2.7.1 through 406.2.7.6.

Add new text as follows:

406.2.7.1 Installation. *Electric vehicle charging stations* shall be installed in accordance with NFPA 70, the manufacturer's installation instructions, and the listing.

406.2.7.2 Equipment listings. Equipment used in electric vehicle charging stations shall be *listed* and *labeled* as applicable in accordance with the following:

1. Electric vehicle charging equipment in accordance with UL 2202.
2. Electric vehicle supply equipment in accordance with UL 2594.
3. Electric vehicle wireless power transfer equipment in accordance with UL 2750.

406.2.7.3 Electric vehicle power export equipment.. *Electric vehicle power export equipment* shall comply with Section 1208 of the *International Fire Code.*

406.2.7.4 Accessibility. Accessibility to electric vehicle charging stations shall be provided in accordance with Section 1107.

406.2.7.5 Disconnects. *Electric vehicle charging stations* shall be provided with electric vehicle disconnects and signage in accordance with Section 611 of the *International Fire Code* and NFPA 70.

406.2.7.6 Protection from vehicle impact damage. *Electric vehicle charging stations* shall be protected from vehicle impact damage in accordance with Section 312 of the *International Fire Code.*

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

2750-2023 Wireless Power Transfer Equipment for Electric Vehicles

Reason: The purpose of this proposal is to provide clarity regarding locations where electric vehicles (EVs) are being charged.

The current Section 406.2.7 is broken down into separate subsections to address installation, listings, accessibility, disconnects, and vehicle impact protection. The requirements are not new, the purpose is to provide correlation pointers.
There are four types of equipment used for charging EVs:

1. EV charging system equipment (UL 2202) – conductive charging equipment is located off board of the EV.
2. EV power export equipment (UL 9741) - can be unidirectional or bidirectional. Unidirectional EVPE equipment exports power from the vehicle to an offboard load, such as a receptacle bank. Bidirectional equipment provides power to the vehicle for charging of the onboard battery, and exports power to the grid, premise or load, but export and charging do not occur at the same time.
3. EV supply equipment (UL 2594) - provide power to a charger that is on-board the EV.
4. EV wireless power transfer equipment (UL 2750) - infrastructure equipment (off board an EV) that transfers power to an EV through a magnetic resonance coupling between the off-board equipment and the EV.

The already code-defined term "electric vehicle charging station" best describes any location where the charging of EVs takes place. The use of the term "electric vehicle charging system" does not encompass all four of the different types of equipment used.
New Section 406.2.7.1 – Equipment used in a EV charging station needs to be installed in accordance with NFPA 70, as well as with the manufacturer's installation instructions and the listing.

New Section 406.2.7.2 – Clarifies the different equipment, and the listing requirements.
New Section 406.2.7.3 - EV power export equipment (EVPE) has additional requirements established by F175-24 in Group A.
New Section 407.2.5 – A new section 611 has been established in the IFC by F86-24 in Group A.
New Section 407.2.6 – Section 312 of the IFC has been updated by F45-24 in Group A to provide clarity on different methods for vehicle impact protection.

This proposal is submitted jointly by the ***ICC Building Code Action Committee (BCAC)*** and the ***ICC Fire Code Action Committee (FCAC)***.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at **BCAC webpage**.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the **FCAC Website**

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no increase in construction costs of buildings with this change as it is an editorial and correlation proposal. It relies on requirements addressing these issues found within this code and the International Fire Code.

Staff Analysis: A review of the standard proposed for inclusion in the code, UL 2750-2023 Wireless Power Transfer Equipment for Electric Vehicles, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April

1, 2025.

G58-25

IBC: 406.2.7

Proponents: Donald Monahan, Parking-Xpert.com, LLC, representing National Parking Association (don.monahan@comcast.net); mary smith, Walker consultants, representing National Parking Association (msmith@walkerconsultants.com)

2024 International Building Code

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

Revise as follows:

406.2.7 Electric vehicle <u>chargers</u> ~~charging stations and systems~~. Where provided, electric vehicle <u>chargers</u> ~~charging systems~~ shall be installed in accordance with NFPA 70. <u>DC EV chargers</u> ~~electric vehicle charging systems~~ shall be listed and labeled in accordance with UL 2202. ~~Electric vehicle supply equipment~~ <u>AC EV chargers</u> shall be listed and labeled in accordance with UL 2594. Accessibility <u>of</u> ~~to electric vehicle charging stations'~~ <u>EV charging</u> spaces shall be provided in accordance with Section 1107.

Reason: The Access Board and others define STATIONS as a group of EV charging spaces in a defined area, not specifically to the charger, i.e., the operating device. The UL listings are only for the chargers and not the entire EVSE. UL 2022 is for DC chargers and UL 2594 is for AC chargers.

Bibliography: UL EV Charging Standards:
https://www.ul.com/insights/electric-vehicle-onboard-equipment-and-charging-infrastructure-standards?
utm_mktocampaign=autobattery_autosbroad_p36d60&utm_mktoadid=694093073736&campaignid=21117929431&adgroupid=156893
lHiaznlUyKhgioF90xd471WvSY9DHuSljBKjlRnAXT7RRoCw5AQAvD_BwE

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal corrects the terminology used and does not affect the cost.

G58-25

G59-25

IBC: 406.3.1

Proponents: Steve Thomas, Shums Coda Associates, representing Colorado Chapter Code Development Committee (sthomas@coloradocode.net)

2024 International Building Code

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

Revise as follows:

406.3.1 Classification. *Private garages* and carports shall be classified as Group U occupancies. Each *private garage* shall be not greater than 1,000 square feet (93 m^2) in area. Multiple *private garages* are permitted in a *building* where each *private garage* is separated from the other *private garages* by 1-hour ~~*fire barriers*~~ *fire partitions* in accordance with Section ~~707~~ 708, or 1-hour *horizontal assemblies* in accordance with Section 711, or both.

Reason: This is a constructability issue. The current language requires fire barriers between private garages over 1,000 square feet. Fire barriers are required to extend from the foundation or floor to the underside of the floor/roof sheathing above. This becomes very difficult to do with trusses penetrating the fire barriers. There are not listed firestop systems for wood members penetrating a fire assembly. By changing the requirement to a fire partition, the wall can terminate at the bottom of a roof assembly having the same fire-resistance rating as the fire partition (one-hour). This eliminates the problems with the wood truss members penetrating the rated wall assembly. It is not that difficult to construct a one-hour fire-resistant roof assembly. The separtion between the separate spaces is still maintained but is easier to construct.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

It is not believed that there is any change in the cost of construction. It may actually reduce the cost since the contractor will not need to figure out how to address wood penetrations through a rated wall assembly. The cost of the firestopping is approximately the same as building the one-hour roof-ceiling assembly.

G59-25

G60-25

IBC: SECTION 202, 406.3.1, 406.3.1.1 (New)

Proponents: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2024 International Building Code

Revise as follows:

[BG] PRIVATE GARAGE. A *building* or portion of a *building* in which motor vehicles used by the *owner* or tenants of the *building* or *buildings* on the premises are stored or kept, without provisions for repairing or servicing such vehicles ~~for profit~~.

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

406.3.1 Classification. Individual ~~*Private*~~ *private garages*, or multiple private garages, and carports, shall be classified as Group U occupancies. ~~Each~~ A single *private garage* shall be not greater than ~~1,000~~ 3,000square feet (~~93~~ 279 m^2) in area and openings in fire barriers separating it from other garages shall not be permitted. Multiple *private garages* complying with Section 406.3.1.1are permitted. ~~in a *building* where each *private garage* is separated from the other *private garages* by 1-hour *fire barriers* in accordance with Section 707, or 1-hour *horizontal assemblies* in accordance with Section 711, or both~~.

Add new text as follows:

406.3.1.1 Multiple private garages. The combined building area of private garages shall not exceed the allowable area determined in in accordance with Section 506 and Section 508 as applicable. Multiple private garages are permitted in a building where all of the following requirements are satisfied.

1. Each private garage in a multiple private garage arrrangment shall have an area not greater than 1,000 square feet (93 m).
2. Each private garage shall be separated from the other private garages with1-hour fire barriers in accordance with Section 707, or 1-hour horizontal assemblies in accordance with Section 711, or both.
3. Private garages shall not be located in buildings including open or enclosed parking garages.
4. The combined building area of private garages shall not exceed the allowable area determined in in accordance with Section 506 and Section 508 as applicable.

Attached Files

- **Fire loss in the United States _ NFPA Research.pdf**
  https://www.cdpaccess.com/proposal/11076/35255/files/download/9213/
- **Car service vs repair.pdf**
  https://www.cdpaccess.com/proposal/11076/35255/files/download/9212/
- **2000 IBC Sect 406 private garages.pdf**
  https://www.cdpaccess.com/proposal/11076/35255/files/download/9202/
- **G68-21 private garages.pdf**
  https://www.cdpaccess.com/proposal/11076/35255/files/download/8927/
- **G59-12 private garages.pdf**
  https://www.cdpaccess.com/proposal/11076/35255/files/download/8925/

Reason: The proposed code change is submitted to address what may have been an error in the adoption of a significant reduction to the permitted area for private garages when amendments to the 2012 IBC were debated and ultimately approved in Portland. While not apparent then, code application for projects today reveals that what seemed to be a benign code change is placing significant burdens on small residential mixed-use projects and small non-residential projects incorporating private garages for their tenants.

The General Committee considered and disapproved code change G68-21 due an error in which the separation between garages was proposed. The committee did not appear to be opposed to the concept overall and the submitted public comment did not move forward at the Public Comment Hearings.

This code change seeks to make the following changes:

1. Allow one private garage having a maximum floor area of 3,000 sq ft in a building.
2. Prohibit openings through fire barriers serving other garages in the same building.
3. Allow multiple private garages to collectively exceed 3,000 sq ft as the code presently permits if they individually do not exceed 1,000 sq ft and if the total area complies with the allowable building area based on the type of construction.
4. For consistency with the 2000 IBC the definition for Private Garage is being modified to preclude all repair and service work.

The requirement in the 2012 IBC existed for decades under the legacy Uniform Building Code and was moved over into the 2000 IBC; additionally, the FSD rules for free standing group U occupancies at 5 feet for exterior walls and openings that existed under the UBC are the same as they are in the IBC where exterior wall and wall openings limitations stop at 5 feet for standalone group U private garages.

Many urban Cities in the United States, like San Diego, are working to solve housing affordability issues and encourage infill development to eliminate blight. Frequently these projects are proposed on constrained sites and on sites that previously accommodated one or two single family dwellings with alley access from a 15 ft or 20 ft wide alley. Additionally, and to encourage walkable communities zoning regulations require some street frontage of non-residential space so a token office or small retail space are incorporated. The proposed code change seeks to permit small projects to incorporate. private garages classified as Group U that have an area up to 3,000 sq ft as was the case prior to publication of the 2015 IBC. This code change will provide the following benefit:

- Will allow small parking garages to serve a mixed-use building without classifying the garage as Group S-2 public or open garages.
- Will prevent the need to divide up a small garage with fire barriers to satisfy the 1,000 sq ft area limit and require the installation of overhead rolling fire doors that will not be maintained.

Many of the proposed private garages need to exceed 1,000 sq ft to accommodate accessible parking, spaces with required electric vehicle chargers as well as residential and non-residential parking.

When parking requirements for residential and non-residential uses are compounded with required accessible parking spaces for both residential and non-residential uses as well as spaces for electric vehicle charging systems a small project has no room for the placement of the 1-hour fire barriers and as a result another option is necessary. Vehicle stacker lifts are becoming popular to accommodate small garages however accessible and EV parking cannot be stacked and drive aisles and turning spaces are also needed to access all three types of spaces. Consistent application of the code is not possible since a garage classified as Group S-2 does not require a separation from a private garage classified as Group U so applicants have separated private garages from one another with a 1-hour fire barrier and classified the drive aisle leading to those garages as Group S-2.The main reason that a Group U parking garage is desirable is that exterior wall opening area limitations applicable to S-2 enclosed parking garage are the type of construction limitations and fire separation distance limitations.

Code Change G59-12: The proposed code change provides a necessary update to the IBC to correct inadvertent issues that resulted from the adoption of G59-12 attached which was submitted by the Building Code Action Committee. The code changes revised Section 406 to complete regulations for private garages that somehow during the drafting of the 2000 IBC omitted necessary requirements for carports and the code change added definitions for private garages. Additionally, then Section 406.3.2 was deleted to not allows area increases to the then permitted 3,000 sq ft area limit. Section 406.3.1 was also revised to require a 1-hour fire barrier to separate private garages from one-another and most likely the building configuration envisioned was exterior driveways open to the sky providing access to a series of side by side double or tandem private garages that had direct/indirect access to dwelling units.

The 2000 IBC allowed the 3,000 sq ft limit and a copy of Section 406.3 is attached and while not defining Private Garage prohibits repair and fueling in Private Garages. Repair work is different from vehicle service such as an oil change so prohibiting repair work is reasonable since it is not expected that tenants or fleet owners will perform repairs, however oil changes and other miscellaneous service work that does not involve cutting, welding and using open flame is most like so whether repairs are paid for or not should not be material to the use classification, furthermore it is not enforceable. An attachment is provided that includes a differentiation between vehicle repair and vehicle service.

The code changed lowered the area threshold to 1,000 from the 3,000 sq ft that has existed since the publication of the 1967 UBC but did not provide justification for why it was necessary to reduce the area from a fire risk perspective. The justification also discussed the area limit in the context of natural ventilation openings and cited Section 402.2 of the International Mechanical code that requires "The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated." exterior openings. Furthermore, an additional general requirement in the charging Section 401.2 to the chapter
4 requires that "Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403." If mechanical ventilation is not present the IMC requires natural ventilation for all uses and occupancies including private garages,
and as a result, there was no reason to reduce the area of garages due to ventilation concerns. The proposed code change results in an option to allow a larger private garage that has been 3,000 sq ft for more than 45 years with no known issues due CO exposure or fire hazards. Additionally, auto emissions have improved significantly over the past 50 years and the prevalence of electric vehicles and hybrid vehicles further reduces vehicle emissions. Hazards in garages due to CO occur during long term exposure and where there is a constant flow of motor vehicles like in the case for example of below ground garages in regional shopping malls. The hazards are primarily to the parking toll taker when not automated. Mixed use residential buildings are always protected at least with an NFPA 13-R system, and the garages are protected with an NFPA 13 compliant system, and this code change reasonably reinstates regulations that have existed for decades without lessening fire safety even with the increased hazards due to plastics in vehicles and difficulties in fighting fire in electric and hybrid vehicles due to batteries.

The NFPA report Fire Loss in the United States dated 10/31/24 shows a significant and steady decline of vehicle fire in structures, however when a vehicle fire spreads to a structure the data reports this with structure fires. A 40 ft by 75 ft Private Garage for example optimistically have room for 7 or 8 parking spaces *[20 ft wide drive aisle for backup, van accessible parking space and accessible EVCS space, seven 18 ft by 9 ft parking stalls]* without use of vehicle stackers. Proponent believes the 2012 IBC provided a reasonable level of safety when considering 3,000 sq ft garages include drive aisles and 1,000 sq ft ones do not.

We request that the Committee vote to approve this code change as submitted or as modified if it is deemed that the definition revision is not necessary.

Bibliography: Fire loss in the United States | NFPA Research

Cost Impact: Increase

Estimated Immediate Cost Impact:

This code change will reduce confusion and will reduce the cost of construction since office buildings include floors designed for 70 psf LL (office live load plus partition loads). Floor live load has changed over the decades, and since the legacy Uniform Building Code, and as a result the cost reduction is zero in an existing building since the floor will most likely be compliant with the proposed 60 psf live load. With the proposed live load existing and proposed floors will certainly more compliant than if the 100 pf live load required by the 2024 IBC is implemented; the 2024 IBC will require significant strengthening of the existing floor, or heavier framing for new floors. In an existing building this could cost $300,000 or more in a steel framed building or $100,000 to $200,000 in a wood framed building. In accordance with "Building Valuation Data – FEBRUARY 2024" for a Group B occupancy Type IA construction is 38% more costly than Type VA construction. Concrete buildings tend have floors with additional capacity since a large portion of the gravity load is the dead load due to the heavy weight of reinforced concrete. In a new building the cost increase will be 20% if constructed with structural steel and less if constructed with concrete since additional reinforcing and concrete may be required with roughly the same labor costs; if prestressed concrete it can assumed to be less costly than reinforced concrete since additional prestressing and slightly thicker slabs may be require.

Estimated Immediate Cost Impact Justification (methodology and variables):

Lower live load requires smaller floor framing and as a result reduces cost of compliance with the 2024 IBC. The costs include after hours work to access the underside of floors if tenant spaces below are occupied, removal and replacement of ceiling finishes and HVAC if any exists below the floor. If the floor is wood framed strengthening to comply with the 2024 IBC will be simpler than strengthening floors framed with structural steel framing due to the weight of framing materials and steel plates and the need for welding equipment to field welding to weld reinforcing plates. It is assumed that the cost is $300 per square foot under the 700 sq ft room above and accounting for framing that spans to receiving columns beyond the small assembly area.

G62-25

IBC: 406.3.1, 406.3.2

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Building Code

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

Revise as follows:

406.3.1 Classification. *Private garages* and carports shall be classified as Group U occupancies. Each *private garage* shall be not greater than 1,000 square feet (93 m^2) in area. Multiple *private garages* are permitted in a *building* where each *private garage* is separated from the other *private garages* by 1-hour *fire barriers* in accordance with Section 707, or 1-hour *horizontal assemblies* in accordance with Section 711, or both. For other than *private garages* separated from *dwelling units* they serve per Sections 406.3.2.1 and 406.3.2.2, multiple vehicle storage spaces separated with non-rated partitions are allowed within each *private garage.*

406.3.2 Separation. For other than *private garages* adjacent to *dwelling units*, the separation of *private garages* from other occupancies shall comply with Section 508. Separation of *private garages* from *dwelling units* they serve shall comply with Sections 406.3.2.1 and 406.3.2.2. Separation of *private garages* from other *dwelling units* shall comply with Sections 420.2 and 420.3.

406.3.2.1 Dwelling unit separation. The *private garage* shall be separated from the *dwelling unit* and its *attic* area by means of *gypsum board,* not less than $^1/_2$ inch (12.7 mm) in thickness, applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a $^5/_8$-inch (15.9 mm) *Type X gypsum board* or equivalent and $^1/_2$-inch (12.7 mm) *gypsum board* applied to structures supporting the separation from habitable rooms above the garage. Door openings between a *private garage* and the *dwelling unit* shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than $1^3/_8$ inches (34.9 mm) in thickness, or doors in compliance with Section 716.2.2.1 with a *fire protection rating* of not less than 20 minutes. Doors shall be *self-closing* and self-latching.

406.3.2.2 Ducts. Ducts in a *private garage* and ducts penetrating the walls or ceilings separating the *dwelling unit* from the garage, including its *attic* area, shall be constructed of sheet steel of not less than 0.019 inch (0.48 mm) in thickness and shall not have openings into the garage.

Reason: Note that Sections 406.3.2.1 and 406.3.2.2 are provided for reference only - there are no changes proposed for these sections.

The separation requirements between a private garage and dwelling unit, given in Section 406.3.2.1 and 406.3.2.2, are identical to separation requirements between a garage and a dwelling unit in the International Residential Code. These separation requirements are less than the fire partition and horizontal assembly separations required by Sections 420.2 and 420.3 for typical separation between dwelling units and other occupancies. The lesser separation between a garage and a dwelling unit is allowed since the occupants of the dwelling unit have control over, and awareness of, what is stored in the garage. If a garage adjacent to a dwelling unit serves a different dwelling unit, this control and awareness is not provided, and separation should be as required for separation of a dwelling unit and another occupancy. We believe the current intent of the code is that the garage/dwelling unit separation requirements are for garages that serve the adjacent dwelling unit, and this proposal clarifies this. Separation of private garages adjacent to dwelling units they don't serve must still meet dwelling unit separation requirements of IBC 420.2 and 420.3, so a requirement to comply with these sections is included in this proposal.

Also, Section 406.3.1 allows private garages to be up to 1,000 SF in area, but it is not clear if this 1,000 SF can be subdivided with non-rated partitions to form separate vehicle storage spaces. Since the code doesn't prohibit these non-rated partitions, we believe the intent is to allow spaces separated with non-rated partitions within a private garage. However, when private garages serve dwelling units with the reduced separation allowed by Sections 406.3.2.1 and 406.3.2.2, it is appropriate to provide fire-resistance rated separations between garages serving different dwelling units. This is due to the control and awareness issue mentioned above. This proposal clarifies that non-rated partition separations are allowed within a private garage except where the garages serve adjacent dwelling units.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Based on discussions with several jurisdictions, it is believed that most jurisdictions feel the private garage / dwelling unit separations in 406.3.2.1 and 406.3.2 are intended for garages adjacent to the unit they serve and are enforcing this accordingly. Therefore, this proposal is in line with the current intent and enforcement of the code, and provides clarification of this intent, so there will be no cost impact.

G62-25

G63-25

IBC: 406.5.8 (New), [F] 406.6.3, 406.6.4 (New)

Proponents: Robert Davidson, Davidson Code Concepts LLC, representing Self (rjd@davidsoncodeconcepts.com); Robert Marshall, representing FCAC (fcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

406.4 Public parking garages. Parking garages, other than *private garages*, shall be classified as public parking garages and shall comply with the provisions of Sections 406.2 and 406.4 and shall be classified as either an *open parking garage* or an enclosed parking garage. *Open parking garages* shall also comply with Section 406.5. Enclosed parking garages shall also comply with Section 406.6. See Section 510 for special provisions for parking garages.

406.5 Open parking garages. *Open parking garages* shall comply with Sections 406.2, 406.4 and 406.5.

Add new text as follows:

<u>406.5.8</u> <u>Automatic Sprinkler system</u>. <u>An open parking garage shall be equipped with an automatic sprinkler system as required by Sections 903.2.10 through 903.2.10.3.</u>

406.6 Enclosed parking garages. Enclosed parking garages shall comply with Sections 406.2, 406.4 and 406.6.

Revise as follows:

[F] 406.6.3 Automatic sprinkler system. An enclosed parking garage shall be equipped with an *automatic sprinkler system* in accordance with Section 903.2.10 <u>through 903.2.10.3</u>.

Add new text as follows:

<u>406.6.4</u> <u>Standpipe system</u>. <u>An enclosed parking garage shall be equipped with a standpipe system as required by Section 905.3.</u>

Reason: The purpose of this proposal is to provide guidance to users of the International Building Code by adding correlation language linking to existing protection requirements.

The new Section [F] 406.5.8 was added by proposal F97-24 during the Group A hearings, however it only pointed to one of 4 separate sections containing suppression triggers. The phrase "through 903.2.10.3" has been added to pick up all of the triggers.

This proposal is submitted jointly by the ***ICC Building Code Action Committee (BCAC)*** and the ***ICC Fire Code Action Committee (FCAC)***.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at **BCAC webpage**.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the **FCAC Website**

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no increase in construction costs of buildings with this change as it is a correlation proposal. It relies on requirements addressing these issues found within this code and the International Fire Code.

G63-25

G64-25

IBC: SECTION 202 (New), 406.2.7, UL Chapter 35 (New)

Proponents: Jonathan Roberts, representing UL Solutions (jonathan.roberts@ul.com)

2024 International Building Code

Add new definition as follows:

ELECTRIC VEHICLE POWER EXPORT EQUIPMENT (EVPE). The electrical equipment, including the outlet on the vehicle, that is used to provide electrical power at voltages equal to or greater than 30 volts AC or 60 volts DC to an external loads from the vehicle, where the vehicle is the source of supply.

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

Revise as follows:

406.2.7 Electric vehicle charging stations and systems. Where provided, electric vehicle charging systems shall be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be *listed* and *labeled* in accordance with UL 2202. Electric vehicle supply equipment shall be *listed* and *labeled* in accordance with UL 2594. *Electric vehicle power export equipment* shall be *listed* and *labeled* in accordance with UL 9741. Accessibility to *electric vehicle charging stations* shall be provided in accordance with Section 1107.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

9741-2023 Electric Vehicle Power Export Equipment (EVPE)

Reason: Electric vehicle power export equipment (EVPE) is a new trend to use an electric vehicle to provide power to the building. EVPE can be unidirectional or bidirectional. Unidirectional equipment exports power from the vehicle to an offboard load, such as a receptacle bank. Bidirectional equipment provides power to the vehicle for charging of the onboard battery, and exports power to the grid, premise or load, but export and charging do not occur at the same time. There are three manufacturers with listed equipment.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The cost for obtaining listed EV power export equipment may or may not represent increased product costs over obtaining non-listed equipment that have not been independently investigated to applicable standards for determining product safety and performance.

Obtaining and maintaining a listing for EV power export equipment involves both product investigation costs and costs for periodic inspection of production, as required by the definition of "listed". However, the impact of any potential cost increase can be weighed by the code development committee against the user and code official safety benefits derived from requiring listed equipment, as well as the additional benefit of less effort needed to demonstrate or determine compliance.

Staff Analysis: A review of the standard proposed for inclusion in the code, UL 9741-2023 Electric Vehicle Power Export Equipment (EVPE), with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

G64-25

G65-25

IBC: 406.3.2.1

Proponents: Tim Earl, GBH International, representing the Gypsum Association (tearl@gbhint.com)

2024 International Building Code

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

Revise as follows:

406.3.2.1 Dwelling unit separation. The *private garage* shall be separated from the *dwelling unit* and its *attic* area by means of *gypsum board,* not less than $^1/_2$ inch (12.7 mm) in thickness, applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a $^5/_8$-inch (15.9 mm) *Type X gypsum board* or other material with a 40-minute *fire-resistance rating* ~~equivalent~~ and $^1/_2$-inch (12.7 mm) *gypsum board* applied to structures supporting the separation from habitable rooms above the garage. Door openings between a *private garage* and the *dwelling unit* shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than $1^3/_8$ inches (34.9 mm) in thickness, or doors in compliance with Section 716.2.2.1 with a *fire protection rating* of not less than 20 minutes. Doors shall be *self-closing* and self-latching.

Reason: Type X gypsum board is a special type of gypsum panel product with core additives to increase fire resistance (in accordance with applicable ASTM standards). Proving equivalency to Type X is not straightforward, and there is no known alternative to it. When we conducted an informal poll of code users, many of the answers to the question “What do you consider equivalent to Type X gypsum board” were alarming.

Although nothing is exactly “equivalent” to Type X gypsum board, the primary property of interest is fire-resistance. The IBC assigns a fire-resistance rating of 40 minutes for type X board in vertical assemblies as part of the calculated method. Allowing any material with the same calculated fire-resistance rating in this application is a reasonable substitution. Beyond that, alternate materials should be approved as specified in Section 104.11, which was comprehensively revised last cycle.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

None. Anyone wishing to use an alternate material can still do so in accordance with Section 104.11.

G65-25

G66-25

IBC: 406.5.1, 406.6.1 (New), 406.6.4.1

Proponents: Bill McHugh, CM Services, Inc., representing National Fireproofing Contractors Association (bill@mc-hugh.us)

2024 International Building Code

SECTION 406
MOTOR-VEHICLE-RELATED OCCUPANCIES

406.5 Open parking garages. *Open parking garages* shall comply with Sections 406.2, 406.4 and 406.5.

Revise as follows:

406.5.1 Construction. *Open parking garages* shall be of Type I, II or IV construction. *Open parking garages* shall meet the design requirements of Chapter 16.*Open parking garage* floor assemblies shall provide a *fire-resistance rating* of not less than 4 hours. Separations from the parking garage to other occupancies and to *shaft enclosures* shall be constructed to provide a 4 hour *fire-resistance rating.*For *vehicle barriers*, see Section 406.4.2.

406.6 Enclosed parking garages. Enclosed parking garages shall comply with Sections 406.2, 406.4 and 406.6.

Add new text as follows:

406.6.1 Construction. Enclosed parking garage floor assemblies shall provide a *fire-resistance rating* of not less than 4 hours. Separations from the parking garage to other occupancies and to *shaft enclosures* shall be constructed to provide a 4 hour *fire-resistance rating.*

Revise as follows:

406.6.4.1 Separation. *Mechanical-access enclosed parking garages* shall be separated from other occupancies and accessory uses by not less than 4 ~~2~~-hour *fire barriers* constructed in accordance with Section 707 or by not less than 4~~2~~-hour *horizontal assemblies* constructed in accordance with Section 711, or both.

Reason: The purpose of this code proposal is to address the risks present in parking garages. Whether it is an internal combustion engine, or battery technology power in vehicles, all are now in structures. Most cars now have plastic gas tanks as well as much more plastics than in previous decades. There are lithium ion and other types of batteries in cars, along with a host of combustibles.

The proposal increases fire-resistance ratings to 4 hours for parking garages. The 4 hours is the highest practical fire-resistance-rating that exists for most common construction building elements. Four hours is also the fire-resistance rating that current fire-resistance-rated assembly breach / opening / penetration / joint protection items such as fire-dampers, firestopping, fire rated doors, can provide for fire-resistance continuity.

We have no idea when an electric vehicle powered by Lithium-ion or any other type of batteries, in addition to internal combustion engine, or hybrid will arrive at a parking garage.

Preventing fire spread into areas where people are located, and protecting the structure against collapse in parking garages, is critical to safety and resilience. More importantly, the people living or working upstairs from the parking garage need protection. The structure needs to withstand the longer fire-duration that internal combustion engines, Lithium ion or other type of battery fires might bring to these structures.

Fighting parking garage fires can be extremely difficult due to access, and other factors. This is especially when battery powered electric vehicles are involved. We understand the water required to keep certain types of batteries cool during thermal runaway is massive. Moving the vehicle outside the garage for burnout might not be an option in parking garages where exits can be a long way away, or on another floor.

Protect these garages with 4 hour fire-resistance ratings. It is the best the fire-resistance industry can offer for the building occupants safety.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal will increase the cost of construction of the floor assembly, horizontal assembly, wall assembly and breach protection by approximately 25% - 40% of only the assemblies required to have the increased fire-resistance rating. The cost will be absorbed into the rest of the building's cost of construction as not every floor or wall above the parking garage needs to be fire-resistance rated.

The approximate cost addition is as follows:

- Shafts for elevators, stairwells with doors - Approx. 40-50 cents per sf of floor area (Approx. 2 stairwells, elevator, 2 mechanical shafts, or trash/other purposed shafts).
- Fireproofing - Approx. $0.75-1.00 per sf of floor area.

There is a new innovation in gypsum panels reducing labor costs for a 4-hour fire-resistance-rated assembly.

Estimated Immediate Cost Impact Justification (methodology and variables):

The protection is justified because the assemblies are supporting parking garages and buildings. Offices, apartments, condos, etc. above these parking garages assume they are safe.

Estimated Life Cycle Cost Impact:

Maintaining protection of a 4 hour fire-resistance-rated assembly is no different than a 2 hour fire-resistance-rated assembly. There should be no increase in cost of maintaining protection for the building life cycle.

G66-25

G67-25

IBC: SECTION 202 (New), 406.5.2.2 (New)

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

Add new definition as follows:

VENTILATION WELL. A vertical open area bound on all sides by walls and used to provide natural ventilation with an unobstructed opening to sky at the top.

SECTION 406 MOTOR-VEHICLE-RELATED OCCUPANCIES

Add new text as follows:

406.5.2.2 Opening above grade. When *ventilation wells* are used to satisfy natural ventilation requirements for *open parking garages*, the width of the ventilation well opening to sky shall be one and one-half times the height of the adjacent structure to the bottom of the lowest required opening. The minimum required width of the *ventilation well* shall be maintained for not less than the length of the required openings.

Exception: The *ventilation well* opening width is not restricted if any of the following are met or provided:

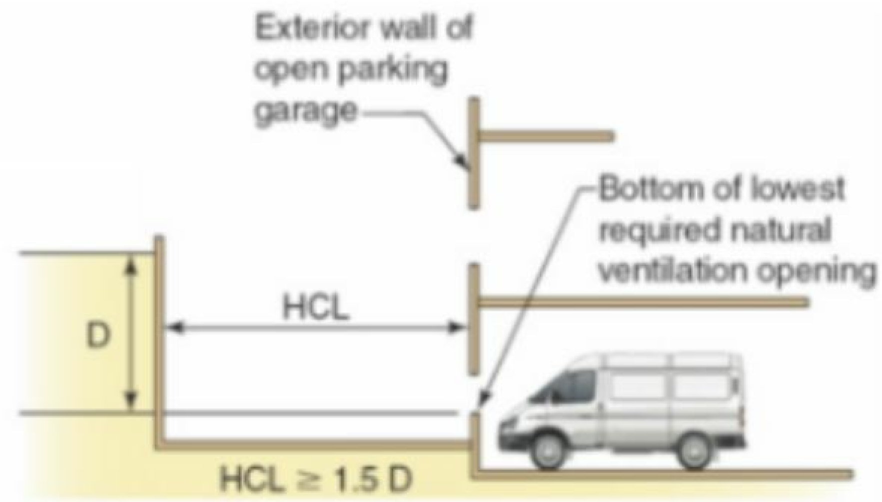
1. Supplemental mechanical ventilation meeting the requirements of Section 406.6.2 is provided for the *open parking garage*.
2. Where *approved* by the *building official*, an engineering analysis proving equivalent natural ventilation requirements are met.

Attached Files

- **ventilation well exhibit.pdf**
  https://www.cdpaccess.com/proposal/12138/35857/files/download/9439/

Reason: There is no definition in the building code for the vertical, open to air shafts used for natural ventilation. This type of a feature is being proposed with increased frequency. The definition helps alleviate wording complexity in the proposed section and allows for future use in the code.

Because permanently open exterior walls provide sufficient natural ventilation and permit the dissipation of heated gasses, open parking garages are viewed as a relatively low hazard. However, there are situations where the required openings are located within ventilation wells that are significantly below the roof levels of the parking garage and adjacent buildings, which makes it more difficult to provide the necessary openness required for good performance. A clear horizontal space as described by this section and the openings below grade section (406.5.2.1) must be provided by the ventilation well's opening to the sky. As the distance of the openings below the adjoining roof level increases, the minimum required width of the ventilation well opening also increases proportionally. The dimensional requirements are based on the provisions of Section 1202.5.1.2 for openings below grade. The extent of the required clear space allows for adequate ventilation well open space to meet the intent and dynamics of natural ventilation requirements for open parking garages.The dimensional requirements do not need to be met if sufficient mechanical ventilation is provided as required for enclosed parking garages in Section 406.6.2. This allows the garage to meet the requirements of an opening parking garage without having to comply with all the enclosed parking garage requirements. In addition, an engineering analysis can be provided to demonstrate the natural ventilation performance is sufficient.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal provides guidance on how to address ventilation of open parking garages with the usage of ventilation wells.

G67-25

G68-25

IBC: 407.2.1 (New), 420.9.1 (New), 420.11.2 (New), 422.7.1 (New), UL Chapter 35 (New)

Proponents: Jonathan Roberts, representing UL Solutions (jonathan.roberts@ul.com)

2024 International Building Code

SECTION 407
GROUP I-2

Add new text as follows:

407.2.1 Ignition prevention. Electric cooktops and ranges shall include heating elements that have been tested and *listed* in accordance with UL 858 to prevent ignition of cooking oil.

SECTION 420
GROUPS I-1, R-1, R-2, R-3 AND R-4

420.9.1 Ignition prevention. Electric cooktops and ranges shall include heating elements that have been tested and *listed* in accordance with UL 858 to prevent ignition of cooking oil.

420.11.2 Ignition prevention. Electric cooktops and ranges shall include heating elements that have been tested and *listed* in accordance with UL 858 to prevent ignition of cooking oil.

SECTION 422
AMBULATORY CARE FACILITIES

422.7.1 Ignition prevention. Electric cooktops and ranges shall include heating elements that have been tested and *listed* in accordance with UL 858 to prevent ignition of cooking oil.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

858-2014 Household Electric Ranges - with revisions through August 2023

Reason: This proposal correlates these IBC sections with appliance requirements approved in the IFC Group A along with the current requirements for electric cooktops and ranges in IRC M1503.2, IRC M1901.2, and IMC 917.1. The IRC and IMC already require the appliance to be listed and labeled to UL 858.

The latest edition of UL 858 includes the testing requirement for the heating elements to prevent cooking oil ignition.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Editorial only and aligns with other changes within the body of the codes.

Staff Analysis: UL 858-2014 Household Electric Ranges is currently referenced in the IRC and IMC.

G68-25

G69-25

IBC: 408.9, SECTION 202 (New)

Proponents: Crystal Sujeski, representing CAL FIRE/Office of the State Fire Marshal (crystal.sujeski@fire.ca.gov)

2024 International Building Code

SECTION 408 GROUP I-3

Delete and substitute as follows:

~~**408.9 Windowless buildings.** For the purposes of this section, a windowless *building* or portion of a *building* is one with nonopenable windows, windows not readily breakable or without windows. Windowless *buildings* shall be provided with an engineered smoke control system to provide a tenable environment for exiting from the *smoke compartment* in the area of fire origin in accordance with Section 909 for each windowless *smoke compartment*.~~

<u>**408.9** **Tenable Environment.** Areas occupied by residents for sleeping of Conditions 3, 4 and 5 shall be provided with a smoke control system in accordance with Section 909 to provide a tenable environment for exiting from the smoke compartment in the area of fire origin. No venting or smoke control is required when an engineering analysis in accordance with Section 909.4 shows an acceptable safe egress time compared to the onset of untenable conditions within the smoke compartment.</u>

Add new definition as follows:

<u>**TENABLE ENVIRONMENT.** An environment in which the products of combustion, toxic gases, smoke and heat are limited or otherwise restricted to maintain the impact on occupants to a level that is not life threatening.</u>

Reason: The proposed changes integrate the intent of the code.

The intent of 408.9 model code as described in the 2021 IBC Code and Commentary – "An engineered smoke control system through which the products of combustion can be vented is required for smoke compartments in which there are no openings. The smoke control system is to provide a tenable environment during the period it takes the occupants to egress from a smoke compartment that is the area of fire origin".

The code language uses the term of "Windowless", where a windowless building or portion of a building is one with nonopenable windows, windows not readily breakable or without windows. However, the California State Fire Marshal (SFM) task group noticed the code language for "Windowless" is only defined in 408.9 and there are no prescriptive design requirements for number, location and size of openable windows or the maximum time duration of "readily breakable" for security window/s, and/or specific documentation requirements that the openable windows or readily breakable windows will create a tenable environment within the smoke compartment.

Pending the size, volume and configuration of the smoke compartment, to include the number of housing pods within the a compartment (most housing pods are typically separated between each other with Type 1 construction materials) – no documentation or analysis has been required in the code language to show the smoke compartment complies as a tenable environment – with or without windows.

This proposed new language will mandate I-3 occupancies with sleeping areas within any smoke compartments to provide required supplemental documentation / engineering analysis (909.4) showing the smoke compartment will have a Tenable Environment **or** provide an engineered smoke control system.

The proposal can clarify design flexibility, since the design could use operable openings / vents, or no openings where there are high ceiling areas, that can bank the smoke. This proposal removes the term "Windowless" and inserts the Definition of *Tenable Environment*.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There should be no increase in building cost. However, there has been a schedule impact during agency review because the current requirements are not clear. These clarifications should streamline review of detention facilities which may result in some cost savings due to reduced plan review time.

G69-25

G70-25

IBC: 408.9

Proponents: Gabriel Levy, incandescence life safety, inc, representing Colorado Chapter Code Development Committee (glevy@incandescencels.com)

2024 International Building Code

SECTION 408
GROUP I-3

408.9 Windowless buildings. For the purposes of this section, a windowless *building* or portion of a *building* is one with nonopenable windows, windows not readily breakable or without windows. Windowless *buildings* shall be provided with an engineered smoke control system to provide a tenable environment for exiting from the *smoke compartment* in the area of fire origin in accordance with ~~Section 909~~ NFPA 92 for each windowless *smoke compartment*.

Reason: IBC 909 mandates minimum design standards for smoke control systems. However, imposing prescriptive requirements contradicts the concept of an "engineered" system. This requirement is most applicable for smoke exhaust in a multi-story prisons with large atrium-style shared cores. However, many detention facilities do not use this configuration. In a single-story facility with holding cells that have a ceiling height of only 10-12 feet, it is not feasible to provide a smoke exhaust system that meets all prescriptive requirements of IBC 909 (namely, maintaining a smoke layer 6 feet above the walking surface). Without a substantial ceiling height, turbulence and mixing will disrupt the development of a consistent smoke layer boundary.

A performance-based approach, which can account for various architectural configurations, is more suitable for designing some smoke control systems. Unfortunately, IBC 909 does not accommodate this. NFPA 92, a well-established standard already referenced in the IBC, offers a more robust framework for smoke control system design, aligning with industry best practices and engineering principles.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change proposal is editorial in nature and has no cost impact on the cost of construction for windowless buildings or smoke control.

G70-25

G71-25

IBC: 408.9

Proponents: Gabriel Levy, incandescence life safety, inc, representing Colorado Chapter Code Development Committee (glevy@incandescencels.com)

2024 International Building Code

SECTION 408
GROUP I-3

Revise as follows:

408.9 ~~Windowless buildings~~Smoke control system. ~~For the purposes of this section, a windowless *building* or portion of a *building* is one with nonopenable windows, windows not readily breakable or without windows. Windowless *buildings*~~Detention areas without operable exterior wall openings shall be provided with an engineered smoke control system to provide a tenable environment for exiting from the *smoke compartment* in the area of fire origin in accordance with Section 909 for each ~~windowless~~ *smoke compartment*.

Reason: Sections 408.10 and 408.11 are titled 'Fire alarm system' and 'Automatic sprinkler system', respectively. To maintain consistency, Section 408.9 should be titled 'Smoke control system'.
The first sentence of this section provides a definition, which is inconsistent with IBC formatting. If provided, the definition should be in Section 202, not as an introduction to the requirement. Furthermore, the definition is entirely contradictory to common sense. According to the existing definition, a "windowless building" does not have to be a building, nor does it have to be windowless. To remove this confusion, the definition is struck entirely from this section. The requirement is only applicable in I-3 buildings, and is intended to apply to portions of a building where occupants are incapable of self preservation. Therefore, "detention areas" is used to indicate that the requirement exists where egress is restricted.

The commentary states that "the intent of this section is that staff must have some means to ventilate the products of combustion; therefore, where the window cannot be broken by items readily available to the staff, the area is considered windowless." It is undesirable to design breakable-glass in a detention facility. However, it is not uncommon to see doors from a communal day room which open to a secured exterior court. Opening such as an exterior door should be considered equivalent to breaking a window for ventilation purposes. However, because a door is not a window, it does not apply to the existing code language. Therefore "without operable exterior wall openings" is used to allow for better configurations, rather than breaking a window.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The cost of a door is negligible compared to the cost of a window in the scale of a prison's cost of construction.

G71-25

G72-25

IBC: 410.2.5.1 (New)

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Add new text as follows:

410.2.5.1 Activation. When provided, a proscenium curtain shall be activated by manual emergency operation, fusible link, ultra-fast rate-of-rise heat detection installed in accordance with Section 907.3, or signal of water flow from any automatic sprinkler system covering the stage as required by Section 410.6.

Reason: The 2006 IBC had an activation sub-section to Section 410.3.5. However, this and other proscenium curtain subsections were removed during the 2009 code cycle when the addition of NFPA 80 entered the main Section 410.3.5. The reference to NFPA 80 for all requirements regarding a proscenium fire curtain; however, would not directly apply to activation for the other elements of proscenium protection at the stage opening.

NFPA 80 (2022 edition), Section 20.7.3.1 states “The fire safety curtain assembly shall be activated by manual emergency operation and rate-of-rise heat detection located above the stage.” There is no guidance as to the design requirements for rate-of-rise detection in the IBC, NFPA 72, or NFPA 80 (e.g., full coverage on stage or just a line of detectors at the opening).

The proposed activation subsection seeks to detail the options for activation of the physical proscenium opening and not have designers, engineers, or AHJ having to work through separate standards. NFPA 80 discusses manual and heat detection requirements; however, does not detail fusible links or sprinkler systems in the same area. Additionally, NFPA 80 references an FM Data Sheet in the heat detectors. The addition aims to incorporate multiple activation items for the release of a curtain or horizontal sliding door providing the physical separation between the stage and audience. Any required fire suppression, fire detection, and / or smoke control systems activation would be based on further engineering determination.

The code change proposal is necessary to clarify the intent of the codes (i.e., address the lack of guidance regarding prescriptive activation devices).

It should be noted that these requirements have been implemented in multiple theaters across Southern Nevada area since the adoption of the 2012 IBC to provide acceptable requirements for the activation of the proscenium curtain.

Bibliography: NFPA 80, Standard for Fire Doors and Other Opening Protectives, 2022 Edition.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal provides additional guidance as to the means of activation of the proscenium curtain and therefore does not have an impact to the cost of construction.

G72-25

G73-25

IBC: SECTION 202, 410.1, 410.2, 410.2.1, 410.2.3, 410.2.4, 410.2.5, 410.4 (New), 410.4.1 (New), 410.5 (New), 410.5.1 (New), 410.5.2 (New), 410.5.3 (New)

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Revise as follows:

410.1 Applicability. The provisions of Sections 410.1 through 410.15 ~~410.7~~ shall apply to ~~all~~ those parts of *buildings* and *structures* that contain *stages* *and technical production areas* ~~or platforms and similar appurtenances as herein defined~~.

Add new text as follows:

410.4 Stage construction. Type A *stages* with a stage area of 5000 square feet (464 m^2) or less and a stage height of 50 feet (15.24 m) or less and all Type B *stages* shall be of the construction type as required for the occupancy. Type A *stages* with a stage area greater than 5000 square feet (464 m^2) or a stage height greater than 50 feet (15.24 m) shall be of Type I, II, or IV construction.

410.4.1 Structural framing. Beams installed only for the attachment of portable or fixed stage equipment shall be permitted to be without a fire-resistance rating in all construction types.

410.5 Stage fire area. *Stages*, contiguous audience areas, and contiguous backstage and support areas not separated from the performance area by fire-resistance-rated construction shall be separated from the rest of the building where required in Sections 410.7.1 through 410.7.3. Separation shall be by fire barriers or horizontal assemblies, or both.

410.5.1 Two hour separation at Type A stages. Fire areas with Type A stages serving an audience occupant load greater than 300 and with a stage area greater than 5000 square feet (464 m^2) or a stage height greater than 50 feet (15.24 m) shall be separated from the rest of the building by construction with a two hour fire-resistance rating.

410.5.2 One hour separation at Type A stages. Fire areas with Type A stages with a stage area greater than 2500 square feet (232.25 m^2) or a stage height greater than 30 feet (9.14 m) or serving an audience occupant load greater than 1000 shall be separated from the rest of the building by construction with a one hour fire-resistance rating.

410.5.3 One hour separation at Type B stages. Fire areas with Type B stages with a stage area greater than 2500 square feet (232.25 m^2) or serving an audience occupant load greater than 2000 shall be separated from the rest of the building by construction with a one hour fire-resistance rating.

Delete without substitution:

~~**410.2 Stages.** *Stage* construction shall comply with Sections 410.2.1 through 410.2.7.~~

~~**410.2.1 Stage construction.** *Stages* shall be constructed of materials as required for floors for the type of construction of the *building* in which such *stages* are located.~~

> ~~**Exception:** *Stages* need not be constructed of the same materials as required for the type of construction provided that the construction complies with one of the following:~~

~~1. *Stages* of Type IIB or IV construction with a nominal 2-inch (51 mm) wood deck, provided that the *stage* is separated from other areas in accordance with Section 410.2.4.~~

~~2. In *buildings* of Type IIA, IIIA and VA construction, a fire-resistance-rated floor is not required, provided that the space below the *stage* is equipped with an *automatic sprinkler system* or *fire-extinguishing system* in accordance with Section 903 or 904.~~

~~3. In all types of construction, the finished floor shall be constructed of wood or *approved* noncombustible materials. Openings through stage floors shall be equipped with tight-fitting, solid wood trap doors with *approved* safety locks.~~

~~**410.2.3 Exterior stage doors.** Where protection of openings is required, exterior *exit* doors shall be protected with *fire door assemblies* that comply with Section 716. Exterior openings that are located on the *stage* for *means of egress* or loading and unloading purposes, and that are likely to be open during occupancy of the theater, shall be constructed with vestibules to prevent air drafts into the auditorium.~~

~~**410.2.4 Proscenium wall.** Where the stage height is greater than 50 feet (15 240 mm), all portions of the *stage* shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour fire-resistance rating extending contiuously from the foundation to the roof.~~

~~**Exception:** Where a *stage* is located in a *building* of Type I construction, the proscenium wall is permitted to extend continuously from a minimum 2-hour fire-resistance-rated floor slab of the space containing the *stage* to the roof or a minimum 2-hour fire-resistance-rated floor deck above.~~

~~**410.2.5 Proscenium curtain.** Where a *proscenium wall* is required to have a *fire-resistance rating*, the *stage* opening shall be provided with a fire curtain complying with NFPA 80, horizontal sliding doors complying with Section 716 having a *fire protection rating* of not less than 1 hour, or an *approved* water curtain complying with Section 903.3.1.1 or, in *facilities* not utilizing the provisions of *smoke-protected assembly seating* in accordance with Section 1030.6.2, a smoke control system complying with Section 909 or natural *ventilation* designed to maintain the smoke level not less than 6 feet (1829 mm) above the floor of the *means of egress*.~~

~~**[BG] PROSCENIUM WALL.** The wall that separates the *stage* from the auditorium or assembly seating area.~~

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/

This proposal along with the related proposal on definitions recognizes the changes in design of stages and auditoriums since the 19th century, and replaces the untested and ineffective separation of the stage from the auditorium. We set out with the two main goals: (1) to clarify the types of stages and to establish clear thresholds for when various additional features for fire protection; and (2) to replace the separation between stage and audience with a separation between the stage and audience combined and the rest of the building.

The proposed definitions are in a separate closely related proposal as follows:

[BG] STAGE. A space within a building utilized for entertainment or presentations, which includes overhead hanging curtains, drops, scenery or stage effects other than lighting, and sound, projections, and video display and the mounting provisions for them.

Type A stage. A stage that is designed and constructed for use with curtains and stage scenery.

Type B stage . A stage that is designed and constructed for use without curtains and stage scenery.

STAGE SCENERY. The constructed scenes or hangings used on a stage to form a theater set.

Note that furniture is not scenery. Flipcharts, tripods, podiums, lecterns, music stands, portable projection screens, tables with objects, luggage, appliances, machines, etc. also, not scenery. Scenery are walls and ceilings and large three-dimensional objects and drops typically built with combustible materials for a stage setting. Hard to put in definition but we will suggest code commentary text and hope that will be sufficient.

SUMMARIZING PROPOSED REQUIREMENTS FOR TYPE A AND TYPE B STAGES:

For a Type A stage with a maximum stage area of 2500 sf and a maximum stage height of 30' and serving a maximum audience occupancy of 1000 seats, no additional features of fire protection are required beyond that which is required for the occupancy, probably A-1. 50 x 50 or 100 x 25 and 30' high is a pretty decent size stage for a cafeteria, gym, or a banquet hall; a flexible theatre up to 70' x 70' x 30'.

For a Type A stage with a maximum stage area of 5000 sf or a maximum stage height of 50' or serving a maximum audience occupancy of 1000, a 1-hour separation of stage and auditorium together from rest of building is required.

For a Type A stage serving an audience occupancy of over 300 and a stage area over 5000 sf or stage height over 50', a 2-hour separation of stage and auditorium together from rest of building is required and in addition it shall be of types 1, 2, or 4 construction.

In addition for a Type A Stage serving an audience occupancy of over 300 and with either a stage area over 2500 sf or a stage height over 30' shall be vented.

For a Type B with a maximum stage area of 2500 sf and serving a maximum audience occupancy of 2000, no additional features of fire protection are required beyond that which is required for the occupancy, probably A-1. Therefor, a traditional raised or not raised floor area at the front of a church or lecture hall or in a music only recital or concert hall are Type B stages.

For a Type B stage a stage area over 2500 sf or serving an audience occupancy over 2000, a 1-hour separation of stage and auditorium together from rest of building is required.

Furniture is not scenery. Flipchart stands, podiums, lecterns, music stands, portable projection screens, tables with objects, etc. also, not scenery. Scenery are walls and ceilings and large three-dimensional objects and drops typically built with combustible materials for a stage setting. Hard to put in definition but we will suggest code commentary text and hope that will be sufficient.

Fire sprinklers required on all stages, most likely because any A occupancy over 300 total building occupancy is required to be sprinklered.

WHAT HAS CHANGED FROM THE 19TH CENTURY THEATRE

1. The basis for the requirements for theatres and performing arts stages in IBC, IFC, NFPA 101 and NFPA 5000 are based on very early 1900s models and much has changed in 120 years. Significantly the amount of combustibles and the use of LED lighting and equipment has virtually eliminated the fire hazard that was so common before the electric light bulb. The efficacy of the proscenium wall and fire safety curtain is unproven.

2. Theatres in 1900 were a for profit business and generally were two stand alone buildings, one with audience and all its support spaces and one with stage with all its support spaces, in built up urban areas. Now the overwhelming majority are in schools: 40,000± K-12 and 5000± higher education versus1000± broadway, touring venues, regional producing theatres, and community theatres combined. Overwhelmingly the stage and auditorium are one part of a much larger building with many other uses and possibly other occupancies such as the contemporary high school or a performing arts center.

3. Scenery was much more plentiful and nearly all composed of combustible fabric and wood. From John R Freeman PE report on the Iroquois Theatre fire:

"On the Iroquois stage at the time of the fire there was more than ten thousand square yards of canvas, or two and one-half acres, and in addition about three thousand square yards, or half an acre, of gauze. To hang this required nearly eleven miles in length of 5/8 inch manila rope, and in the frames, battens, braces, profiles and set pieces, the stage carpenter of the Iroquois tells me, after making careful estimate, that there was about eight thousand square feet of white pine lumber. The total weight of this fuel was more than ten tons, all dry as tinder, and all set or hung in a way to give the quickest possible exposure and spread to the flames."

That is around 10 psf of combustibles. A mixture of factors including labor costs to produce that much scenery, use of wire rope and steel instead of kerosene soaked manila rope and dry pine for much of the stage equipment, much less wood and other combustibles used in the construction, and much more reliance on projections than painted cloth. A "big" play in a high school is likely to be in the 2 to 4 psf range. Compared with big box stores and factories, even residential occupancies, this is small.

4. Lighting during the "great age of theatre fires" from roughly 1850 to 1900 where the life of a theatre averaged 5 years before burning to the ground, and like at the Iroquois, was open flame or open arc lighting. It was sparks from an arc light that started the fire at the Iroquois. The Rhoads Opera House fire in Boyertown PA, January 13, 1908: "The fire started when a kerosene lamp being used for stage lighting was knocked over, starting a fire on the stage." The electric light bulb ended almost all theatre fires. Since the early 1900s

there have been a few fires where electric incandescent lighting ignited fabric on stage as was common previously. Incandescent theatre lights are hot but not like flames and open arcs lamps. Since the early 2000's LED theatre lighting has taken over and they are not hot.

5. Fire sprinklers were unheard of on stages in early 1900s, but since 1960s have been required and have been effective. The Chicago Public Library auditorium and Peace Center for the Arts in Greenville both had fires in 1990s - drapery covering incandescent lights - and a single fire sprinkler extinguished the fire. Its important to keep in mind that the lighting over stage is typically around 25' off the floor and the combustibles above that well within 50' for the roof and sprinklers, challenging the conventional thinking about sprinkler efficacy being limited to 50' above the floor.

6. Smoke ventilation reliability has improved substantially. From the The Ringtheater fire, December 8, 1881, which resulted in documenting the need for it; and the Edinburgh's Palace Empire Theatre fire, May 9,1911 where everyone in the auditorium escaped; and at the Iroquois where they did not operate. If there is a fire on a stage, ventilation to keep the audience areas relatively smoke free for at least 10 minutes is key.

7. Inward swinging doors, narrow and steep stairs, unfamiliar door hardware, and other egress restrictions all contributed to the deaths in most of not all of these historic theatre fires. What was common and permitted 50 to 100 years ago is not the same today. More egress, wider egress, higher occupant loads factors, and more requirements for maintaining the means of egress all contribute.

8. Based on records and personal experience, most stage fires occur when the there is no audience present. *Modern Opera Houses and Theatres* published in 3 volumes, by Edwin O. Sachs and Ernest A. E. Woodrow, published 1896 through 1898, documents that the average life of a theatre built between 1850 and 1900 was five years before there was a substantial loss from fire notes this. The attached "NFPA data 1990" shows this.

8. Proposed 410.4.1 is relocating text from existing 410.2.2 shown deleted below under Technical Production Areas.

Section 410 pre-print - a draft of what section 410 would look like if all ASTC proposals were accepted

"ATTAC-65" is the 1992 BCMC report which was used as the basis for the first edition of the IBC and largely unchanged in the 2024 IBC.

"nfpa data 1990" is a report from NFPA records of "Recent Fires Originating on Stages or in Projection Rooms or Areas". Note the last page is NOT and NFPA summary but one which ASTC wrote.

"NFPA 101_5000 Assembly Occupancies..." is a recent summary of fires originating on stages ffom NFPA data

"Stage Ventilation - Clearing the Heat and Smoke" 2013 article published in Protocol regarding stage ventilation.

"Fire Protection for Stages without Reliance on the Fire Safety Curtain" paper from International Theatre Architecture and Engineering conference 2002

- **Section 410 pre-print.pdf**
  https://www.cdpaccess.com/proposal/11511/35524/documentation/183906/attachments/download/9148/
- **Fire Protection for Stages without Reliance on the Fire Safety Curtain.pdf**
  https://www.cdpaccess.com/proposal/11511/35524/documentation/183906/attachments/download/9119/
- **Stage Ventilation - Clearing the Heat and Smoke.pdf**
  https://www.cdpaccess.com/proposal/11511/35524/documentation/183906/attachments/download/9108/
- **NFPA 101_5000 Assembly Occupancy Stage ...ire Data - bill bcaworld.pdf**
  https://www.cdpaccess.com/proposal/11511/35524/documentation/183906/attachments/download/8900/
- **nfpa data1990.pdf**
  https://www.cdpaccess.com/proposal/11511/35524/documentation/183906/attachments/download/8899/
- **ATTAC-65.PDF**
  https://www.cdpaccess.com/proposal/11511/35524/documentation/183906/attachments/download/8898/

Cost Impact: Decrease

Estimated Immediate Cost Impact:

On stages which do not currently require a proscenium wall and fire safety curtain, there is little impact as the compartmentalization is basically unchanged.

Clarifying the difference between a type A and type B stage, and the generally lesser cost for fire protection features on a type B stage, may result in savings for a few projects which have traditionally been mislabeled. The opposite may also be true, requiring a little more fire resistant rated construction for a stage that was erroneously labeled as a platform.

While the ASTC believes this will not change the total amount of money spent on a theatre to change, the immediate impact of no longer requiring a fire safety curtain and two hour wall between audience and stage will decrease the cost of that part of the building. Fire safety curtains start in the $100,000 range and can exceed $500,000. The savings in the proscenium wall construction and fire rated opening protectives is offset by the requirement to include the auditorium within the stage fire area - for over 50' stages.

Estimated Immediate Cost Impact Justification (methodology and variables):

$100,000 to over $500,000 just on costs of fire safety curtains.

G73-25

G74-25

IBC: 410.2.1

Proponents: David Bueche, representing Hoover Treated Wood Products (dbueche@frtw.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Revise as follows:

410.2.1 Stage construction. *Stages* shall be constructed of materials as required for floors for the type of construction of the *building* in which such *stages* are located.

Exception: *Stages* need not be constructed of the same materials as required for the type of construction provided that the construction complies with one of the following:

1. *Stages* of Type IIB or IV construction with a nominal 2-inch (51 mm) wood deck, provided that the *stage* is separated from other areas in accordance with Section 410.2.4.
2. <u>*Stages* are permitted to be constructed of *fire-retardant-treated wood* for Types II, and IV construction, provided that the *stage* is separated from other areas in accordance with Section 410.2.4.</u>

~~2.~~ <u>3.</u> In *buildings* of Type IIA, IIIA and VA construction, a fire-resistance-rated floor is not required, provided that the space below the *stage* is equipped with an *automatic sprinkler system* or *fire-extinguishing system* in accordance with Section 903 or 904.

~~3.~~ <u>4.</u> In all types of construction, the finished floor shall be constructed of wood or *approved* noncombustible materials. Openings through stage floors shall be equipped with tight-fitting, solid wood trap doors with *approved* safety locks.

Reason: By allowing the use of fire-retardant-treated wood (FRTW) while maintaining the required separation, stages could provide improved fire resistance compared to the untreated wood currently permitted by Exception 1 for Types IIB and IV construction, for instance. Furthermore, FRTW is already allowed in permanent platforms for Types I, II, and IV construction (IBC Section 410.3).

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0. The addition of fire-retardant-treated wood as an option to this section of the code may decrease the cost of construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

Fire-retardant-treated wood is generally less expensive than noncombustible materials. Because FRTW is used as an alternate to these materials in various applications, the cost may be less.

G74-25

G75-25

IBC: 410.2.1.1, 410.2.1 (New), 410.2.2 (New), 410.2.3 (New), 410.3 (New)

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Revise as follows:

410.2 ~~410.2.1.1~~ Stage ~~height and~~ area. Stage areas shall be measured to include the entire performance area and ~~adjacent~~ contiguous backstage and support areas not separated from the performance area~~ by fire-resistance-rated construction. Stage height shall be measured from the lowest point on the stage floor to the highest point of the underside of the roof or floor deck above the *stage*.~~

Add new text as follows:

410.2.1 Stage area boundary. Areas separated from the *stage* by fire-resistance-rated construction where required by Section 410.7 or separated from the performance area by doors and walls where fire resistance rated construction is not required shall not be included in the *stage* area.

410.2.2 Flexible stages. In spaces where the *stage* and audience areas are not defined, *stage* area be permitted to be as shown in the construction documents or to be calculated as not more than 50% of the combined *stage* and audience area.

410.2.3 Stage level. *Stage* area shall only include areas at the level of the stage floor and shall not include technical production areas above the *stage* or rooms or spaces below the stage that are open to the stage and within the same footprint.

410.3 Stage height. *Stage* height shall be measured from the lowest point on the *stage* floor to the highest point of the underside of the roof or floor deck above the *stage*. Spaces below and open to the *stage* shall not contribute to *stage* height.

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/
Since these terms were introduced, experience has indicated additional detail and clarity is beneficial. There is no change in intent from when developed in the BCMC process around 1990.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These changes are for clarification for stage height and areas.

G75-25

G76-25

IBC: SECTION 202, [BE] 410.5.2, 410.6 (New), 410.7 (New), 410.7.1 (New), 410.7.2 (New), 410.7.3 (New), 410.7.4 (New), 410.7.5 (New), 410.7.5.1 (New), 410.7.5.2 (New), 410.2.1, 410.3, 410.3.1, 507.6, 507.7

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Add new text as follows:

410.6 Space below stage. Where fire-resistant-rated construction is required for a stage and the stage floor fire-resistance rating is less than required in Section 410.7 or where there are openings in the stage floor to the space below the stage, the space below the stage shall be included within the stage fire area and separated from the rest of the building in accrdance with Section 410.5.

410.7 Stage floors. Permanent *stage* floors shall be constructed of materials as required for floors for the type of construction of the *building* in which such *stages* are located except as indicated in Section 410.7.1 and 410.7.2.

410.7.1 Non-fire-resistant stage floors. Stage floor construction shall be a nominal 2-inch (51 mm) wood deck or other approved materials.

410.7.2 Finished stage floors assembly. In all types of construction, the finished stage floor, subfloor, sleepers, and blocking shall be constructed of wood or approved noncombustible materials.

410.7.3 Raised stage floors. Where the stage floor is raised above the building floor, the raised floor including structural support shall be constructed of fire-retardant-treated wood or other approved non-combustible materials. Where the space beneath the raised stage floor is used for storage or any purpose other than equipment, wiring or plumbing, the floor assembly shall be not less than 1-hour fire-resistance-rated construction. Where the space beneath the raised stage floor is used only for equipment, wiring or plumbing, the underside of the raised stage floor need not be protected.

410.7.4 Stage floor openings. Where there are stage floor openings, the space below the stage floor opening shall be included within the stage fire area.

410.7.5 Stage floor opening inserts. Stage floor opening inserts where provided shall be constructed of approved materials and shall support loads as required for stages.

410.7.5.1 Removable inserts. Manually removable inserts shall have gaps no greater than 1/8-inch (3.18 mm) between the insert and adjacent stage floor. Approved hardware shall secure the insert in place.

410.7.5.2 Operable inserts. Mechanized inserts shall have gaps no greater than 3/8-inch (9.53 mm) between the insert and adjacent stage floor.

Delete without substitution:

~~**410.2.1 Stage construction.** *Stages* shall be constructed of materials as required for floors for the type of construction of the *building* in which such *stages* are located.~~

~~**Exception:** *Stages* need not be constructed of the same materials as required for the type of construction provided that the construction complies with one of the following:~~

1. ~~*Stages* of Type IIB or IV construction with a nominal 2-inch (51 mm) wood deck, provided that the *stage* is separated from other areas in accordance with Section 410.2.4.~~
2. ~~In *buildings* of Type IIA, IIIA and VA construction, a fire-resistance-rated floor is not required, provided that the space below the *stage* is equipped with an *automatic sprinkler system* or *fire-extinguishing system* in accordance with Section 903 or 904.~~
3. ~~In all types of construction, the finished floor shall be constructed of wood or *approved* noncombustible materials. Openings through stage floors shall be equipped with tight-fitting, solid wood trap doors with *approved* safety locks.~~

~~**410.3 Platform construction.** Permanent *platforms* shall be constructed of materials as required for the type of construction of the *building* in which the permanent *platform* is located. Permanent *platforms* are permitted to be constructed of *fire-retardant-treated wood* for Types I, II and IV construction where the *platforms* are not more than 30 inches (762 mm) above the main floor, and not more than one-third of the room floor area and not more than 3,000 square feet (279 m^2) in area. Where the space beneath the permanent *platform* is used for storage or any purpose other than equipment, wiring or plumbing, the floor assembly shall be not less than 1-hour fire-resistance-rated construction. Where the space beneath the permanent *platform* is used only for equipment, wiring or plumbing, the underside of the permanent *platform* need not be protected.~~

~~**410.3.1 Temporary platforms.** *Platforms* installed for a period of not more than 30 days are permitted to be constructed of any materials permitted by this code. The space between the floor and the *platform* above shall only be used for plumbing and electrical wiring to *platform* equipment.~~

~~**[BG] PLATFORM.** A raised area within a *building* used for worship, the presentation of music, plays or other entertainment; the head table for special guests; the raised area for lecturers and speakers; boxing and wrestling rings; theater-in-the-round *stages*; and similar purposes wherein, other than horizontal sliding curtains, there are no overhead hanging curtains, drops, scenery or stage effects other than lighting and sound. A temporary platform is one installed for not more than 30 days.~~

Revise as follows:

[BE] 410.5.2 Stairway and ramp enclosure. *Exit access stairways* and *ramps* serving a *stage* ~~or *platform*~~ are not required to be enclosed. *Exit access stairways* and *ramps* serving *technical production areas* are not required to be enclosed.

SECTION 507
UNLIMITED AREA BUILDINGS

507.6 Group A-3 buildings of Type II construction. The area of a Group A-3 *building* not more than one *story above grade plane*, used as a *place of religious worship*, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor *swimming pool* or tennis court of Type II construction, shall not be limited provided that the following criteria are met:

1. The *building* shall not have a *Type A* *stage* ~~other than a *platform*~~.
2. The *building* shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The *building* shall be surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

507.7 Group A-3 buildings of Type III and IV construction. The area of a Group A-3 *building* of Type III or IV construction, with not more than one *story above grade plane* and used as a *place of religious worship*, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor *swimming pool* or tennis court, shall not be limited provided that the following criteria are met:

1. The *building* shall not have a *Type A* *stage* ~~other than a *platform*~~.
2. The *building* shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The assembly floor shall be located 21 inches (533 mm) or less from street or grade level and all *exits* are provided with *ramps* complying with Section 1012 to the street or grade level.

4. The *building* shall be surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/

Summary: The existing section "410.2.1 Stage construction." was always about stage floors, not the whole stage. This proposal is to better organize and update the code for current practices.

Reason:

Note that not all stage floors are raised, as was prevalent up to the mid 20th century. Whether it was labeled a "stage" or a "platform", either could be at the same elevation as a floor level or it could be at an elevation above the floor level.

1. Fundamental is including the space below stage when not separated from the stage by fire resistive construction, that it be included in the stage fire area and thus separated from the rest of the building. Below, the specific intent is required to be protected by automatic fire protection.

2. Proposed 410.9.1 permits a traditional stage floor construction, even though not used as extensively as previously.

3. Proposed 410.9.2 permits a typical today built up stage floor of resilient pads, sleepers, sub-floor, and finished floor.

4. Proposed 410.9.3 permits the classic raised stage floor, with the same exemptions from protection, coordinated with proposed automatic fire protection in these areas.

5. Proposed 410.9.4 permits openings, typically for traps or lifts (removable inserts and mechanized inserts) in all stages.6.

6. The use of the term platform is further complicated by many uses of the term “platform” elsewhere in the IBC, regarding platform lifts, equipment platforms, transit and boarding platforms, several uses regarding accessibility (including fishing platforms among others), diving platforms, industrial steel work platforms, "platform decorative trim" (?), used as an equal for stairs to "landing", and item 37 in table 1607.1. The only uses in section 410 are 410.3 Platform construction and 410.3.1 Temporary platforms.

7. The revisions to 507.6 and 507.7 are for coordination with deletion of defined term "platform" and addition of Type A and Type B stages.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These changes simply clarify stage floors and assures compartmentalization appropriate to the hazards.

G76-25

G77-25

IBC: 410.2.7

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Revise as follows:

410.8 **~~410.2.7~~ Stage ventilation.** Emergency *ventilation* shall be provided for Type A *stages* larger than 2,500 ~~1,000~~ square feet (232.25 ~~93~~ m^2) in floor area, or with a *stage* height greater than 30 ~~50~~ feet (9.14 m ~~15 240 mm~~). Such *ventilation* shall comply with Section 410.8.1 ~~410.2.7.1~~ or 410.8.2 ~~410.2.7.2~~.

Exception: Type A stages serving an audience of 300 or less are not required to have emergency ventilation.

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/

Summary: Coordinate with changes to stage construction and separation.

Reason: History has shown the necessity for safety of venting the stage as pointed out in an earlier proposal, noting the extensive engineering study following The Ringtheater fire, December 8, 1881; the Edinburgh's Palace Empire Theatre fire, May 9, 1911 where the fire safety curtain did not close but everyone in the auditorium escaped in a smoke free auditorium; and at he Iroquois where the vents were not complete and did not operate. If there is a fire on a stage, ventilation to keep the audience areas relatively smoke free is key.

1. Changes to 410.10 is primarily coordination with other changes, modifying the height and area thresholds as well as excluding the small space.2. Adjustment to the area and height at which ventilation is required are an attempt on better align the requirements with the hazard of combustibles on the stage. 3. The 300 spectator limit is for both the smaller studio or black box theatre or small end stage where there is less combustible scenery, and to recognize the greater efficiency and speed of egress for the audience to be outside the stage fire area.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost savings intent to these changes. There may be some savings for a small sub-set of stages where because of the lower amount of combustibles venting is not required. This is somewhat offset by clarifying the requirement for stages where venting was not installed and should have been.

G77-25

G78-25

IBC: SECTION 202, 410.1, 410.2.2, 410.9.1 (New), 410.9.2 (New)

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

Revise as follows:

[BG] TECHNICAL PRODUCTION AREA. Open elevated areas or spaces intended for entertainment technicians to walk on and occupy for servicing and operating entertainment technology systems and equipment. Galleries, including fly and lighting galleries, gridirons, catwalks, tension wire grids, technical bridges, and similar areas are designed for these purposes.

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

410.1 Applicability. The provisions of Sections 410.1 through 410.6 shall apply to all parts of *buildings* and *structures* that contain *stages* ~~or *platforms*~~ and ~~similar appurtenances as herein defined~~ technical production areas.

410.9 ~~**410.2.2**~~ **Technical production areas**~~**: galleries, gridirons and catwalks.**~~**.** ~~Beams designed only for the attachment of portable or fixed theater equipment, gridirons, galleries and catwalks~~*Technical production areas* shall be constructed of *approved* materials consistent with the requirements for the type of construction of the *building*; and a *fire-resistance rating* shall not be required. ~~These areas shall not be considered to be floors, *stories, mezzanines* or levels in applying this code.~~ ~~**Exception:** Floors of fly galleries and catwalks shall be constructed of any *approved* material.~~

Add new text as follows:

410.9.1 Technical production area floors. The walking surface of *technical production areas* shall be constructed of any *approved* material.

410.9.2 Technical production area levels. *Technical production areas* shall not be considered to be *floors, stories, mezzanines* or levels in applying this code.

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/

Summary: These changes are to update the definitions and are nearly editorial for the requirements to improve the readability and more consistent interpretation.

Reason:

1. The growth in use of tension wire grids warrants its inclusion by name in the definition of Technical Production Areas. It should be noted that tension wire grids are defined in the ANSI E1.76 - 2023 Tension Wire Grids standard.

2. The increasing use of the term technical bridges in place of catwalks and galleries warrants its inclusion by name in the definition of Technical Production Areas.

3. Instead of listing each technical production area, just use the defined term.

4. The existing exemption for structural framing only for stage equipment not being protected is relocated to stage construction. For people unfamiliar with stage equipment and it mounting, much of it clamps to the structural framing and is intended to be repositioned as production needs require. in particular, note B to table 601 (below) is fundamental but this requirement permits structural framing "only for stage equipment" regardless of its elevation above a floor is still exempt, as if it were itself a piece of the stage equipment.

b.

Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below.

5. Floors changed to walking surfaces for clarity with them not being considered floors.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Clarification and inclusion of technical bridges and tension wire grids. Also coordination with other changes, moving construction related requirement to section on construction.

G78-25

G79-25

IBC: 410.4, 410.4.1, 410.4.2

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Delete without substitution:

~~**410.4 Dressing and appurtenant rooms.** Dressing and appurtenant rooms shall comply with Sections 410.4.1 and 410.4.2.~~

Delete and substitute as follows:

~~**410.4.1 Separation from stage.** The *stage* shall be separated from dressing rooms, scene docks, property rooms, workshops, storerooms and compartments contiguous to the *stage* and other parts of the *building* by *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than 2 hours for stage heights greater than 50 feet (15 240 mm) and not less than 1 hour for *stage* heights of 50 feet (15 240 mm) or less.~~

410.11 Dressing rooms. Dressing rooms serving the stage shall be separated from each other, the stage and auditorium, with not less than a 1 hour fire-resistance-rated fire barriers, horizontal assemblies or both. Multiple dressing rooms with an aggregate net area of 1000 square feet (93 m^2) or less shall not be required to be separated from each other.

~~**410.4.2 Separation from each other.** Dressing rooms, scene docks, property rooms, workshops, storerooms and compartments contiguous to the *stage* shall be separated from each other by not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.~~

410.12 Appurtenant rooms. Workshops and storage rooms serving the stage shall be separated from each other, the stage and auditorium, and the rest of the building, by not less than a 1-hour fire-resistance-rated fire barriers, horizontal assemblies or both.

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/

1. The 410.13 requirements are definitely a holdover from the 19th century theatre with the stage as a separate building from the auditorium containing the dressing rooms, often in tiers above the wings or in the trap room below the stage, along with any storage, “trunk rooms”, workshops, etc. These spaces have been and to a lesser extent remain spaces with many combustibles such as costumes and wigs, as well as some combustible products such as hair spray, and often a collection of hair dryers, curling irons, flat irons, coffee makers, and immersion heaters. In new buildings, these spaces are no longer within the stage, but separate, often not even contiguous with or on the same level as the stage. The stage fire area in the proposed changes in 410.7 assures fire resistive construction separation from the stage and auditorium. This primarily requires separation from the rest of the building, as always, but does permit some clustering of small dressing rooms within a single fire area no larger than 1000 sf.
2. 410.14 maintains the separation of work rooms and storage rooms from the rest of the building, as a reminder and possibly redundant requirement for separating work rooms and store rooms from many uses or occupancies.

3. Other proposals include changes to assure the stage along with auditorium are separated from these spaces and separated from the rest of the building in all but very small buildings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

While there could be very minor savings in a cluster of dressing rooms, this is basically clarification and recognizing the changes in over 100 years of the design and construction of theatres.

G79-25

G80-25

IBC: 410.2.4

Proponents: William Conner, Bill Conner Associates LLC, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Revise as follows:

410.2.4 Proscenium wall. Where the stage height is greater than 50 feet (15 240 mm), all portions of the *stage* shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour fire-resistance rating extending contiuously from the foundation to the roof.

~~**Exception**~~ **Exceptions**:

1. No separation is required of a stage from a seating area with an aggregate occupant load of 300 or less.
2. Where a *stage* is located in a *building* of Type I construction, the proscenium wall is permitted to extend continuously from a minimum 2-hour fire-resistance-rated floor slab of the space containing the *stage* to the roof or a minimum 2-hour fire-resistance-rated floor deck above.

Reason: The time required for 300 or fewer occupants to egress does not justify this extra compartmentalization and fire safety curtain. This concept originated when all theatres with tall stages had seating for large number of people, many more than 300. Note that at this occupant load, all required exit access for the audience is permitted to be through the stage. This really allows the small spaces, typically a small flexible theatre, theatre in the round, or small recital hall, to not include some features that are not justified for the size an egress time.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The code change proposal will decrease the cost of construction. This is a marginal call - it's unlikely it will change cost much on only a few projects a year.

Estimated Immediate Cost Impact Justification (methodology and variables):

Average cost of a fire safety curtain is $25,000-50,000 or more depending on size, motorization, style, and market. Additional cost of the wall for 2 hours rating can vary from insignificant to hundreds of thousands.

Estimated Life Cycle Cost Impact:

Decrease - $1500 +/- per year for manufacturer recommended annual inspections for a estimated 40 to 50 year life of the fire safety curtain.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

The impact is not spending money on a feature that has not shown its usefulness. Typically this will affect a single digit percentage of the several hundred new small community high school auditoriums and stages built each year, each typically in the $3m to $6m range.

G80-25

G81-25

IBC: 410.2.6, 410.3.1

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Delete without substitution:

~~**410.2.6 Scenery.** Combustible materials used in sets and scenery shall meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701, in accordance with Section 806 and the *International Fire Code*. Foam plastics and materials containing foam plastics shall comply with Section 2603 and the *International Fire Code*.~~

~~**410.3.1 Temporary platforms.** *Platforms* installed for a period of not more than 30 days are permitted to be constructed of any materials permitted by this code. The space between the floor and the *platform* above shall only be used for plumbing and electrical wiring to *platform* equipment.~~

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/

These are not in the construction documents and not a part a plan review or actually installed during construction. They are appropriate requirements for the IFC. ASTC intends and plans to submit proposals to the IFC for the group A hearings for the 2030 edition.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact from having these out of the building code and put into the fire code.

G81-25

G82-25

IBC: 410.2.7.1, [F] 410.2.7.2

Proponents: William Conner, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410 STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Revise as follows:

410.8.1 ~~**410.2.7.1**~~ **Roof vents.** Two or more vents constructed to open automatically by *approved* heat-activated devices and with an aggregate clear opening area of not less than 5 percent of the area of the *stage* shall be located near the center and above the highest part of the *stage area*. Supplemental means shall be provided for manual operation of the ventilator from the *stage* floor. Where *labeled* devices permitting manual operation from the *stage* floor are not available, the manual operation device is not required to be *labeled* and *listed*.~~Curbs shall be provided as required for skylights in Section 2610.2.~~ Vents shall be *labeled*.

[F] 410.8.2 ~~**410.2.7.2**~~ **Smoke control.** Smoke control in accordance with Section 909 shall be provided to maintain the smoke layer interface not less than 6 feet (1829 mm) above the highest level of the assembly seating or above the top of the proscenium opening where a *proscenium wall* is provided in compliance with Section 410.2.4.

Attached Files

- **Stage Ventilation 2024.pdf**
  https://www.cdpaccess.com/proposal/11544/35546/files/download/8853/

Reason: This proposal is submitted on behalf of the American Society of Theatre Consultants. https://theatreconsultants.org/

Summary: Clarify that manual emergency operation should be possible from the stage floor and make that possible.

Reason: See attached white paper for information to architect and engineer clients regarding stage vents.

1. Require the vents to be manually operable from the floor in an emergency. Most roof vents ship with a manual release line and handle that does not reach anywhere near the stage floor. Besides being useless except from a technical production area, they should be operable from the stage floor near an entrance to the stage.

2. Allow vents not labeled for manual operation to be modified to be able to be opened from the stage.

3. The curb requirement was deleted in deference to the listing and manufactures instructions which set mounting requirements.

4. 410.10.2 is shown for information and numbering change. In the next Group A cycle we plan to propose deleting "or above the top of the proscenium opening where a proscenium wall is provided in compliance with Section 410.2.4". This change is for coordination with the deletion of the requirement for proscenium wall, with a resulting more stringent requirement.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These changes are for clarification of the intent of the historical intent of the requirements. In so far as roof vents which have been installed without provisions for manual operation from the floor, there will be some additional cost, estimated around $1000 to 2500 per vent, depending on methods chosen, and typically 2 to 8 vents per stage.

G83-25

IBC: 410.2.7

Proponents: William Conner, Bill Conner Associates LLC, representing American Society of Theatre Consultants (bill@bcaworld.com)

2024 International Building Code

SECTION 410
STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS

Revise as follows:

410.2.7 Stage ventilation. Emergency *ventilation* shall be provided for *stages* larger than 1,000 square feet (93 m^2) in floor area, or with a *stage* height greater than 50 feet (15 240 mm). Such *ventilation* shall comply with Section 410.2.7.1 or 410.2.7.2.

Exception: No ventilation is required for a stage serving a seating area with an aggregate occupant load of 300 or less.

Reason: The time required for 300 or fewer occupants to egress does not justify the requirement for this. Generally these are black box (flexible) theatres, arena (“in-the-round”) theatres, recital halls, or facilities with similar and often flexible and/or undefined stage and seating areas. Relative to a full working stage with larger seating areas, the potential amount of combustibles in these small spaces is very small. This is particularly necessary because these small spaces often are below other occupied spaces, unlike a large auditorium and stage where the top of the stage is almost always roof and venting is not difficult. The origin of this was in 1850s and was based on large opera houses with gas lighting, and simply was continued as the art form evolved to where small spaces were often necessary or desired.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This change will decrease cost of the small modest space with stage area open to roof $10,000-20,000 for several roof vents. For a larger stage area that is under occupiable floors, the cost for venting and shaft will be many times the low end savings. No doubt there will be additional energy savings as the typical vents are not especially well insulated or well sealed.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost is simply not justified for no demonstrated safety returns.

Estimated Life Cycle Cost Impact:

Minimal savings from occasional maintenance and replacement in 25-50 years.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

The cost is simply not justified for no demonstrated safety returns.

G83-25

G84-25

IBC: 420.6 (New)

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

SECTION 420
GROUPS I-1, R-1, R-2, R-3 AND R-4

Add new text as follows:

420.6 Visual Access. The primary entry door of a dwelling unit or sleeping unit in Group R-1 and R-2 occupancies shall be provided with a means for visually identifying a visitor without opening the unit entry door. Peepholes, where used, shall provide a minimum 180-degree range of view.

Reason: This requirement essentially requires a peephole or other type of door viewer such as a doorbell camera be provided at unit entry doors as it provides an additional level of safety for interior occupants. This provision was recommended by the Las Vegas Metropolitan Police Department (LVMPD) and has been in place for all Group R-1 & R-2 occupancies in Southern Nevada for several code cycles. LVMPD originally cited studies that found this requirement lead to a decrease in the number home invasion crimes related to unforced entries (i.e. when the occupant willingly opened the door to intruders)

While this is not a base code requirement in either the IBC or the FHA for Group R-2 occupancies, the FHA does recommend peepholes or sidelights be provided at all dwelling unit entry doors. Given the FHA recommendations and the recommendations by law enforcement, it seems prudent to mandate this provision for all Group R-1 and R-2 occupancies as a cost effective way to increase public safety.

Cost Impact: Increase

Estimated Immediate Cost Impact:

UL listed fire rated peepholes can be readily obtained for less than $10 per device.

Estimated Immediate Cost Impact Justification (methodology and variables):

These devices can be readily obtained by a wide variety of vendors.

G84-25

G85-25

IBC: SECTION 424 (New), 424.1 (New), 424.2 (New), 424.3 (New), 424.4 (New), 424.5 (New), 424.5.1 (New), 424.5.2 (New), UL Chapter 35 (New)

Proponents: James Lynch, Fire Solutions Group, representing Framery

2024 International Building Code

Add new text as follows:

SECTION 424 ACOUSTIC PODS

424.1 General. Acoustic pods exceeding 100 square feet (9.3 m^2) or less in floor area and 8 feet (2438 mm) or less in height shall comply with all applicable requirements in this section.

424.2 Listing. Acoustic pods shall be listed and labeled in accordance with UL 962 and installed in accordance with the listing and the manufacturer's instructions.

424.3 Locations. Acoustic pods shall only be installed in approved locations and shall not obstruct required means of egress.

424.4 Elevation change. Acoustic pods with integral floors shall be permitted to have an elevation change measured from the finished floor that is a maximum of 5 inches (127 mm) higher than the floor of the existing structure outside the modular booth.

424.5 Fire suppression. Fire suppression acoustic pods shall be installed in rooms or spaces equipped with an automatic sprinkler system in accordance with Section 903.3.1.1. Installation of pods shall not interfere with clearances of existing sprinkler heads.

Exceptions:

1. Pod installations that meet the requirements of Section 9.2.10 of NFPA 13 and the following:
   1.1. Where multiple pods are proposed, the booths are separated by a distance of 18 inches from one another.
   1.2. The clearance between the top of the pods and ceiling sprinklers is a minimum of 18 inches.
   1.3. Per Section 9.2.10.2 of NFPA 13, the area of any pod does not exceed 24 square feet. The area is to be the interior area of the booth, excluding the area of the enclosing walls.
2. Pod installations where the top of the booth has louvers that open automatically on the activation of the fire alarm or with the loss of power.
3. Where the booth has an applicable testing report accompanied by full-scale fire testing report by an approved agency showing that ceiling sprinklers control a fire originating from inside the booth.

424.5.1 Smoke detection. An automatic smoke detection system complying with Section 907 shall be provided in the rooms or spaces in which the privacy pod's are located. The system shall activate the occupant notification system in accordance with Section 907.5.

424.5.2 Smoke alarms. Audibility requirements of NFPA 72 and Section 907.5.2.1 of the *International Fire Code* apply to the acoustic pod. If these requirements are not met, an alarm shall be placed inside the pod.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

962-22 Prefabricated privacy booths and sleep capsules

Reason: This proposed addition to the code provides guidance on the installation of acoustic pods similar to section on play spaces.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes proposed to the code provide clarification to the requirements rather than additional requirements for the installers therefore there are no additional cost.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
UL962-22 Prefabricated privacy booths and sleep capsules

G85-25

G86-25

IBC: SECTION 202 (New), 312.1, SECTION 429 (New), 429.1 (New), NFPA Chapter 35 (New); IFC: SECTION 202 (New), [BG] 203.11

Proponents: Kevin Duerr-Clark, representing NYS DOS (kevin.duerr-clark@dos.ny.gov); Chad Sievers, NYS, representing NYS DOS (chad.sievers@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); John R Addario - NYS Department of State, NEW YORK STATE CODES DIVISION, representing New York State Department of State Division of Building Standards and Codes (john.addario@dos.ny.gov); Brian Tollisen, representing NYS Department of State (brian.tollisen@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, New York State Dept of State, representing Manager Technical Support Unit (china.clarke@dos.ny.gov)

2024 International Building Code

Add new definition as follows:

LIVE FIRE TRAINING BUILDING. A building in which live fire training evolutions are conducted on a repetitive basis.This shall include, but not be limited to, containerized training structures, live fire training structures, and training towers.

Revise as follows:

312.1 General. *Buildings* and *structures* of an accessory character and miscellaneous *structures* not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a one- or two-family residence (see Section 412.4)
Barns
Carports
Communication equipment *structures* with a *gross floor area* of less than 1,500 square feet (139 m^2)
Fences more than 7 feet (2134 mm) in height
Grain silos, accessory to a residential occupancy
Live fire training buildings
Livestock shelters
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

Add new text as follows:

SECTION 429
LIVE FIRE TRAINING BUILDINGS

429.1 Live fire training buildings. Live fire training buildings and any appurtenances connected or attached to such buildings or structures shall be designed and constructed in accordance with the applicable provisions of NFPA 1402 and this code.

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

1402-2019 Standard on Facilities for Fire Training and Associated Props

2024 International Fire Code

Add new definition as follows:

LIVE FIRE TRAINING BUILDING. A building in which live fire training evolutions are conducted on a repetitive basis.This shall include, but not be limited to, containerized training structures, live fire training structures, and training towers.

Revise as follows:

[BG] 203.11 Miscellaneous Group U. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangar, accessory to a one- or two-family residence (see Section 412.4 of the *International Building Code*)
Barns
Carports
Communication equipment structures with a gross floor area of less than 1,500 square feet (139 m^3)
Fences more than 7 feet (2134 mm) in height
Grain silos, accessory to a residential occupancy
Live fire training buildings
Livestock shelters
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

Reason: Live fire training facilities contain unique types of buildings/structures that are in some instances, purposely designed to not meet building codes and/or simulate potentially hazardous conditions. NFPA 1402, when combined with the building codes of the jurisdiction, provides for the necessary design and construction provisions of these types of buildings and gives the code enforcement community the tools necessary to properly regulate them. The scope of the standard acknowledges that building codes and gas codes do not address the unique and specific requirements for these specialized types of facilities. It is not the intent of this proposal to capture buildings that are designed, constructed, and maintained to the International Building Code and International Fire Code already, such as a B or A occupancy where instruction on fire practices takes place, rather, to capture those buildings not clearly covered by the Codes that would typically require variances or modifications of code language to be compliant.

From the previous cycle, based on committee comments, the definition of “Live Fire Training Building” was modified to ensure only buildings where live fire training exercises are conducted are captured. The “associated systems, appliances and props” was also removed from the definition and the term “appurtenances” was added to the section to ensure the intent is not to capture stand-alone props that may be co-located at the same facility such as a gas-fired car prop but to capture gas-fired props used to simulate fire in or on the structure. Furthermore the requirement that the building still had to be constructed following the applicable provisions of the IBC was added.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

According to the industry, this standard is already the standard of practice, this code change is simply codifying the standard. So no increase is anticipated.

Staff Analysis: A review of the standard proposed for inclusion in the code, NFPA 1402-2019 Standard on Facilities for Fire Training and Associated Props, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

G87-25

IBC: SECTION 202 (New), SECTION 202, 304.1, 304.5 (New), 407.1, 407.12 (New), [F] 414.2, 422.1, 422.8 (New), SECTION 429 (New), 429.1 (New), 429.2 (New), 429.3 (New); IFC: SECTION 202 (New), SECTION 202, [BG] 203.3, 203.3.4 (New), 5003.8.3

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Building Code

Add new definition as follows:

CLINICAL LABORATORY. Labs examining materials derived from the human body for the purpose of providing information for the diagnosis, prevention, or treatment of any disease or impairment of, or the assessment of the health of, human beings.

[F] HIGHER EDUCATION LABORATORY. Laboratories in Group B occupancies used for educational purposes above the 12th grade. Storage, use and *handling* of chemicals in such laboratories shall be limited to purposes related to testing, analysis, teaching, research or developmental activities on a nonproduction basis.

Revise as follows:

[F] LABORATORY SUITE. A fire-rated, enclosed laboratory area providing one or more laboratory spaces ~~within a Group B educational occupancy~~ that includes ancillary uses such as offices, bathrooms and corridors that are contiguous with the laboratory area, and are constructed in accordance with Section 428.

SECTION 304
BUSINESS GROUP B

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a *building* or *structure*, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers

Ambulatory care facilities

Animal hospitals, kennels and pounds

Banks

Barber and beauty shops

Car wash

Civic administration

Clinic, outpatient

Clinical laboratories

Dry cleaning and laundries: pick-up and delivery stations and self-service

Educational occupancies for students above the 12th grade including *higher education laboratories*

Electronic data entry

Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining *facilities* not more than 2,500 square feet (232 m^2) in area

Laboratories: testing and research

Lithium-ion or lithium metal battery testing, research and development

Motor vehicle showrooms

Post offices

Print shops

Professional services (architects, attorneys, dentists, physicians, engineers, etc.)

Radio and television stations

Telephone exchanges

Training and skill development not in a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy)

304.2 Airport traffic control towers. Airport traffic control towers shall comply with Section 412.2.

304.3 Ambulatory care facilities. *Ambulatory care facilities* shall comply with Section 422.

304.4 Higher education laboratories. *Higher education laboratories* shall comply with Section 428.

Add new text as follows:

304.5 Clinical Laboratories. *Clinical laboratories* shall comply with Section 429.

CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE

SECTION 407
GROUP I-2

Revise as follows:

407.1 General. Occupancies in Group I-2 shall comply with the provisions of Sections 407.1 through ~~407.11~~ 407.12 and other applicable provisions of this code.

Add new text as follows:

407.12 Clinical laboratories. *Clinical laboratories* serving Group I-2 occupancies shall comply with Section 429.

SECTION 414
HAZARDOUS MATERIALS

Revise as follows:

[F] 414.2 Control areas. *Control areas* shall comply with Sections 414.2.1 through 414.2.5 and the *International Fire Code*.

~~**Exception**~~ **Exceptions:**

1. *Higher education laboratories* in accordance with Section 428 of this code and Chapter 38 of the *International Fire Code*.
2. *Clinical laboratories* in accordance with Section 429 of this code and Chapter 38 of the *International Fire Code.*

SECTION 422

AMBULATORY CARE FACILITIES

422.1 General. Occupancies classified as *ambulatory care facilities* shall comply with the provisions of Sections 422.1 through ~~422.7~~ 422.8 and other applicable provisions of this code.

Add new text as follows:

422.8 Clinical laboratories. *Clinical laboratories* serving *ambulatory care facilities* shall comply with Section 429.

SECTION 429
CLINICAL LABORATORIES

429.1 Scope. *Clinical laboratories* complying with the requirements of Section 429.1 through 429.3 shall be permitted to exceed the maximum allowable quantities of *hazardous materials* in *control areas* set forth in Tables 307.1(1) and 307.1(2) without requiring classification as a Group H occupancy. Except as specified in Section 429, such laboratories shall comply with all applicable provisions of this code and the *International Fire Code*.

429.2 Application. The provisions of Section 429 shall be applied as exceptions or *additions* to applicable requirements of this code. Unless specifically modified by this section, the storage, *use* and *handling* of *hazardous materials* shall comply with all other provisions in Chapters 38 and 50 through 67 of the *International Fire Code* and Section 429 of this code for quantities not exceeding the maximum allowable quantity.

429.3 Construction. Clinical laboratories shall be constructed in accordance with Sections 428.3 and 428.4.

2024 International Fire Code

Add new definition as follows:

CLINICAL LABORATORY. Labs examining materials derived from the human body for the purpose of providing information for the diagnosis, prevention, or treatment of any disease or impairment of, or the assessment of the health of, human beings.
HIGHER EDUCATION LABORATORY. Laboratories in Group B occupancies used for educational purposes above the 12th grade. Storage, use and handling of chemicals in such laboratories shall be limited to purposes related to testing, analysis, teaching, research or developmental activities on a nonproduction basis.

Revise as follows:

LABORATORY SUITE. A fire-rated enclosed laboratory area that will provide one or more laboratory spaces, ~~within a Group B educational occupancy,~~ that are permitted to include ancillary uses such as offices, bathrooms and corridors that are contiguous with the laboratory area, and are constructed in accordance with Chapter 38.

[BG] 203.3 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers

Ambulatory care facilities

Animal hospitals, kennels and pounds

Banks

Barber and beauty shops

Car wash

Civic administration

Clinic-outpatient

Clinical laboratories

Dry cleaning and laundries: pick-up and delivery stations and self-service

Educational occupancies for students above the 12th grade, including higher education laboratories

Electronic data entry

Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m^2) in area.

Laboratories: testing and research

Lithium-ion or lithium metal battery testing, research and development

Motor vehicle showrooms

Post offices

Print shops

Professional services (architects, attorneys, dentists, physicians, engineers, etc.)

Radio and television stations

Telephone exchanges

Training and skill development not in a school or academic program (This shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy.)

[BG] 203.3.1 Airport traffic control towers. Airport traffic control towers shall comply with Section 412.2 of the *International Building Code*.

[BG] 203.3.2 Ambulatory care facilities. Ambulatory care facilities shall comply with Section 422 of the *International Building Code*.

[BG] 203.3.3 Higher education laboratories. Higher education laboratories shall comply with Section 428 of the *International Building Code*.

Add new text as follows:

203.3.4 Clinical laboratories. *Clinical laboratories* serving *ambulatory care facilities*shall comply with Section 429 of the *International Building Code.*

Revise as follows:

5003.8.3 Control areas. *Control areas* shall comply with Sections 5003.8.3.1 through 5003.8.3.5.3.

~~**Exception**~~ **Exceptions:**

1. Higher education laboratories in accordance with Chapter 38 of this code and Section 428 of the *International Building Code*.
2. *Clinical laboratories* in accordance with Section 429 of the *International Building Code* and Chapter 38 of this code.

Reason: It is not the intent of this proposal to change any of the requirements for Higher Education Laboratories. Change to the IFC are correllative or pointers only. More extensive coordination will be provided for the IFC next cycle.

Laboratories in hospitals are subject to close regulatory scrutiny, and are tracked by hospital Safety Offices and its Environment of Care

(EOC) committees. This is one way in which clinical laboratories are very similar to research labs in academic settings.Quantities of hazardous material in clinical labs are very low. Clinical labs generate more infectious waste from tissue, fluid and blood samples that are tested. Issues such as quantities of hazardous material, waste handling, and integrity of rated barriers are particular issues that are documented and tracked by the EOC Committee. The EOC committee typically has direct review with a hospital or health system board of directors. This data is also tracked by the federal government, particularly the Center for Medicare and Medicaid Services (CMS), on a regular basis. Elements of this proposed code change include:

The definition for “Clinical Laboratory” is derived directly from the requirements for Clinical Laboratory Improvement Amendments (CLIA), a subset of CMS requirements. The amendments are part of the Conditions of Participation each hospital must follow to receive reimbursement for lab tests performed on patients. The number of cases receiving CMS funding is roughly 50% to 60% of all through a hospital.

The change to the defintion of 'laboratory suite' is only intended as correllative to allow for this defintion to be used for both types of laboratories.

For standby and emergency power, Section 1208.2.8 is currently referenced for the I-2 occupancies, which then reference into NFPA 99 to make the requirement consistent for the hospitals these labs are in.

Control areas are also separately referenced to Chapters 407 (for I-2, Condition 2) and 422 (For Ambulatory in B-Occupancies) to make sure the Incidental Uses table is in effect, which spell out existing requirements for Labs in I-2, Condition 2 occupancies, by way of Chapter 7 to Chapter 509 Incidental Uses.

For more information, reference links to CMS and CLIA requirements are as follows:

https://www.cms.gov/medicare/quality/clinical-laboratory-improvement-amendments

https://www.cms.gov/outreach-and-education/medicare-learning-network mln/mlnproducts/downloads/cliabrochure.pdf

Section 428 is shown here for context.

SECTION 428
HIGHER EDUCATION LABORATORIES

[F] 428.1 Scope. *Higher education laboratories* complying with the requirements of Sections 428.1 through 428.4 shall be permitted to exceed the maximum allowable quantities of *hazardous materials*in *control areas* set forth in Tables 307.1(1) and 307.1(2) without requiring classification as a Group H occupancy. Except as specified in Section 428, such laboratories shall comply with all applicable provisions of this code and the *International Fire Code*.

[F] 428.2 Application. The provisions of Section 428 shall be applied as exceptions or *additions* to applicable requirements of this code. Unless specifically modified by Section 428, the storage, *use* and *handling* of *hazardous materials* shall comply with all other provisions in Chapters 38 and 50 through 67 of the *International Fire Code* and this code for quantities not exceeding the maximum allowable quantity.

[F] 428.3 Laboratory suite construction. Where *laboratory suites* are provided, they shall be constructed in accordance with this section and Chapter 38 of the *International Fire Code*. The number of *laboratory suites* and percentage of maximum allowable quantities of *hazardous materials*in *laboratory suites* shall be in accordance with Table 428.3.

[F] TABLE 428.3 DESIGN AND NUMBER OF LABORATORY SUITES PER FLOOR

FLOOR LEVEL		PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER LAB SUITE[a]	NUMBER OF LAB SUITES PER FLOOR	FIRE-RESISTANCE RATING FOR FIRE BARRIERS IN HOURS[b]
Above Grade Plane	21+	Not allowed	Not Permitted	Not Permitted
	16-20	25	1	2[c]
	11-15	50	1	2[c]
	7-10	50	2	2[c]
	4-6	75	4	1
	3	100	4	1
	1-2	100	6	1
Below Grade Plane	1	75	4	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentages shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the footnotes to those tables.

b. Fire barriers shall include walls, floors and ceilings necessary to provide separation from other portions of the building.

c. Vertical fire barriers separating laboratory suites from other spaces on the same floor shall be permitted to be 1-hour fire-resistance rated.

[F] 428.3.1 Separation from other nonlaboratory areas. *Laboratory suites* shall be separated from other portions of the *building* in accordance with the most restrictive of the following:

1. *Fire barriers* and *horizontal assemblies* as required in Table 428.3. *Fire barriers* shall be constructed in accordance with Section 707 and *horizontal assemblies* constructed in accordance with Section 711.

   Exception: Where an individual *laboratory suite* occupies more than one *story*, the *fire-resistance rating* of intermediate floors contained within the *laboratory suite* shall comply with the requirements of this code.

2. Separations as required by Section 508.

[F] 428.3.2 Separation from other laboratory suites. *Laboratory suites* shall be separated from other *laboratory suites* in accordance with Table 428.3.

[F] 428.3.3 Floor assembly fire resistance. The floor assembly supporting *laboratory suites* and the construction supporting the floor of *laboratory suites* shall have a *fire-resistance rating* of not less than 2 hours.

Exception: The floor assembly of the *laboratory suites* and the construction supporting the floor of the *laboratory suites* are allowed to be 1-hour *fire-resistance* rated in *buildings* of Types IIA, IIIA and VA construction, provided that the *building* is three or fewer *stories.*

[F] 428.3.4 Maximum number. The maximum number of *laboratory suites* shall be in accordance with Table 428.3. Where a *building* contains both *laboratory suites* and *control areas,* the total number of *laboratory suites* and *control areas* within a *building* shall not exceed the maximum number o*f laboratory suites* in accordance with Table 428.3.

[BE] 428.3.5 Means of egress. *Means of egress* shall be in accordance with Chapter 10.

[F] 428.3.6 Standby or emergency power. Standby or emergency power shall be provided in accordance with Section 414.5.2 where *laboratory suites* are located above the sixth *story above grade plane* or located in a *story* below *grade plane*.

[F] 428.3.7 Ventilation. *Ventilation* shall be in accordance with Chapter 7 of NFPA 45, and the *International Mechanical Code*.

[F] 428.3.8 Liquid-tight floor. Portions of *laboratory suites* where *hazardous materials* are present shall be provided with a liquid-tight floor.

[F] 428.3.9 Automatic sprinkler systems. *Buildings* containing *laboratory suites* shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

[F] 428.4 Percentage of maximum allowable quantity in each laboratory suite. The percentage of maximum allowable quantities of *hazardous materials* in each *laboratory suite* shall be in accordance with Table 428.3.

This proposal is submitted by the ICC Committee for Healthcare (CHC).

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Operationally, costs may go down because adoption of this change proposal will result in more flexibility to place clinical laboratories in new hospitals, increasing efficiency of operations with less personnel or systems to function in the hospital setting.

G87-25

G88-25

IBC: [A] 101.3, SECTION 429 (New), 429.1 (New), 429.2 (New), 429.2.1 (New), 429.2.2 (New), 429.3 (New), 429.3.1 (New), 429.4 (New), 429.5 (New), ASTM Chapter 35 (New)

Proponents: Thom Zaremba, Roetzel & Andress, representing National Glass Association (tzaremba@ralaw.com); Nicholas Resetar, representing Glazing Industry Code Committee (nresetar@ralaw.com)

2024 International Building Code

Revise as follows:

[A] 101.3 Purpose. The purpose of this code is to establish the minimum requirements to provide a reasonable level of safety, health and general welfare through structural strength, means of ingress and egress, stability, sanitation, light and *ventilation*, energy conservation, and for providing a reasonable level of life safety and property protection from the hazards of fire, *explosion* or *dangerous* conditions, and to provide a reasonable level of safety to fire fighters and emergency responders during emergency operations.

Add new text as follows:

SECTION 429
EDUCATIONAL OCCUPANCIES - FORCED ENTRY RESISTANCE

429.1 General. All Group E occupancies with an occupant load of 50 or more shall comply with Sections 429.2 through 429.5.

Exceptions:

1. Group E day care facilities.
2. Group E occupancies accessory to places of religious worship.

429.2 Main Entrances. Main entrances shall be constructed and designed to provide those inside the building with a view to areas where pedestrians and vehicles approach the entrance.

429.2.1 Windows, doors, sidelights and other glazed areas. Windows, doors, and sidelights in main entrances within the scope of Section 429.2 shall be rated assemblies in accordance with ASTM F3561-23. Other glazed areas in the main entrance with an exposed area equal to or greater than 5 square feet (0.46 m^2) and a bottom edge less than 72 inches (1828.8 mm) above the finished ground level shall be rated assemblies in accordance with ASTM F3561-23.

429.2.2 Ground floor windows, doors and sidelights in exterior walls. If warranted by a registered design professional's assessment of forced entry risk, ground floor windows, doors and sidelights in exterior walls shall be rated assemblies in accordance with ASTM F3561-23.

429.3 Classrooms. Interior classroom windows and doors shall be designed and constructed to provide a view from the classroom into corridor or other areas used to approach the classroom.

429.3.1 Interior classroom windows, doors and sidelights. If warranted by a registered design professional's assessment of forced entry risk, interior classroom windows, doors and sidelights shall be rated assemblies in accordance with ASTM F3561-23.

429.4 Locking arrangements. Locking arrangements in doors shall comply with applicable provisions of Section 1010.2.7.

429.5 Fire safety, evacuation and lockdowns. Fire safety, evacuation and lockdown plans shall comply with applicable provisions of Sections 401.2 and 404 of the *International Fire Code.*

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

F3561-23	Standard Test Method for Forced-Entry-Resistance of Fenestration Systems After Simulated Active Shooter Attack

Reason: Proposed change to Section 101.3

An issue surfaced when the new Chapter 4 sections regarding forced entry resistance in E-occupancies was vetted. Is IBC Section 101.3 broad enough to include "ingress?" On the one hand, since "egress" is expressly included in Section 101.3, one might reasonably conclude that "ingress" is also impliedly included since a building cannot be exited unless it is first entered. On the other hand, one might reasonably conclude that for something to be within the purpose of the Code, it should be express, not implied. Since both interpretations appear reasonable, this proposed change to Section 101.3 is meant to allow the Technical Committee to address the issue.

The following may be helpful. A few years ago, in response to the many times that armed shooters have forced entry into occupied buildings, the ICC Board of Directors established the Ad Hoc Committee on Building Safety and Security ("Committee"). The Board tasked the Committee to "comprehensively explore and assess building safety and security."

In creating the Committee, the ICC Board understood that building safety not only includes their means of egress systems, but also their means of ingress. The Committee also understood that. In its final report, at p.3, the Committee concluded that, "Building safety and security is of the utmost importance. The design, layout and building features in both new and existing buildings can have an impact on both safety and security during targeted violent acts."

Whether the Committee concludes that "ingress" is already impliedly included in Section 101.3 - or - the term "ingress" should be added, it is clear that the life safety and security of building occupants depends both on properly constructed means of ingress and egress.

We urge you to support this proposal.

Proposed Addition of Section 429

This proposal is meant to provide school designers with a powerful new tool to assist them in making school occupants safer from active shooters. A new standard, namely, ***ASTM F3561-23 (Standard Test Method for Forced-Entry Resistance of Fenestration Systems After Simulated Active Shooter Attack)*** was specifically developed to enable school designs to incorporate building materials into ingress areas that have been tested and rated to resist forced entry by an active shooter.

The Scope of ASTM F3561, Section 1.1, explains the justification for its adoption by the IBC: "This test method sets forth the requirements and testing procedures to test forced-entry-resistant building components, construction components, and specialty security equipment. This test method is intended primarily for manufacturers to test and rate their windows, doors, modular panels, glazings, and similar products to ensure that all manufactured products meet the necessary requirements for forced-entry protection after sustaining an active shooter assault."

ASTM F3561 provides an objectively repeatable way to measure and assess whether the building components and assemblies used in a means of ingress area are, or are not, capable of resisting forced-entry attempts by an armed intruder. ASTM F3561 provides eight (8) increasingly difficult levels of testing forced-entry resistant building assemblies. This permits designers (i) to select the level of ASTM F3561 protection most appropriate for the risk associated with a particular means of ingress area and (ii) to ensure that the ingress area is constructed using materials rated to achieve that level of intruder resistance.

If adopted, the proposal would require applicable schools to construct main entrance areas so that those inside the school can see students and vehicles, including potential intruders, approaching the entrance. Additionally, it would require the windows, doors and sidelights in the main entrance to be constructed using rated assemblies, tested to ensure compliance with one of the eight levels of entry resistance established by ASTM F3561. It would also require glazed areas used in vestibule and other main entrance areas with an exposed area equal to or greater than 5 square feet and a bottom edge 72 inches or less above the finished ground level to be constructed using ASTM F3561 rated assemblies. (The square footage for required ASTM F3561 protection was borrowed from the size of the Code's emergency escape and rescue openings. *See*, IBC Section 1031.3.1. Seventy-two inches above grade was selected as a height beyond the reach of armed intruders, effectively exempting transoms and other out of reach areas of glazing from the additional cost associated with ASTM F3561 compliance.)

Beyond the main entrance area, the proposal also addresses classrooms and other potential ground floor ingress areas in exterior walls.

As in the case of main entrances, interior classroom doors and windows would be required to have a view from the classroom to corridor areas used to approach the classroom. Additionally, if warranted by a Registered Design Professional's assessment of forced entry risk, interior classroom window, door and sidelight assemblies would be required to be rated in accordance with ASTM F3561. Likewise, if warranted by a Registered Design Professional's assessment of forced entry risk, windows, doors and sidelights in ground floor exterior walls outside the main entrance would require assemblies rated in accordance with ASTM F3561.

According to the Federal Bureau of Investigation, the mean police response time to an active school shooter is about three (3) minutes. Lives can quickly be lost inside the building unless an active shooter's entry into the building can be stopped or delayed until the police arrive. We now have a consensus standard that, when judiciously used to design and construct the means of building ingress, can reliably slow or stop active shooters from entering our schools and their classrooms until the police arrive.

We urge your support for these proposals.

Bibliography:

Proposed change to Section 103.1

Ad Hoc Committee on Building Safety and Security, *Building Safety and Security Report*, International Code Council, Inc. copyright 2022.

Proposed Addition of Section 429

Sandy Hook Promise, *17 Facts About Gun Violence and School Shootings,* https://www.sandyhookpromise.org/glog/gun-violence/facts-about-gun-violence-and-school-shootings/.

Education Week, *School Shootings in 2023: How Many and Where*, January 6, 2023, https://www.edweek.org/leadership/schools-shootings-this-year-how-many-andwhere/2023/01.

FBI Law Enforcement Bulletin, *Police Response Time to Active Shooter Attacks,* https://leb.fbi,gov.image-repository/police-response-time-to-active-shooter-attacks.jpg/view.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Proposed Change to Section 101.3

The proposed change to Section 101.3 is a clarification and has no cost impact on the cost of construction.

Proposed addition of Section 429

The cost of ASTM F3561 compliant assemblies in exterior building areas is approximately 41% more than the cost of assemblies compliant with current code. For an 850 sq. ft. main entrance area, this would be a $113,959 increase based on average cost (see cost justification). However, in a 105,000 sq. ft. school with 1,500 students, this cost of ASTM F3561 compliance would add less than 0.4% to the total construction cost of the school.

Estimated Immediate Cost Impact Justification (methodology and variables):

The infrastructure to manufacture the framing and most other components needed to construct entrance door and window assemblies for building ingress is already in place. It is modified to accommodate the varying sizes, thicknesses, weights, and energy requirements necessary for the manufacture of different types of products, for example, standard, hurricane resistant, fire rated or bullet resistant assemblies. The cost to manufacture, assemble and install means of ingress assemblies tested to ASTM F3561 in exterior building applications is comparable to the cost to produce and install tested hurricane resistant assemblies in exterior applications. Publicly available data indicates that the cost of these hurricane resistant assemblies are approximately 41% more than the cost of standard (non-hurricane resistant) assemblies. ***See***, Architectural Digest, *How Much Do Hurricane Windows Cost? (2024 Guide)*, https://www.architecturaldigest.com/reviews/windows/hurricane-windows-cost; Architectural Digest, *How Much Does Window Replacement Cost?* (2024), https://www.architecturaldigest.com/reviews/windows/windows/window-replacement-cost; Forbes, *How Much Does Window Replacement Cost in 2024?,* https://www.forbes.com/home-improvement/windows/window-replacement-cost/,

Two significant variables are:

(1) Registered Design Professional Assessments of Risk. The cost of incorporating this proposal into the construction costs of a school will depend on the total number of ground floor ingress areas the school building has and the total number of ingress areas that are determined to be at risk of armed intruder access. As the number of ground floor ingress areas are determined by a Registered Design Professional to warrant protection increases, the cost of construction will likely increase.

(2) The specific location of the school. This is an important variable since it will likely affect the total square foot cost of construction, and the total square foot size of the school which will increase as the student population of the school increases. Construction costs depend on location. Those in the Eastern and Western United States are the highest, while those in the South are the lowest, and those in the Midwest are in the middle. However, school size varies with the size of its student population, which will likely be larger in urban areas and smaller in rural, areas. The recommended square footage required per student is 59 sq. ft. for kindergarten through grade 6 and 80 sq. ft. for grades 7 and 8. **See**. CA Department of Education Sacramento, *Guide to School Site Analysis and Development* (2000 ed.), https://www.cde.ca.gov/ls/fa/sf/guideschoolsite.asp#:text=Greenee%20School%20Facilities%20Act%20of.for%20grades%20seven%20a

The average cost to build a school in the U.S. is currently $327 per sq. ft. **See**, ProEst, *Commercial Construction Costs Per Square Foot*, https::/proest.com/construction/cost-estimates/commercial-costs-per-square-foot/

Cost Justification: If the main entrance to a school is 850 sq. ft., its average costs of construction to current code is estimated to be $277,950. This proposal would increase that cost by 41% or $113,959. However, if that school has1,500 students and a total of 105,000 sq. ft., the additional cost of ASTM F3561 compliance for the main entrance area would be **less than 0.4%** of the total $34,446,180 cost to construct the school.

Staff Analysis: A review of the standard proposed for inclusion in the code, ASTM F3561-23 Standard Test Method for Forced-Entry-Resistance of Fenestration Systems After Simulated Active Shooter Attack, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

G88-25

G89-25

IBC: SECTION 429 (New), 429.1 (New), 429.2 (New), 429.3 (New), 429.4 (New), 429.5 (New), 429.6 (New), 429.7 (New), 429.8 (New), 429.9 (New), 429.9.1 (New), 429.10 (New), 429.11 (New), 429.12 (New), 429.13 (New)

Proponents: Robert Davidson, Davidson Code Concepts LLC, representing Self (rjd@davidsoncodeconcepts.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Robert Marshall, representing FCAC (fcac@iccsafe.org)

2024 International Building Code

Add new text as follows:

SECTION 429
BATTERY AND ESS RELATED OCCUPANCIES, EQUIPMENT AND OPERATIONS

429.1 General. Occupancies, equipment, and operations involving the following battery related uses shall comply with this code, the *International Fire Code*, the *International Mechanical Code* and NFPA 70.

1. Energy Storage Systems (ESS)
2. Battery manufacturing
3. Battery recycling
4. Battery repurposing
5. Manufacturing, charging, use, repair or storage of battery powered vehicles, mobility devices and equipment
6. Battery research and development
7. Battery storage

429.2 Energy storage systems. The installation, replacement, repair and operation of energy storage systems shall comply with Section 1207 of the *International Fire Code* and NFPA 855.

429.3 Battery manufacturing, recycling, research and development. Battery manufacturing, recycling, research and development**.** Occupancies, equipment, and operations involving battery manufacturing, recycling or research and development shall comply with Chapter 42 of the *International Fire Code.*

429.4 Vehicle and Equipment manufacturing and repair. Occupancies and operations involving the manufacturing or repair of battery powered vehicles, mobility devices and equipment shall comply with Chapter 42 of the *International Fire Code*.

429.5 Powered equipment and mobility device charging. Occupancies, equipment, and operations involving the charging of batteries for powered equipment and mobility devices shall comply with Chapter 42 of the *International Fire Code.*

429.6 Battery storage. Occupancies and operations involving battery storage shall comply with Chapters 32 and 42 of the *International Fire Code*.

429.7 Seismic protection. Where this code or the *International Fire Code* requirements provide for seismic protection for equipment and structural elements the protection shall comply with Chapter 16.

429.8 Structure. The structural loads for parking structures to accommodate EV's, and structural loads for buildings or structures to accommodate stationary energy storage systems, shall be designed in accordance with Chapter 16.

429.9 Fire-resistance-rated separations. Where this code or the *International Fire Code* requires operations or activities to be separated from adjoining areas by fire-resistance-rated construction the fire barriers shall be constructed in accordance with Section 707 and the horizontal assemblies constructed in accordance with Section 711, as applicable.

429.9.1 Penetrations and openings. Penetrations of fire-resistance-rated separations shall comply with Section 714. Openings in fire-resistance-rated separations shall comply with Section 716.

429.10 Fire protection. Where this code or the *International Fire Code* requires smoke detection, fire detection or fire suppression to be provided, the fire protection systems shall be installed in accordance with Chapter 9 and Chapter 27 of this code and the *International Fire Code* as applicable.

429.11 Gas detection systems. Where this code or the *International Fire Code* require gas detection systems to be provided, they shall be installed in accordance with Section 916 and Chapter 27 of this code.

429.12 Explosion control. Where this code or the *International Fire Code* requires explosion control to be provided it shall be installed in accordance with Section 414.5.1 of this code and Section 911 of *the International Fire Code.*

429.13 Mechanical exhaust ventilation. Where this code or the *International Fire Code* requires mechanical exhaust to be provided, it shall be installed in accordance with the *International Fire Code*, the *International Mechanical Code* and NFPA 70.

Reason: The purpose of this proposal is to provide guidance to users of the *International Building Code* that there are important construction requirements to apply from other sections of this code and from the *International Fire Code* relevant to battery R&D, manufacturing, recycling, storage and energy storage systems. The proposed language provides correlation language and where appropriate linkage to other sections of the *International Building Code.*

The International Fire Code Sections 320, 322, 911, 1201, 1206, 1207 and Chapter 32 contain requirements relative to the construction and occupancy of buildings and structures. Some examples are fire detection systems, gas detection systems mechanical exhaust systems, explosion control, fire-resistance-rated separations, and seismic requirements.

This proposal does not present new requirements, it is simply correlation guidance so the user of the building code is made aware that when it comes to activities dealing with batteries the fire code must be applied also.

This proposal is submitted jointly by the ***ICC Building Code Action Committee (BCAC)*** and the ***ICC Fire Code Action Committee (FCAC)***.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at **BCAC webpage**.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the **FCAC Website**

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no increase in construction costs of buildings with this change as it is a correlation proposal. It relies on requirements addressing these issues found within the *International Building Code* and the *International Fire Code currently.*

G89-25

G90-25

IBC: SECTION 430 (New), 430.1 (New), 430.2 (New), 430.2.1 (New), 430.2.1.1 (New), 430.2.1.2 (New), 430.2.1.3 (New), 430.2.1.4 (New), 430.2.1.4.1 (New), 430.2.1.4.2 (New), 430.2.1.4.3 (New), 430.2.1.4.3.1 (New), 430.2.2 (New), 430.2.2.1 (New), 430.2.2.2 (New), 430.2.2.3 (New), 430.2.3 (New), 430.2.3.1 (New), 430.2.3.1.1 (New), 430.2.3.1.2 (New), 430.2.3.1.3 (New), 430.2.3.1.4 (New), 430.2.4 (New), 430.2.4.1 (New), 430.2.4.2 (New), 430.2.4.3 (New), 430.2.4.4 (New), 430.2.4.5 (New), 430.2.4.6 (New), SECTION 202 (New)

Proponents: Tristen Magallanes, representing DPR Construction (tristenm@dpr.com)

2024 International Building Code

Add new text as follows:

SECTION 430 INFORMATION TECHNOLOGY EQUIPMENT (ITE) AISLE CONTAINMENT ENCLOSURE

430.1 Applicability. The provisions of Sections 430.2 through 430.2.4.6 shall apply to all parts of *ITE aisles containment enclosure* structures, both *ITE hot ailses* and *ITE cold aisles*, that contain information technologyand equipment and associate appurtenances as herein defined.

430.2 ITE Containment Enclosure. *ITE aisle containment enclosure* and *ITE hot air enclosure* construction shall comply with Sections 430.2 through 430.2.1.4.3.1.

430.2.1 ITE containment enclosure construction. *ITE aisle containment enclosure* shall be constructed of materials as required for support and design for the type of equipment required to provide air-movement from the information technology equipment racks.

430.2.1.1 Hot and cold aisle application. *ITE aise containment enclosure* shall be applied to *ITE hot aisles* or *ITE cold aisles* of information technology equipment.

430.2.1.2 Containment enclosure type. *ITE aisle containment enclosure* and *ITE hot air enclosure* systems shall be one of the following types:

1. Factory-packaged and aftermarket systems designed, provided, and installed in accordance with the manufacturer's instructions.
2. Field-constructed systems designed and constructed using common construction materials.

430.2.1.3 Containment enclosure design. *ITE aisle containment enclosure* and *ITE hot air enclosure* systems shall not be considered to be plenums.

430.2.1.4 ITE aisle containment enclosure finishes. Finishes of the *ITE aisle containment enclosure* shall comply with Section 430.2.1.4.1 through 430.2.4.3.1.

430.2.1.4.1 Classification of containment enclosure finishes. Wall and ceiling finishes of the *ITE aisle containment enclosure* shall have a minimum of a Class A rating in accordance with Section 803 and classified in accordance with ASTM E84 or UL 723. Such *interior finish* materials shall be grouped in classes outlined in Ssection 803.1.2 in accordance with their flame spread and *smoke-developed indices*.

430.2.1.4.2 Class of interior finish. Walls and ceiling finishes of the *ITE aisle containment enclosure* in spaces that are fully protected by an *automatic sprinkler system*, or an *automatic fire-extinguishing system* shall be permitted to be Class B or better than in accordance with Section 803 and ASTM E84 or UL 723. Such *interior finish* materials shall be grouped in classes outlined in Section 803.1.2 in accordance with their flame spread and *smoke-developed indices*.

430.2.1.4.3 Floor finish. Interior floor finishes used in *ITE aisle containment enclosure* areas shall be Class I in accordance with Section 804.

430.2.1.4.3.1 Floor Classification. *Interior floor finish* and floor covering materials required by Section 804.4.2 to be of Class I materials shall be classified in accordance with ASTM E648 or NFPA 253. The classification referred to herein corresponds to the classifications determined by ASTM E648 or NFPA 253 as a Class I, 0.45 watts/cm^2 or greater.

430.2.2 Protection systems. Protection systems shall comply with this Sections 430.2.2.1 through 430.2.2.3.

430.2.2.1 Automatic sprinkler system. Information technology equipment areas with *ITE aisle containment enclosures* shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1. Where the application of *ITE aisle containment enclosure* or *ITE hot air enclosure* systems creates obstructions to proper operation of sprinkler systems, the sprinkler system shall be modified as necessary to comply with Section 903.

430.2.2.2 Alternative protection. Alternative *automatic fire-extinguishing systems* complying with Section 904 shall be permitted instead of automatic sprinkler protection were recognized by the applicable standard and *approved* by the fire code official.

430.2.2.3 Automatic water mist systems. *Automatic water mist system* shall be designed and installed in accordance with Section 904.11, and the manufacturer's instructions. *Automatic water mist systems* shall be automatically actuated.

430.2.3 Automatic fire detection. *Automatic fire detection* shall be provided for all *ITE aisle containment enclosure* systems. Detection and suppression components within *ITE aisle containment enclosure* shall be rated for the intended temperatures of *ITE hot aisles* when installed in those locations.

430.2.3.1 New system installations in existing ITE areas. Where a newly installed *ITE aisle containment enclosure* systems are installed in an existing information technology equipment area, the existing suppression and detection systems shall be evaluated, modified, and tested as necessary to maintain compliance with the applicable codes and standards.

430.2.3.1.1 Early warning detection. Automatic detection equipment shall be installed to provide early warning of fire.

430.2.3.1.2 Smoke detection listing. The equipment used shall be a listed smoke detection–type system installed and maintained in accordance with Section 907.

430.2.3.1.3 Evaluation of detection system effectiveness. Each of the information technology equipment areas and *ITE aisle containment enclosure* automatic detection systems shall be evaluated to determine the hazards and ambient conditions that are present and the corresponding performance level of the detection system.

430.2.3.1.4 Monitoring of detection system. The alarms and trouble signals of automatic detection or extinguishing systems shall be arranged to annunciate a signal at a constantly attended location.

430.2.4 Means of egress. Means of egress shall comply with Sections 430.2.4.1 through 430.2.4.6.

430.2.4.1 ITE Containment enclosure doors. Where *ITE aisle containment enclosures* are provided with doors for openings, the doors shall be side-hinged swinging doors.

430.2.4.2 Arrangement. Where two or more *exits* or *exit access doorways* from the *ITE aisle containment enclosures* are required in accordance with Section 1006.2, not fewer than one *exit* or *exit access doorway* shall be provided on each side of an *ITE aisle containment enclosure*.

430.2.4.3 Number of means of egress. Not fewer than one *means of egress* shall be provided from *ITE aisle containment enclosures.*

430.2.4.4 Exit access travel distance. The *exit access* travel distance shall be not greater than 300 feet (91 440 mm) for *ITE aisle containment enclosures* without a sprinkler system and 400 feet (122 mm) for buildings equipped throughout with an *automatic sprinkler system*in accordance with Section 903.3.1.1.

430.2.4.5 Two means of egress. Where two *means of egress* are required, the *common path of travel* shall be not greater than 100 feet (30 480 mm).

430.2.4.6 Width. The path of egress travel within and from the *ITE aisle containment enclosures* shall be not less than 22 inches (559 mm).

Add new definition as follows:

INFORMATION TECHNOLOGY EQUIPMENT (ITE) AISLE. The passageway between information technology equipment or between information technology equipment and the room wall that allows personnel access to the information technology equipment for service or operation of the equipment.

INFORMATION TECHNOLOGY EQUIPEMENT (ITE) AISLE CONTAINMENT ENCLOSURE. An enclosure design for connection to HVAC equipment or cooling equipment design method deployed in the occupied area of an air-cooled information technology equipment space utilizing physical separation of hot exhaust air from cooler intake air between equipment cabinets, rows of information technology equipment, or associated power and cooling infrastructure; containment is typically above and at both ends of a hot aisle or a cold aisle, in whole or part.

INFORMATION TECHNOLOGY EQUIPEMENT (ITE) COLD AISLE . The aisle on the front side of the airflow intakes on the information technology equipment where HVAC cooling airflow is controlled to cool the information technology equipment.

INFORMATION TECHOLOGY EQUIPEMENT (ITE) HOT AIR ENCLOSURE. An air conveyance assembly used to direct heated exhaust air from information technology equipment cabinets, enclosures, or racks area directly to a removal air path.

INFORMATION TECHNOLOGY EQUIPMENT (ITE) HOT AISLE. The aisle at the rear side of the information technology equipment where heated exhaust air is controlled and directed into the aisle for return to the HVAC equipment.

Reason: This new section is proposed to be added to Chapter 4 to provide specific regulations for an Information Technology Equipment (ITE) Aisle Containment Enclosure which are used in data centers hall.

The proposed new section introduces definitions and construction requirements for Information Technology Equipment (ITE) aisle containment enclosures, addressing a gap in the International Building Code (IBC). These enclosures are critical components in modern data centers, providing enhanced control over airflow while improving energy efficiency and enhance cooling performance.

This proposal seeks to standardize the terminology, materials, and safety measures related to ITE aisle containment systems. By defining key terms, specifying construction materials, and incorporating fire protection and egress standards, the proposed language ensures that these systems meet safety requirements while optimizing performance.

The development of these new sections reflects the industry's transition towards sustainable solutions. Our team has introduced a sustainable aisle containment offering designed to reduce carbon emissions and expand available options for data center operators. By codifying these solutions, the proposed section aligns with environmental goals and offers a clear framework for adoption and compliance, ultimately benefiting the industry by providing consistency and promoting innovation.

This addition is driven by the needed for specific code language and the introduction of a sustainable aisle containment solution that expands industry options, enabling compliance with evolving environmental standards, and contributing to carbon footprint reduction. By codifying these containment enclosures, the proposed language seeks to provide consistency in application, enhance safety and functionality, and encourage sustainable practices within the industry.

These enclosures are currently being installed at a later date once the occupancy certification and service racks are installed. Many aisle containment enclosures may not be reviewed and inspected until much later in the construction or during the annual inspection. This new language is designed to work with and allow current containment enclosures systems to continue to be used while allowing safety and sustainable alternative designs to be considered.

Proposed New Definition. These new definitions are required to ensure that the new terms proposed in this new Chapter 4 section for

ITE containment enclosures are properly defined, identified, and used for the installation of this equipment and enforcement is applied consistently.

The definition of an *ITE Aisle* is as that the ITE Aisle has key elements including passageway between equipment intended for movement of people and/or equipment; typically located between opposing rows of ITE enclosures or racks but could be between two free-standing pieces or racks of ITE; and are intended for routine human activity such as service or operation (therefore not a plenum space).

The definition of an *ITE Aisle Containment Enclosure* has key elements for defining the housing or construction of the containment enclosure and includes an occupied area for service of the ITE equipment, the area for the capture of the air movement from the ITE equipment, and is connected to the HVAC equipment (excluding areas above a ceiling or below a raised floor); utilizing physical separation between hot and cold air (excluding structural or construction methods such as fire-rated walls); and can be either a hot aisle or a cold aisle or a mix of both at select portions of the aisle.

The definition of a *ITE Cold Aisle* is defined as the area of the containment enclosure that is part of the airflow controlled having intake air cold, implying an aisle normally intended for operation and services of the ITE, and cool air from the output of the HVAC system.

The definition of the *ITE Hot Air Enclosure* is defined as an air conveyance assembly, sometimes referred to as a collar, duct, or chimney which is typically from specific equipment rather that from larger areas such as room or data hall; the hot air enclosure is not required to be physically connected to a duct or plenum, but can be so the heated air can be exhausted, cooled and recirculated, or removed from the space.

The definition of the *ITE Hot Aisle* is defined as the heated airflow that is contained and controlled to exhaust air hot generated by the ITE equipment, implying an aisle normally intended for access to service of the ITE, and is part of the heated air returning to the input of the HVAC system that can be exhausted, cooled and recirculated, or removed from the space.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed code addition has no cost impact on the current installation of ITE aisle containment systems. The new section does not introduce additional requirements that would increase the cost of compliance for existing installations or commonly used products.

Our specific sustainable aisle containment product is designed to be cost-neutral in comparison to traditional systems. While it may result in a 3-5% increase in material costs for some installations, this is offset by the potential operational cost savings through improved energy efficiency and sustainability. These savings can contribute to a lower total cost of ownership over the lifecycle of the installation and result in overall cost savings.

Overall, the proposed language provides clear guidance for the industry without imposing undue financial burdens, while fostering opportunities for adopting innovative and sustainable solutions.

G90-25

G91-25

IBC: CHAPTER 6, CHAPTER 5

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com)

2024 International Building Code

Revise as follows:

CHAPTER ~~6~~5
TYPES OF CONSTRUCTION

CHAPTER ~~5~~6
GENERAL BUILDING HEIGHTS AND AREAS

Reason: For most designers, the flow of the IBC presents occupancy, then the allowable building size based on occupancy, but construction type, which follows the allowable size is part of the building sizing. Wouldn't it make more sense to have the construction types first then have the allowable building size after both occupancy and construction types have been presented?

All this code change does is more Chapter 6, Construction Types, to be before Chapter 5, General Building Heights and Area.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is only moving current code text.

G91-25

G92-25

IBC: SECTION 503, 503.1, FIGURE 503.1 (New)

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Philip Oakes, representing NASFM; Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Building Code

SECTION 503
GENERAL BUILDING HEIGHT AND AREA LIMITATIONS

Revise as follows:

503.1 General. Unless otherwise specifically modified in Chapter 4 and this chapter, *building height*, number of *stories* and *building area* shall not exceed the limits specified in Sections 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. *Building height*, number of *stories* and *building area* provisions shall be applied independently. For the purposes of determining area limitations, height limitations and type of construction, each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building.

<u>**Exceptions:**</u>

<u>1. Other than structural requirements, rooftop-mounted *photovoltaic (PV) panel systems* with no use underneath shall not constitute an additional story or additional floor area and shall be permitted to exceed the height limit of a building where one of the following conditions are met:</u>

<u>1.1. For all occupancies, the highest point of the *rooftop-mounted PV panel system* shall meet the lower of the following values:</u>

<u>1.1.1. 3 feet (915 mm) above the allowable building height.</u>

<u>1.1.2. 3 feet (915 mm) above the roof of the building immediately below.</u>

<u>1.2. For installations on low-slope roofs (roof slope < 2:12) in other than Group R-3 and R-4 occupancies, the highest point of the rooftop-mounted *PV panel system* shall meet the lower of the following values:</u>

<u>1.2.1. 10 feet (3050 mm) above the allowable building height.</u>

<u>1.2.2. 10 feet (3050 mm) above the roof of the building immediately below.</u>

<u>2. Other than structural requirements, *elevated photovoltaic (PV) support structures* installed on the roof of an open parking structure or the roof of an enclosed parking garage shall not constitute an additional story or additional floor area and shall be permitted to exceed the height limit of a building where all the following conditions are met (see Figure 503.1):</u>

<u>2.1. The area within the perimeter of *elevated PV support structures* has maximum rectangular dimension of 40 feet by 150 feet (12 195 mm by 45 720 mm).</u>

<u>2.2. The distance between *elevated PV support structures* is a minimum of 10 feet (3050 mm) clear.</u>

<u>2.3. The driveway aisle separating *elevated PV support structures* has a minimum width of 25 feet (7620 mm) clear.</u>

<u>2.4. *Elevated PV support structures* are used only for parking purposes with no storage.</u>

<u>2.5. *Elevated PV support structures* are completely open on all sides, other than necessary structural supports, with no interior partitions.</u>

Add new text as follows:

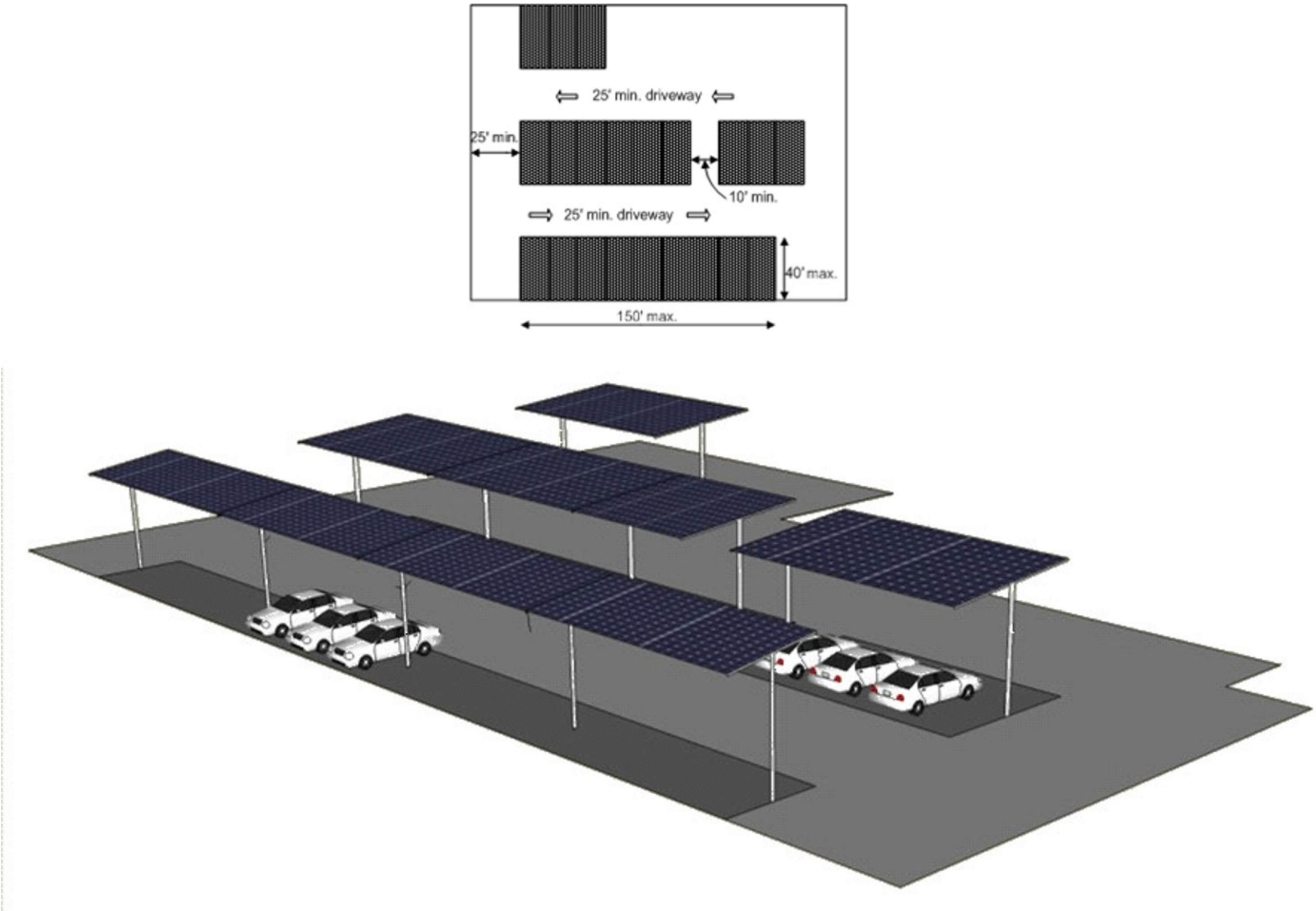


FIGURE 503.1 LOCATION OF *ELEVATED PV SUPPORT STRUCTURES* ON OPEN PARKING STRUCTURES

Reason: The primary objective of this proposal is to provide exceptions to clarify that elevated PV support structures can be installed on top of a multi-story parking garage under certain conditions without impacting restrictions on number of stories, height or area. Likewise, under certain conditions, rooftop-mounted PV systems do not cause a building to be noncompliant with these provisions. The exceptions in this proposal are similar to exceptions that have existed in the California Building Code for several cycles, with support of the fire service and without any compromises in safety to the building or fire fighters. These exceptions will not impact the ability to fight fires on top of buildings.

Without the exceptions proposed here, rooftop solar structures can be interpreted to constitute an additional story of the building, increase the overall building height or where there is a use underneath such as elevated PV support structures, increase the floor area of the building. As a result, solar installations may not be allowed in buildings that are built to the maximum height, story or floor area. The proposed code revision provides an exemption for photovoltaic systems from these code restrictions.

Exception 1: This amendment allows solar PV systems to be installed above the maximum building height specified by code with limitation. This amendment will make it feasible to install rooftop solar PV systems on top of buildings that are built to the maximum height which is especially common in existing buildings. It will also make it practical for PV panels to be installed above the roof with the required tilt angle and be at a height that avoids interference with vents and equipment on the roof.

Exception 2: The amendment allows solar PV panel installations over parking stalls to be installed without being considered a story or floor area, these restrictions may prevent solar PV systems from being installed in buildings that have the maximum number of stories or floor area which is especially common in existing buildings. The exception requires minimum spacing between solar PV panel structures to allow fire access and provide a fire break.

These exceptions have existed in the California Building Code for several cycles. These provisions have been used by California cities and counties by industry, building owners, building departments, and fire departments, without questions or concerns that have come to the attention of the co-proponents. All stakeholders have been able to utilize these technical requirements without issues, and without any proposed modifications to the language for multiple cycles.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner. All recommendations from SEAC are approved by diverse stakeholders through a consensus process.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

It encourages the use of solar without adversely impacting safety.

G92-25

G93-25

IBC: 503.1.4.1

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Building Code

503.1.4 Occupiable roofs. A roof level or portion thereof shall not be used as an occupiable roof unless the occupancy of the roof is an occupancy that is permitted by Table 504.4 for the *story* immediately below the roof. The area of the occupiable roofs shall not be included in the *building area* as regulated by Section 506. An *occupiable roof* shall not be included in the *building height* or number of *stories* as regulated by Section 504, provided that the *penthouses* and other enclosed *rooftop structures* comply with Section 1511.

Exceptions:

1. The occupancy located on an *occupiable roof* shall not be limited to the occupancies allowed on the *story* immediately below the roof where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and occupant notification in accordance with Sections 907.5.2.1 and 907.5.2.3 is provided in the area of the *occupiable roof* . *Emergency voice/alarm communication* system notification per Section 907.5.2.2 shall also be provided in the area of the *occupiable roof* where such system is required elsewhere in the building.
2. Assembly occupancies shall be permitted on roofs of open parking spaces of Type I or Type II construction, in accordance with the exception to Section 903.2.1.6.

Revise as follows:

503.1.4.1 Enclosures ~~over~~around occupiable roof areas. Elements or *structures* enclosing the *occupiable roof* areas shall not extend more than 48 inches (1220 mm) above the surface of the *occupiable roof*.

Exceptions :

1. *Penthouses* constructed in accordance with Section 1511.2 and towers, domes, spires and cupolas constructed in accordance with Section 1511.5.
2. Elements or *structures* enclosing the *occupiable roof* areas where the *roof deck* is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.
3. Elements or *structures* enclosing *occupiable roof* areas located on the same level as a *story*.

Reason: The enclosure height limitation for occupiable roofs is written for occupiable roofs that are the highest level of the building; however, there are many instances where occupiable roofs are lower on the building and are located on a level that is already classified as a story. For this case, the current requirements do not allow the exterior wall of the building that continues up from the occupiable roof to enclose the occupiable roof. This is obviously not the intent as this would prohibit low roofs on buildings. This requirement is also not needed since the level is already regulated as a story. This proposal corrects this oversight in the code by exempting occupiable roofs that are on the same level as a story.

Note that Section 503.1.4 is included for reference only - there are no changes proposed for this section.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

It is clearly not the intent of the code to prohibit low occupiable roofs; therefore, this proposal is simply an editorial change to clarify the intent of the code with no cost impact.

G93-25

G94-25 Part I

IBC: 503.1.4.1

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE EXISTING BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

503.1.4.1 Enclosures over occupiable roof areas. Elements or *structures* enclosing the occupiable roof areas shall not extend more than 48 inches (1220 mm) above the surface of the occupiable roof.

Exceptions:

1. *Penthouses* constructed in accordance with Section 1511.2 and towers, domes, spires and cupolas constructed in accordance with Section 1511.5.
2. Elements or *structures* enclosing the *occupiable roof* areas where the *roof deck* is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.
3. <u>In Group I-1 and I-2 facilities, required guards enclosing the occupiable roof areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the occupiable roof to prevent elopement or self-harm.</u>

G94-25 Part I

G94-25 Part II

IEBC: 1011.5.1, 1011.5.2

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

1011.5.1 Means of egress for change to a higher-hazard category. Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table 1011.5, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 903.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 shall be permitted for continued use subject to approval of the *code official*.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or $^1/_2$-inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 804.7.1, 804.7.2 and 804.7.3.
6. Existing dead-end corridors shall comply with the requirements in Section 804.8.
7. An operable window complying with Section 1011.5.6 shall be accepted as an *emergency escape and rescue opening*.
8. In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* ~~where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area~~ to prevent elopement or self-harm.

1011.5.2 Means of egress for change of use to an equal or lower-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category (higher number) as shown in Table 1011.5, existing elements of the means of egress shall comply with the requirements of Section 905 for the new occupancy classification. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
2. In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* ~~where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area~~ to prevent elopement or self-harm.

Reason: The intent of this proposal is to allow higher guards for patient safety around outdoor patient garden/exercise areas on the roof.

The Healthcare committee understands the guard height limitation for low rise buildings was to allow for fire department access to the roof. However, we feel that this change is desperately needed to the routine safety of residents.

Access to fresh air and getting outside is incredibly important for the well-being of older adults who live in Group I-1 & I-2 care facilities. Outdoor areas are also important for patient mental health and wellness in hospitals. g care recipients spend up to 90% of their time indoors and if the only choice of outdoor space requires staff or volunteers to take them downstairs, via an elevator, to get outside, care recipients never get the opportunity to be outside. Hospitals and nursing homes in a urban environment often don't have property that would allow for outdoor patient areas. If a garden space or other outdoor area can be created on a roof adjacent to sleeping areas, this can make getting outside much easier.

These types of facilities have extensive fire and safety evacuation plans and staff that is trained in assisting care recipients and guests for evacuation/defend-in-place during an emergency. Fire departments perform regular inspections of these buildings, so they would be very familiar with the layouts. In addition, these facilities have exceptionally good records for a small number of fire events. All I-1 and I-2 occupancies already require automatic sprinkler systems. Unfortunately, while we want care recipients to get outside, we also need to keep them safe. We know that exit seeking behavior is prevalent and a 48" barrier is not enough to protect from elopement or self harm.

There was a similar change in Group A, G105-21 that had an original intention of allowing for guards to exceed the height limitation required by IBC Section 503.1.4.1. The modification to broaden this allowance for "walls, parapets, rooftop structures (some of which are exempted in Exception 1), and wind screens" on roofs above the reach of fire departments (>75') was appropriate. However, there is still the issue with existing buildings that want to expand or add an occupied roof with the result being:

- If any structure or guard is above 48" high, this is now being considered an additional story so they could violate height limitations for the type of construction.
- If the building is less than 75' in height, you cannot have guards high enough to discourage people from jumping off the roof.

Below are pictures of a roof garden on a memory care facility. There are glass panels between the columns. The overhead trellis system is made from aluminum or steel, and prevents people from climbing up and over the glass.

Regarding the change to the IEBC - It has been brought to our attention that there are many folks, in healthcare settings, that seek to commit suicide. These could be care recipients with depression or cognitive challenges (who would have a clinical need), but it could also include care recipients that receive an unfavorable diagnosis or even family members, friends or medical staff. The proposed change would broaden the scope of where higher guards would be permitted to prevent self-harm to all users of these spaces. As noted previously, these I-1 and I-2 facilities have staff that are trained to assist in the event of an emergency and fire departments are familiar with the layout and conditions.

This proposal is submitted by the ICC Committee for Healthcare (CHC).

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an optional allowance for certain facilities so will provide design flexibility. It will cost more if such barriers are constructed but that is an option for the building owner.

G94-25 Part II

G95-25

IBC: 504.3

Proponents: Matt Archer, City of Lone Tree, representing Code Change Committee of ICC Colorado Chapter (matt.archer@cityoflonetree.com)

2024 International Building Code

Revise as follows:

504.3 Height in feet. The maximum height, in feet above grade plane, of a *building* shall not exceed the limits specified in Table 504.3.

Exception: Towers, spires, steeples and other *rooftop structures* shall be constructed of materials consistent with the required type of construction of the *building* except where other construction is permitted by Section 1511.2.4. Such *structures* shall not be used for habitation or storage. The *structures* shall be unlimited in height where of noncombustible materials and shall not extend more than 20 feet (6096 mm) above the allowable *building height* where of combustible materials (see Chapter 15 for additional requirements).

Reason: This proposal is editorial in nature, the words 'in feet' provide no real definitive understanding of where or how to measure. Adding the defined term 'grade plane' provides clarity for how to measure. While the term grade plane is in the title of table, it is best practice to have the defining term in the charging language of the code and let the table clarify the heights.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal should not have any cost impacts as it is editorial in nature. Adding the defined term 'grade plane' provides clarity for how to measure.

G95-25

G96-25

IBC: TABLE 504.3, TABLE 504.4

Proponents: Jeffrey Shapiro, LTFR, representing Lake Travis Fire Rescue (jshapiro@LTFR.org)

2024 International Building Code

Revise as follows:

TABLE 504.3 ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE[a]

Portions of table not shown remain unchanged.

OCCUPANCY CLASSIFICATION	See Footnotes	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
R[h]	NS[d]	UL	160	65	55	65	55	65	65	65	65	50	40
	S13D	60	60	60	60	60	60	60	60	60	60	60~~50~~	60~~40~~
	S13R	60	60	60	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	270	180	85	85	70	60

TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE[a, b]

Portions of table not shown remain unchanged.

OCCUPANCY CLASSIFICATION	See Footnotes	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
R-3[h]	NS[d]	UL	11									3	3
	S13D	4	4	4	4	4	4	4	4	4	4	4~~3~~	4~~3~~
	S13R	4	4									4	4
	S	UL	12	5	5	5	5	18	12	5	5	4	4

Reason: Although I serve as a consultant to the National Fire Sprinkler Association, this proposal has not been reviewed or endorsed by NFSA, and I am not representing NFSA on this issue.

Recommended changes are supported on the basis of:

1. Improved correlation between the IRC and IBC with respect to limits on Type V-B construction,
2. Empirical evidence supporting the effectiveness of NFPA 13D sprinkler systems in controlling and extinguishing dwelling fires that was not available when the IBC originally considered story/height credit for Group R3 more than 25 years ago.

1. IRC Correlation: Following approval of Proposal RB17-07/08, which added an allowance for habitable attics to the 2009 IRC, the IRC has continued to expand the habitable attic concept to the point where it essentially constitutes a 4th story, even though the code is technically limited to 3-story construction. Proposal RB166-16 eliminated a prior restriction requiring the ceiling of a habitable attic to be limited to rafters/roof framing, so lacking restrictions on the height of surrounding knee walls or dormer size, the 2018 and 2021 IRC editions essentially equate habitable attics and stories. Proposal RB152-19 called attention to the IRC 4th story habitable attic loophole, with the intent of pushing such construction back to the IBC, but that proposal was later modified to instead place a size limit on habitable attics and require NFPA 13D fire sprinklers when a habitable attic is placed above the third story. Today, standing outside of a newly constructed dwelling with a habitable attic above the third story, you'd be looking at what appears to be an 4-story unlimited height (in feet) Type V-B building, protected by a NFPA 13D sprinkler system, that meets the IRC. It makes no sense for the IBC to not allow Type V construction or require changing to a NFPA 13R sprinkler system to construct a similarly configured Group R-3 building.

2. Performance of residential sprinkler systems: Since the question of NFPA 13D performance was previously considered in the code arena, a considerable number of NFPA 13D sprinkler systems have been installed throughout the U.S., and there have been a considerable number of fires in structures protected by NFPA 13D systems, enough to provide meaningful data regarding the effectiveness of these systems in controlling and extinguishing dwelling fires. An analysis of data captured by the National Fire Incident Reporting System shows that in more than 2,500 fire incidents in the period 2000-2022 where sprinklers operated and were effective, presumably NFPA 13D systems considering that the data is associated with one-and two-family dwelling fires, fire spread was limited to the object or room of origin in 87% of fires, and up to the story of origin in a total of 92% of fires. This seems sufficiently equivalent to the effectiveness of NFPA 13 and NFPA 13R systems to justify receiving similar height/story incentive for one- and two-family dwellings and townhouses.

It is noteworthy that the ICC has already rendered favorable consideration on a variety of incentives for NFPA 13D sprinkler systems for dwelling unit protection, so this proposal is not plowing entirely new ground. For example, IBC Section 1031.2, Exception 5 (which recognizes NFPA 13D for a means of escape incentive); IFC Section 1205.2.1.3 (which allows a reduction of required setbacks for PV systems on roofs); IFC Appendix Table B105.1(1) (which allows a reduction in required fire flow); IFC Appendix Section D107.1 (which allows a reduction in the required number of fire apparatus access roads); IRC Section R317.5 (which per reference to Table R302.1(2) equates sprinkler protection to a 1-hour exterior wall and property line separation or wall penetrations and openings); among others.

It is also important to point out that the additional story will not trigger requirements in Section 1023.2 for additional fire-resistive protection of the 4-story stairway because stairways within dwelling and townhouse units are *exit access stairways,* not interior exit stairways (to which Section 1023.2 applies).

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Since similar construction is already permitted under the IRC, the estimated impact is $0, and adding the recommended provisions to the IBC is not a significant change with respect to the ICC code family.

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal would allow a larger area of the habitable attic under the IRC as a full 4th story in the IBC. Allowing a larger area of what is essentially already permitted by code adds design freedom and only impacts cost when someone would chose to take advantage of the proposed allowance. It could also be viewed as a cost reduction for cases where the larger area of the upper story would otherwise require changing from a NFPA 13D system (under the IRC) to a NFPA 13R system (under the IBC), or changing from Type V to Type I, Type II, Type III or Type IV construction to exceed IRC habitable attic area limits that were added in the 2021 IRC. Regardless of which code is used, IBC or IRC, dwellings affected by this proposal will require fire sprinklers, even in jurisdictions where IRC Section 313 has not been adopted, because IRC Section 326 requires sprinklers per NFPA 13D or IRC P2904 to extend a habitable attic above the third story of an IRC dwelling.

G96-25

G97-25

IBC: TABLE 504.3, TABLE 504.4

Proponents: Greg Johnson, Johnson & Associates Consulting Services, representing self (gjohnsonconsulting@gmail.com); Robert Buchetto, HED, representing Self (rbuchetto@hed.design); Jay Peters, representing Codes and Standards International (peters.jay@me.com)

2024 International Building Code

TABLE 504.3 ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE[a]

Portions of table not shown remain unchanged.

OCCUPANCY CLASSIFICATION	See Footnotes	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A, B, D, E, F, M, S, U	NS[b]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	270	180	85	85	70	60

For SI: 1 foot = 304.8 mm.

UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler system; S = *Buildings* equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building height in accordance with the *International Existing Building Code*.

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and with Section 1103.5 of the *International Fire Code*.

g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.

h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE[a, b]

Portions of table not shown remain unchanged.

OCCUPANCY CLASSIFICATION	See Footnotes	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
D	NS	UL	11	4	2	3	2	4	4	4	4	3	1
	S	UL	12	5	4	4	4	10	7	5	5	4	2

UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building height in accordance with the *International Existing Building Code*.

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code*.

g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.

h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

Reason: Data centers are unique uses and should have their own occupancy classification to remove confusion in the field, as is proposed in a companion proposal. Data centers are frequently assigned an F-1 or S-1 occupancy classification. The values proposed in this proposal are consistent with a S-1 occupancy classification.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Data centers are currently and frequently being constructed with these height limits so no additional costs accrue.

G97-25

G98-25

IBC: 504.4

Proponents: William Koffel, Koffel Associates, Inc., representing Semiconductor Industry Association (wkoffel@koffel.com)

2024 International Building Code

Revise as follows:

504.4 Number of stories. The maximum number of *stories above grade plane* of a *building* shall not exceed the limits specified in Table 504.4.

Exception: In a Group H-5 mixed-occupancy building of Type IA construction, the number of stories shall be permitted to be 8 where all of the following are met:

1. The Group H-2 occupancies are located no more than 3 stories above grade.
2. The Group H-3 occupancies are located no more than 6 stories above grade.
3. The Group H-2 and H-3 occupancies are separated by a minimum of 80 feet (24 384 mm) in accordance with Section 415.6.5.

Reason: Group H-5 occupancies in buildings of Type IA construction are currently restricted to 4 stories even though the height limit in feet is unlimited. The four stories was based upon the design and construction of semiconductor facilities at the time, which did not include fabrication areas located above another fabrication area. However, the NFPA 318 Technical Committee is developing criteria for stacked fabs and semiconductor facilities are currently being design using the concept of stacked fabs.

Increasing the number of stories to 8 may be more restrictive than the provisions being developed by the NFPA 318 Technical Committee. However, this is considered to be the initial step which can be re-evaluated once the criteria for stacked fabs has been fully developed.

Recognizing that Section 415.6.5 has been revised to increase the quantities permitted in Group H-2 and H-3 areas in a mixed-occupancy Group H-5 building, the location of these areas should be restricted. Since Table 504 does not restrict the number of stories for Group H-2 and Group H-3 occupancies in buildings of Type IA construction, the proposal incorporates the number of story limits for Type 1B construction as a condition for allowing more stories of Group H-5 occupancies.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

By allowing an increase in the number of stories for Group H-5 occupancies, the cost of construction will be decreased when the option is used.

G98-25

G99-25

IBC: 505.2

Proponents: Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com); Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov)

2024 International Building Code

Revise as follows:

505.2 Mezzanines. A *mezzanine* or *mezzanines* in compliance with Section 505.2 shall be considered a portion of the *story* below. Such *mezzanines* shall not contribute to either the *building area* or number of *stories* as regulated by Section 503.1. The area of the *mezzanine* shall be included in determining the *fire area*. The clear height above and below the *mezzanine* floor construction shall be not less than 7 feet 6 inches (~~2134~~ 2286 mm).

> **Exception:** The clear height above and below the mezzanine shall not be less than 7 feet for spaces with one exit in accordance with Table 1006.2.1.

Reason: Section 1208.2 dictates a minimum ceiling height of 7’-6” for occupiable spaces, habitable spaces, and corridors. The charging statement for Section 1003.2 states “The means of egress shall have a ceiling height of not less than 7 feet 6 inches (2286 mm) above the finished floor.” With some exceptions for sloped ceilings, projections, stairs, and parking garages. Both Sections defer to Section 505.2 for mezzanines in the exceptions.
Mezzanines are grouped with equipment platforms in the code.

In fact, Section 505 is entitled: **MEZZANINES AND EQUIPMENT PLATFORMS**. This is consistent with the thought that mezzanines are primarily small areas for equipment or storage. However, the size of the mezzanine is only limited by the area of the floor below under 505.2.1.; larger floor plates allow larger mezzanines. From a design standpoint the code encourages the use of large mezzanines since they do not count as stories and do not contribute to building area under 503.1. The occupancy group of mezzanines is also not limited. Because of these two conditions the code allows large occupancy loads in mezzanines. Mezzanines are also intended to be open to the floor below. The charging statement in **Section 505.2.3 Openness.** Requires these areas be “open and unobstructed to the room in which… except for walls not more than 42 inches in height (1067) in height, columns, and posts.” It is understood that this is for smoke buildup in the low ceiling areas compromising the means of egress path. However, the code allows enclosure of these spaces in the Exceptions if either the occupant load is under 10 or two or more exits or access to exits are provided.

The proposed code change proposal would coordinate these various requirements, by using the same two exit requirement in the exceptions to trigger the height requirements mentioned elsewhere in the code. Lastly, greater occupancy loads increases evacuation times, and there will usually be a stair component in the exit access further increasing evacuation times. Limiting the occupant loads for these low ceiling heights to the exiting requirements shown in Table 1006.2.1 would reduce any potential risk of endangering occupants in a fire event.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is a clarification only and has no impact to the cost of construction. See reason statement.

G99-25

G100-25

IBC: 505.2.3

Proponents: Jeffrey Grove, representing Coffman Engineers (jeff.grove@coffman.com)

2024 International Building Code

Revise as follows:

505.2.3 Openness. A *mezzanine* shall be open and unobstructed to the room in which such *mezzanine* is located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

Exceptions:

1. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the *occupant load* of the aggregate area of the enclosed space is not greater than 10.
2. A *mezzanine* having two or more exits or access to exits is not required to be open to the room in which the *mezzanine* is located.
3. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the *mezzanine* area.
4. In industrial *facilities*, *mezzanines* used for control equipment are permitted to be glazed on all sides.
5. ~~In occupancies other than Groups H and I, which are no more than two *stories above grade plane* and equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, a *mezzanine* having two or more *exits* or access to exits shall not be required to be open to the room in which the *mezzanine* is located.~~

Reason: This change proposes to remove Exception 5 as it is redundant when compared to the conditions of Exception 2. Exception 5 has all the same requirements as Exception 2 plus additional requirements. As such, there is no scenario in which a mezzanine would comply with Exception 5 but not Exception 2. As a result, there is no need to include Exception 5 in the code.

Section 505.2.3 was most recently revised for the 2015 IBC. The 2015 revision simplified Exception 2 by eliminating the requirement that, “at least one of the means of egress provides direct access to an exit from the mezzanine level.” This language was eliminated after it was determined that allowing exit access stairways to serve as mezzanine exits is consistent with the allowances of Section 1019.3 (at that time Section 1018.3). The language deleted for the 2015 edition had previously been the only condition of Exception 2 that was not included with Exception 5. With its elimination, Exceptions 2 and 5 became redundant.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposal removes redundancy. See reason statement.

G100-25

G101-25

IBC: 505.3.4 (New)

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Building Code

Add new text as follows:

505.3.4 Equipment platform construction. *Equipment platforms* and their structural framing members shall be built of materials consistent with the types permitted for the type of construction of the *building*. Where structural framing members of *equipment platforms* provide bracing for the *building* columns or bearing walls, such framing members shall have a *fire-resistance rating* as required for the type of construction of the *building*.

Reason: The code is currently silent on construction requirements of equipment platforms. Since these are unoccupied platforms that are often constructed with open steel grating, it is not appropriate to consider the platforms to be "floors" (with associated framing members) that would have to meet fire-resistance rating requirements for type of construction. However, due to the large size allowed for equipment platforms (up to two-thirds of the area of the room in which they are located), and the associated fuel load of these platforms, it seems appropriate that these platforms be constructed of materials consistent with the type of construction of the building. For example, in a non-combustible Type I or II construction, equipment platforms should be constructed of non-combustible materials.

To address the issue above, this proposal adds a requirement for the types of materials allowed for equipment platforms. Also, there are cases where the framing of an equipment platform is used to brace the building columns or bearing walls, which is beneficial to the structural design of the columns or walls. In these cases, it is appropriate to also provide a fire-resistance rating as required for type of construction, which is addressed in this proposal as well.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Since IBC Section 603.1 doesn't list equipment platforms as an item that can be constructed of combustible materials in a Type I or II building, it is believed that most designers and jurisdictions are currently requiring equipment platform materials to be consistent with those permitted for the type of construction. This is consistent with the current intent of the code to limit combustible materials in non-combustible construction types. Therefore, this proposal will have no cost impact relative to current design and enforcement practices.

G101-25

G102-25

IBC: 506.2.1

Proponents: Brendan Smith, representing CannonDesign (bsmith@cannondesign.com); Scott C Whitehead, representing CannonDesign (swhitehead@cannondesign.com); David Przeklasa, representing CannonDesign (dprzeklasa@cannondesign.com); David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Building Code

SECTION 506
BUILDING AREA

Revise as follows:

506.2.1 Single-occupancy buildings. The allowable area of each *story* of a single-occupancy *building* shall be determined in accordance with Equation 5-1:

$$A_a = A_t + (NS \times I_f) \qquad \textbf{(Equation 5-1)}$$

where:

A_a = Allowable area (square feet).

A_t = Tabular allowable area factor (NS, S1, S13R~~, or~~ S13D or SM value, as applicable) in accordance with Table 506.2.

NS = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered *building* (regardless of whether the *building* is sprinklered).

I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

The allowable area per *story* of a single-occupancy *building* with a maximum of three *stories* above grade plane shall be determined by Equation 5-1. The total allowable area of a single-occupancy building more than three *stories above grade plane* shall be determined in accordance with Equation 5-2:

$$A_a = [A_t + (NS \times I_f)] \times S_a \qquad \textbf{(Equation 5-2)}$$

where:

A_a = Allowable area (square feet).

A_t = Tabular allowable area factor (NS, S13R, S13D or SM value, as applicable) in accordance with Table 506.2.

NS = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered *building* (regardless of whether the *building* is sprinklered).

I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

S_a = 3 where the actual number of *stories above grade plane* exceeds three, or

S_a = 4 where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.2.

The actual area of any individual floor shall not exceed the allowable area per Equation 5-1.

Reason: SMITH/WHITEHEAD/PRZEKLASA: Equation 5-1 is for establishing allowed area per story. If "SM" is not included here, there is no other way to determine the per story allowable area of a building classified as "SM" by Table 506.2. It appears to have been omitted by mistake.

RENN: There was a code change in the 2021 IBC, based on proposal G85-18, that was intended to be "an editorial reorganization of text". The change requires buildings three stories maximum to use Eq. 5-1 for allowable area of each story, which results in the allowable area of a two-story building being twice the value from Eq. 5-1 and the allowable area of a three-story building being three times the value from Eq. 5-1. However, Eq. 5.1 includes a tabular allowable area factor, A_t, that does not include an SM (sprinklered multi-story) value for Table 506.2. Since SM is not included, it is unclear how you would calculate the allowable area for a two- or three-story building. If designers use the S1 (sprinklered single-story) values for a two- or three-story building, there is a significant increase in allowable area from what was allowed before, which was not the intent of G85-18.

This proposal addresses the issue above by simply adding SM into the definition of A_t for Eq. 5-1, which results in the same allowable building area as allowed prior to the 2021 IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

SMITH/WHITEHEAD/PRZEKLASA: It is simply a clarification to correct what appears to be an error in the current text. It will have no impact on the quality of any constructed area, and therefore no impact on the cost of any such constructed area.

RENN: This proposal is intended to fix an unintentional editorial error that was made in a code change for the 2021 IBC. Since Table 506.2 requires the use of NS, S1, S13R, S13D or SM, as applicable, it is believed that the SM values are currently being used as intended, so this change should not result in a change in construction cost.

G102-25

G103-25

IBC: SECTION 506, 506.2.1, 506.2.2, 506.2.3 (New), 506.2.4 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 506
BUILDING AREA

Revise as follows:

506.2.1 Single-occupancy buildings. The allowable area ~~of each~~ ~~*story*~~ of a single-occupancy *building* with no more than one story above grade plane shall be determined in accordance with Equation 5-1:

$$A_a = A_t + (NS \times I_f) \qquad \textbf{(Equation 5-1)}$$

where:
A_a = Allowable area (square feet).
A_t = Tabular allowable area factor (NS, S1, S13R or S13D value, as applicable) in accordance with Table 506.2.
NS = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered *building* (regardless of whether the *building* is sprinklered).
I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

~~The allowable area per *story* of a single-occupancy *building* with a maximum of three *stories* above grade plane shall be determined by Equation 5-1. The total allowable area of a single-occupancy building more than three *stories above grade plane* shall be determined in accordance with Equation 5-2:~~

$$\cancel{A_a = [A_t + (NS \times I_f)] \times S_a} \qquad \cancel{\textbf{(Equation 5-2)}}$$

~~where:~~
~~A_a = Allowable area (square feet).~~
~~A_t = Tabular allowable area factor (NS, S13R, S13D or SM value, as applicable) in accordance with Table 506.2.~~
~~*NS* = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered *building* (regardless of whether the *building* is sprinklered).~~
~~I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.~~
~~S_a = 3 where the actual number of *stories above grade plane* exceeds three, or~~
~~S_a = 4 where the *building* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.2.~~

~~The actual area of any individual floor shall not exceed the allowable area per Equation 5-1.~~

506.2.2 Mixed-occupancy buildings. The allowable area of ~~each *story* of~~ a mixed-occupancy *building* with not more than one story above grade plane shall be determined in accordance with the applicable provisions of Section 508.1 based upon Equation 5-1 for each applicable occupancy.~~, Section 508.3.2 for nonseparated occupancies and Section 508.4.2 for separated occupancies.~~

~~For *buildings* with more than three *stories above grade plane,* the total *building area* shall be such that the aggregate sum of the ratios of the actual area of each *story* divided by the allowable area of such *stories*, determined in accordance with Equation 5-3 based on the applicable provisions of Section 508.1, shall not exceed three.~~

~~**(Equation 5-3)**~~

$$A_a = [A_t + (NS \times I_f)]$$

~~where:~~
~~A_a = Allowable area (square feet).~~
~~A_t = Tabular allowable area factor (NS, S13R, S13D or SM value, as applicable) in accordance with Table 506.2.~~
~~*NS* = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered *building*, regardless of whether the building is sprinklered.~~

~~I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.~~

> ~~**Exception:** For *buildings* designed as separated occupancies under Section 508.4 and equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.2, the total *building area* shall be such that the aggregate sum of the ratios of the actual area of each *story* divided by the allowable area of such *stories* determined in accordance with Equation 5-3 based on the applicable provisions of Section 508.1, shall not exceed four.~~

Add new text as follows:

506.2.3 Single-occupancy, multistory buildings.. The allowable area of a single-occupancy building with more than one *story above grade plane* shall be determined in accordance with Equation 5-2:

$$A_a = [A_t + (NS \times I_f)] \times S_a$$ **(Equation 5-2)**

where:
A_a = Allowable area (square feet).
A_t = Tabular allowable area factor (NS, S13R, S13D or SM value, as applicable) in accordance with Table 506.2.
NS = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered *building* (regardless of whether the *building* is sprinklered).
I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.
S_a = Actual number of building *stories* above grade plane, not to exceed three. For buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.2, use the actual number of building *stories above grade plane*, not to exceed four.

506.2.4 Mixed-occupancy, multistory buildings.. Each story of a mixed occupancy building with more than one *story above grade plane* shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three *stories above grade plane*, the total building area shall be such that the aggregate sum of the ratios of the actual area of each *story* divided by the allowable area of such stories, determined in accordance with Equation 5-3 based on the applicable provisions of Section 508.1, shall not exceed three.

$$A_a = [A_t + (NS \times I_f)]$$ **(Equation 5-3)**

where:
A_a = Allowable area (square feet).
A_t = Tabular allowable area factor (NS, S13R, S13D or SM value, as applicable) in accordance with Table 506.2.
NS = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered *building* (regardless of whether the *building* is sprinklered).
I_f = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

> **Exception:** For buildings designed as separated occupancies under Section 508.4 and equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.2, the total building area shall be such that the aggregate sum of the ratios of the actual area of each *story* divided by the allowable area of such stories determined in accordance with Equation 5-3 based on the applicable provisions of Section 508.1, shall not exceed four.

Reason: This proposal addresses the unintended consequence of a modification made by G85-18 AM. G85-18 AM states that “this change because it is simply an editorial reorganization of existing text”, However, there are unintended consequences to this proposal that we are addressing.

The sections equations as written result in two different results for the allowable area per story and total allowable area for a 2 and 3 story sprinklered buildings, between the 2018 and 2021 Editions. If the intent was to keep the results the same and only simplify organization of the formulas, there is an error

In the 2018 Edition of the IBC, for multistory buildings, no story can exceed SM + If X NS. This is consistent with 2018 IBC Equation 5-2.

However, in 2021 IBC, no individual story in a multistory building shall exceed S1 + If X NS, since Equation 1 does not have SM as one of the allowable area factors. Assuming there was no change to the results of the formulas, just their organization between 2018 and 2021 IBC.

See example below:

If we follow IBC 2018, Aa = [At + (NS X If) X Sa] = [69,000 (SM) + 23,000 X 0] X 3 = 207,000. And no individual story shall exceed Aa using Sa = 1, then the calculation is Aa = [At + (NS X If) X Sa] = [69,000 (SM) + 23,000 X 0] X 1 = 69,000.

If we follow IBC 2021, Equation 5-1 (which does not have SM) says Aa = At + (NS X If) = 92,000 + (23,000 X 0) = 92,000 is the maximum area per story. Equation 5-2 technically does not apply because it is only for “buildings more than three stories above grade plane.”

Assuming this wording is correct, then we only have Equation 5-1 for our 3 story Business building, which is permitted to have 92,000 sf per story and by extension, if each story were built to its maximum 92,000 sf, it would be permitted to be 276,000 sf total. These are drastically different results, and it would seem the 2018 calculation is correct since it is using the SM value, not S1, since the single-story buildings get an area increase compared to their multistory counterparts and applying S1 to a multistory building does not follow logic. It would seem that these results are incorrect due to the modification to Equation 5-2 in the 2021 Edition.

BCAC proposal correct this unintended consequence by overturning the changes from G85-18 and go back to the 2018 code text

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impact - reverts to original indented equations in 2018 IBC

G103-25

G104-25

IBC: TABLE 506.2

Proponents: Greg Johnson, Johnson & Associates Consulting Services, representing self (gjohnsonconsulting@gmail.com); Robert Buchetto, HED, representing Self (rbuchetto@hed.design); Jay Peters, representing Codes and Standards International (peters.jay@me.com)

2024 International Building Code

TABLE 506.2 ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET[a, b]

Portions of table not shown remain unchanged.

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
	NS	UL	48,000	26,000	17,500	26,000	17,500	76,500	51,000	31,875	25,500	14,000	9,000
D	S1	UL	192,000	104,000	70,000	104,000	70,000	306,000	204,000	127,500	102,000	56,000	36,000
	SM	UL	144,000	78,000	52,500	78,000	52,500	229,500	153,000	95,625	76,500	42,000	27,000

For SI: 1 square foot = 0.0929 m^2.

UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable area in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building area in accordance with the *International Existing Building Code*.

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and with Section 1103.5 of the *International Fire Code*.

g. New Group I-4 occupancies see Exceptions 2 and 3 of Section 903.2.6.

h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

i. The maximum allowable area for a single-story nonsprinklered Group U greenhouse is permitted to be 9,000 square feet, or the allowable area shall be permitted to comply with Table C102.1 of Appendix C.

Reason: Data centers are unique occupancies and need their own occupancy classification to better inform designers and AHJs. Currently data centers are frequently classified as Group S-1 occupancies. The values proposed for Group D occupancies matches those allowed for Group S-1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Data centers are currently being constructed with these provisions. Assigning a newly named occupancy classification will not impact costs.

G104-25

G105-25

IBC: 506.3.2, 506.3.3, TABLE 506.3.3, 506.3.3.1, TABLE 506.3.3.1

Proponents: Jeffrey Grove, representing Coffman Engineers (jeff.grove@coffman.com)

2024 International Building Code

SECTION 506
BUILDING AREA

Revise as follows:

506.3.2 Minimum frontage distance. To qualify for an area factor increase based on frontage, the *public way* or open space adjacent to the *building* perimeter shall have a minimum distance of <u>(W)</u> 20 feet (6096 mm) measured at right angles from the *building* face to any of the following:

1. The closest interior *lot line*.
2. The entire width of a street, alley or *public way*.
3. The exterior face of an adjacent *building* on the same property.

~~The frontage increase shall be based on the smallest *public way* or open space that is 20 feet (6096 mm) or greater, and the percentage of *building* perimeter having a minimum 20 feet (6096 mm) *public way* or open space.~~

<u>Where the value of W is greater than 30 feet (9144 mm), a value of 30 feet (9144 mm) shall be used in calculating the building area increase based on frontage, regardless of the actual width of the *public way* or open space. Where the value of W varies along the perimeter of the building, the calculation performed in accordance with Equation 5-5 shall be based on the weighted average calculated in accordance with Equation 5-4.</u>

<u>$W = (L_1 \times w_1 + L_2 \times w_2 + L_3 \times w_3 \ldots)/F$</u> **<u>(Equation 5-4)</u>**

<u>where: W (Width: weighted average = Calculated width of *public way* or open space (feet).</u>

<u>L_n = Length of a portion of the exterior perimeter wall.</u>

<u>w_n = Width (≥ 20 feet (6096mm)) of *public way* or open space associated with that portion of the exterior perimeter wall.</u>

<u>F = Building perimeter that fronts on a *public way* or open space having a width of 20 feet (6096 mm) or more.</u>

<u>Exception:</u> <u>Where a building space meets the requirements of Section 507, as applicable, except for compliance with minimum 60 foot (18288 mm) public way or yard requirement, and the value of W is greater than 30 feet (9144 mm), the value of W shall not exceed 60 feet (18,288 mm)</u>

506.3.3 Amount of increase. The area factor increase based on frontage shall be determined in accordance with ~~Table 506.3.3~~ <u>Equation 5-5</u>.

<u>$I_f = [F/P - 0.25]W/30$</u> **<u>(Equation 5-5)</u>**

<u>where: I_f = Area factor increase due to frontage.</u>

<u>F = Building perimeter that fronts on a public way or open space having minimum distance of 20 feet (6096 mm).</u>

<u>P = Perimeter of entire building (feet).</u>

<u>W = Width of public way or open space (feet) in accordance with Section 506.3.2.</u>

Delete without substitution:

~~TABLE 506.3.3 FRONTAGE INCREASE FACTOR[a]~~

~~PERCENTAGE OF BUILDING PERIMETER~~	~~OPEN SPACE (feet)~~		
	~~20 to less than 25~~	~~25 to less than 30~~	~~30 or greater~~
~~0 to less than 25~~	~~0~~	~~0~~	~~0~~
~~25 to less than 50~~	~~0.17~~	~~0.21~~	~~0.25~~
~~50 to less than 75~~	~~0.33~~	~~0.42~~	~~0.50~~
~~75 to 100~~	~~0.50~~	~~0.63~~	~~0.75~~

~~For SI: 1 foot = 304.8 mm.~~

~~a. Interpolation is permitted.~~

~~**506.3.3.1 Section 507 buildings.** Where a *building* meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot (18 288 mm) *public way* or *yard* requirement, the area factor increase based on frontage shall be determined in accordance with Table 506.3.3.1. The frontage increase shall be based on the smallest *public way* or open space that is 30 feet (9144 mm) or greater, and the percentage of *building* perimeter having a minimum 30 feet (9144 mm) *public way* or open space.~~

~~TABLE 506.3.3.1 SECTION 507 BUILDINGS~~[a]

~~PERCENTAGE OF BUILDING PERIMETER~~	~~OPEN SPACE (feet)~~					
	~~30 to less than 35~~	~~35 to less than 40~~	~~40 to less than 45~~	~~45 to less than 50~~	~~50 to less than 55~~	~~55 or greater~~
~~0 to less than 25~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
~~25 to less than 50~~	~~0.29~~	~~0.33~~	~~0.38~~	~~0.42~~	~~0.46~~	~~0.50~~
~~50 to less than 75~~	~~0.58~~	~~0.67~~	~~0.75~~	~~0.83~~	~~0.92~~	~~1.00~~
~~75 to 100~~	~~0.88~~	~~1.00~~	~~1.13~~	~~1.25~~	~~1.38~~	~~1.50~~

~~For SI: 1 foot = 304.8 mm.~~

~~a. Interpolation is permitted.~~

Attached Files

- **Frontage Code Change Proposal Attachment.pdf**
  https://www.cdpaccess.com/proposal/11775/35718/files/download/8994/

Reason: This proposal addresses the unintended consequence of a modification made by G86-18 during the 2021 IBC Code Development Process. G86-18 states that the values in the new frontage factor table (2021 and 2024 IBC Editions) are based on the calculation using Equation 5-5 of the 2018 IBC. However, as you will read below, the frontage factors that are determined using the 2018 IBC vs. the 2021/2024 IBC method are not the same.

In the 2018 Edition of the IBC, the frontage factor (I_f) was determined using an equation that would calculate a value based on a weighted average of the available width of the public way along the building perimeter. In the revision cycle for the 2021 IBC, a code change proposal was approved to simplify the process of determining the frontage factor by providing values in a table format. Per the code change proposal, the proponent argued that “values in the table are based on the calculations using Equation 5-5” of the 2018 IBC. The code change was approved and included in the 2021 and 2024 IBC. The following examples will demonstrate that the 2021/2024 IBC tabular method produces results that are inconsistent with the 2018 IBC calculation method. The main difference between the two methods is that the 2018 IBC method utilizes a weighted average of the available frontage along the building perimeter that fronts on a public way of at least 20 feet; whereas the 2021/2024 IBC method is based on the smallest public way that is 20 feet or greater. This approach can be restrictive for buildings that have a majority of their building perimeter fronting public ways well over 20 feet in width, but have a small portion with a frontage width of only 20 feet. By limiting the frontage factor to the smallest public way, rather than allowing for a weighted average, building configurations will be limited. This disparity is the reason that we believe that the area factor should be calculated using the previous weighted average width calculation method provided in the 2018 IBC.

Additionally, the G86-18 proposal states the frontage increase is easier to determine in the table format because previously, readers were using the wrong value from the area table (Table 506.2). The proponent argues that code users often confused the NS value with the S1 or SM value and that the new frontage factor table will eliminate this confusion. IBC Table 506.2 is not used in determining the frontage factor in either the 2018 or 2021/2024 IBC methods. Once the frontage factor (I_f) is determined, the code user still has to insert the factor into Equation 5-1, 5-2, or 5-3 and select the appropriate NS value from Table 506.2, regardless of which method is used.

Attached to this document are example buildings in various configurations to demonstrate the discrepancies that result in calculating the frontage factor with the 2018 IBC and 2021/2024 IBC methods. Results are outlined below. Below, we present exemplary cases of the various building configurations we studied and their frontage factor results:

1. This building has three sides which can be included in the frontage factor calculation (public way ≥ 20 feet). Using the 2021/2024 IBC tabular method, a frontage factor of 0.33 is produced. If interpolation is performed, as allowed by the Table 506.3.3 footnote, the result is 0.35. Using the 2018 IBC equation method, a result of 0.48 is calculated.
2. This Type IB building meets the requirements for unlimited area buildings of IBC 507, with the exception of the minimum 60-foot public way requirement. Using the 2021/2024 IBC tabular method, a frontage factor of 1.00 is produced. If interpolation is performed, as allowed by the Table 506.3.3 footnote, the result is 1.03. Using the 2018 IBC equation method, a result of 1.16 is calculated.
3. This building was designed as a perfect square, but one side fronts on a public way of only 19 feet. Using the 2021/2024 IBC tabular method, a frontage factor of 0.75 is produced. Using the 2018 IBC equation method, a result of 0.50 is calculated.

As demonstrated in the examples above, the 2021/2024 IBC tabular method does not provide results consistent with the previous 2018 IBC calculation. Therefore, the 2021 IBC code change proponent's statement that values in the 2021/2024 IBC tables are based on the calculations using 2018 IBC Equation 5-5 is inaccurate. We propose that the code language revert back to the previous method of determining the frontage factor, as this approach does not restrict buildings to their smallest public way width. Rather it is balanced by providing greater area increases for buildings with larger frontage widths and smaller area increases for buildings with minimal frontage widths.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is submitted to address unintended errors when calculating the allowable building area. Therefore, this is a code clarification and no impact to the cost of construction.

G105-25

G106-25

IBC: 507.2.1, 507.2.1.1 (New), 506.3.3.1, TABLE 506.3.3.1

Proponents: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2024 International Building Code

Revise as follows:

507.2.1 Reduced open space. The *public ways* or *yards* of 60 feet (18 288 mm) in width required in Sections 507.3, 507.4, 507.5, 507.6 and 507.12 shall be permitted to be reduced per Section 507.2.1.1 or 507.2.1.2 ~~to not less than 40 feet (12 192 mm) in width, provided that the following requirements are met:~~

1. ~~The reduced width shall not be allowed for more than 75 percent of the perimeter of the *building*.~~
2. ~~The *exterior walls* facing the reduced width shall have a *fire-resistance rating* of not less than 3 hours.~~
3. ~~Openings in the *exterior walls* facing the reduced width shall have opening protectives with a *fire protection rating* of not less than 3 hours.~~

Add new text as follows:

507.2.1.1 Obstructed open space. *Public ways* or *yards* of 60 feet (18 288 mm) in width required in Sections 507.3, 507.4, 507.5, 507.6 and 507.12 shall be permitted to be reduced to not less than 40 feet (12 192 mm) in width, provided that the following requirements are met:

1. The reduced width shall not be allowed for more than 75 percent of the perimeter of the *building*.
2. The *exterior walls* facing the reduced width shall have a *fire-resistance rating* of not less than 3 hours.
3. Openings in the *exterior walls* facing the reduced width shall have opening protectives with a *fire protection rating* of not less than 3 hours.

Revise as follows:

~~506.3.3.1~~ 507.2.1.2 ~~Section 507 buildings~~ Reduced frontage increase. Where a *building* meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot (18 288 mm) *public way* or *yard* requirement, the area factor increase based on frontage shall be determined in accordance with Table ~~506.3.3.1.~~ 507.2.1.2.The frontage increase shall be based on the smallest *public way* or open space that is 30 feet (9144 mm) or greater, and the percentage of *building* perimeter having a minimum 30 feet (9144 mm) *public way* or open space.

TABLE ~~506.3.3.1~~ 507.2.1.2 ~~SECTION 507 BUILDINGS~~[a] ALTERNATIVE REDUCED OPEN SPACE ~~Reduced open space~~

PERCENTAGE OF BUILDING PERIMETER	OPEN SPACE (feet)					
	30 to less than 35	35 to less than 40	40 to less than 45	45 to less than 50	50 to less than 55	55 or greater
0 to less than 25	0	0	0	0	0	0
25 to less than 50	0.29	0.33	0.38	0.42	0.46	0.50
50 to less than 75	0.58	0.67	0.75	0.83	0.92	1.00
75 to 100	0.88	1.00	1.13	1.25	1.38	1.50

For SI: 1 foot = 304.8 mm.

a. Interpolation is permitted.

Reason: The proposed code change is editorial in nature and proposes to relocate reduce frontage requirements for unlimited area buildings to be located in Section 507 where the regulations appropriately belong. It is not intuitive to go to Section 506 to look for the requirements where they exist, and it is not clear whether you use either the Section 506 rules or the Section 507 rules. The code change that resulted in the revisions shown in Section 506 was a part of a multi-part code change. It was not clear the reason why the building standard was not included in the unlimited area section. G86-18 appears to have been the code change and is attached.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change relocates a requirement.

G106-25

G107-25

IBC: 506.3.3.1, TABLE 506.3.3.1

Proponents: Ali Fattah, City of San Diego Development Services Department, representing San Diego Area Chapter of ICC (afattah@sandiego.gov)

2024 International Building Code

507.2.1 Reduced open space. The *public ways* or *yards* of 60 feet (18 288 mm) in width required in Sections 507.3, 507.4, 507.5, 507.6 and 507.12 shall be permitted to be reduced to not less than 40 feet (12 192 mm) in width, provided that the following requirements are met:

1. The reduced width shall not be allowed for more than 75 percent of the perimeter of the *building*.
2. The *exterior walls* facing the reduced width shall have a *fire-resistance rating* of not less than 3 hours.
3. Openings in the *exterior walls* facing the reduced width shall have opening protectives with a *fire protection rating* of not less than 3 hours.

Revise as follows:

~~506.3.3.1~~ 507.2.1.1 Section 507 buildings. Where a *building* meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot (18 288 mm) *public way* or *yard* requirement, the area factor increase based on frontage shall be determined in accordance with Table 507.2.1.1 ~~506.3.3.1~~. The frontage increase shall be based on the smallest *public way* or open space that is 30 feet (9144 mm) or greater, and the percentage of *building* perimeter having a minimum 30 feet (9144 mm) *public way* or open space.

TABLE ~~506.3.3.1~~ 507.2.1.1 SECTION 507 BUILDINGS[a]

PERCENTAGE OF BUILDING PERIMETER	OPEN SPACE (feet)					
	30 to less than 35	35 to less than 40	40 to less than 45	45 to less than 50	50 to less than 55	55 or greater
0 to less than 25	0	0	0	0	0	0
25 to less than 50	0.29	0.33	0.38	0.42	0.46	0.50
50 to less than 75	0.58	0.67	0.75	0.83	0.92	1.00
75 to 100	0.88	1.00	1.13	1.25	1.38	1.50

For SI: 1 foot = 304.8 mm.

a. Interpolation is permitted.

Reason: The proposed code change is editorial and co-locates requirements allowing reduced frontage for unlimited area buildings with the remainder of the requirements. Code users will go to the unlimited area building Section 507 and would not think to go back to Section 506 that discusses determination of allowable building area and that also includes area increases due to frontage. Interesting the relocated Section and associated table actually reduce the area of unlimited area buildings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is not change in regulatory effect proposed.

G107-25

G108-25

IBC: 507.4

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 507
UNLIMITED AREA BUILDINGS

Revise as follows:

507.4 Sprinklered, one-story buildings. The area of a Group A-4 *building* not more than one *story above grade plane* of other than Type V construction, or the area of a Group B, F, M or S *building* no more than one *story above grade plane* of any construction type, shall not be limited where the *building* is provided with an *automatic sprinkler system* throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Exceptions:

1. *Buildings* and *structures* of Type I or II construction for rack storage *facilities* that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Sections 507.4 and 903.3.1.1 and Chapter 32 of the *International Fire Code*.
2. The *automatic sprinkler system* shall not be required in areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities in occupancies in Group A-4, provided that all of the following criteria are met:
   2.1. *Exit* doors directly to the outside are provided for occupants of the participant sports areas.

   2.2. The *building* is equipped with a *fire alarm system* with *manual fire alarm boxes* installed in accordance with Section 907.

   2.3. An *automatic sprinkler system* is provided in enclosed spaces ancillary to the sport activity space, such as storage rooms, press boxes, or concession booths ~~or other spaces ancillary to the sport activity space~~.

   2.4. Sprinklers are not required over the bench or bleachers seating providing all the following criteria are met:

   2.4.1. Every part of the roof construction over the seating is 20 feet or more above the highest foot board of the seating.

   2.4.2. The highest foot board of the bleacher is at 30 inches or less above the floor.

   2.4.3. The seating is adjacent to the participant sports areas.

Reason: G146-15 added Item 2.3. The revisions to this item are intended as a clarification.

With the addition of Exception 2.3, there is a question about if sprinklers are required over seating to view the events. G146-15, which was approved as submitted, required automatic sprinkler protection to “storage rooms, press boxes, concession booths or other spaces ancillary to the sport activity space”. The reason statement for this previous code change outlined that “it is appropriate to eliminate fire sprinklers in the large open spaces of these facilities”.

The current code commentary states the following:

“The spectator seating is usually situated around the perimeter of the sports field or area. These types of indoor recreation areas often require very large, open areas with such high ceilings that the installation of an automatic sprinkler system in the immediate participant sport area would be ineffective. The potential for significant fire involvement in such an area is generally quite low because of the low fuel load; therefore, sprinkler coverage is unnecessary for the playing field in most of these buildings. These areas are, therefore, exempt from the suppression requirement of this section, provided that the conditions regarding exiting and the required fire alarm system are met”.

For the uses listed in Exception No. 2, the limited hazard presented by the spectator seating areas is no greater than that of the participant sports areas.   Hence, this code change proposal provides clarification as to where automatic sprinkler protection is not required.

The intent of item 2.4 is to limit the size of the seating so a sprinkler exception is not over seating in arenas type arrangements with large crowds, but rather the many sports facilities where the seating is for participants or limited viewers. This would allow for telescopic, permanent or temporary bleachers – typically of 2 or 3 rows. This is not addressing the combustibility of the bleachers. There was a code change proposal for the IBC/IFC (E107-21 D) and the ICC 300 last cycle to require non-combustible bleachers. This was disapproved for both documents. The bleachers would not be a significant fuel load. The 20’ above the seating is based on Section Table 601 footnote b where the roof is not required to be rated.

The following are recommended ceiling height for common indoor sports:

Sport	Height
Tennis	30’
Pickle ball	18’
Basketball	17’
Indoor soccer	24’
Standard school gym	25’
Volleyball	23’

Example 1

Example 2

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is clarification for the exceptions for sprinklers over sports areas with bleachers. This is not a change in requirements for sprinklers.

G108-25

G109-25

IBC: 507.4, 507.5

Proponents: Greg Johnson, Johnson & Associates Consulting Services, representing self (gjohnsonconsulting@gmail.com); Robert Buchetto, HED, representing Self (rbuchetto@hed.design); Jay Peters, representing Codes and Standards International (peters.jay@me.com)

2024 International Building Code

Revise as follows:

507.4 Sprinklered, one-story buildings. The area of a Group A-4 *building* not more than one *story above grade plane* of other than Type V construction, or the area of a Group B, D, F, M or S *building* no more than one *story above grade plane* of any construction type, shall not be limited where the *building* is provided with an *automatic sprinkler system* throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Exceptions:

1. *Buildings* and *structures* of Type I or II construction for rack storage *facilities* that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Sections 507.4 and 903.3.1.1 and Chapter 32 of the *International Fire Code*.
2. The *automatic sprinkler system* shall not be required in areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities in occupancies in Group A-4, provided that the following criteria are met:
   - 2.1. *Exit* doors directly to the outside are provided for occupants of the participant sports areas.
   - 2.2. The *building* is equipped with a *fire alarm system* with *manual fire alarm boxes* installed in accordance with Section 907.
   - 2.3. An *automatic sprinkler system* is provided in storage rooms, press boxes, concession booths or other spaces ancillary to the sport activity space.

507.5 Two-story buildings. The area of a Group B, D, F, M or S *building* not more than two *stories above grade plane* shall not be limited where the *building* is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Reason: Data centers are unique building uses and are being proposed to be added to the code under their own occupancy classification (Group D). As such, the code must provide requirements for this new classification. Group D buildings are generally proposed to meet the criteria of F or S uses which is consistent with the occupancies currently being assigned to these buildings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The assignment of an occupancy classification to data centers does not automatically increase any costs as these buildings are currently being constructed (typically assigned as an F or S use) with these same technical requirements.

G109-25

G110-25

IBC: 507.11

Proponents: David Bueche, representing Hoover Treated Wood Products (dbueche@frtw.com)

2024 International Building Code

Revise as follows:

507.11 Group E buildings. The area of a Group E building not more than one *story above grade plane*, of Type II, ~~IIIA~~III or IV construction, shall not be limited provided that the following criteria are met:

1. Each classroom shall have not less than two *means of egress*, with one of the *means of egress* being a direct exit to the outside of the *building* complying with Section 1022.
2. The building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The building is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Reason: In Table 601, the hourly fire-resistance rating for bearing walls, both exterior and interior, in Type IIB construction is 0 hours. In Type IIIB construction, the hourly fire-resistance rating for exterior bearing walls is 2 hours and 0 hours for interior bearing walls. In Table 602, for Group E (Educational) occupancies, the most restrictive categories for exterior nonbearing walls and partitions have a 1-hour rating, based on fire separation distance. Yet, Type IIB allows for a 0-hour rating when the fire-separation distance is at least 10 feet but less than 30 feet.

In other words, the hourly fire-resistance rating requirements for Type IIIB construction is just as, and in some cases, more restrictive when compared to Type IIB construction (i.e., 2 hours for exterior bearing walls in Type IIIB vs. 0 hours for Type IIB). However, Type IIB is allowed in this code provision, and Type IIIB is not.

Finally, note that for Group A-3 buildings, Types II (507.6) and III (507.7) construction have essentially the same requirements with nearly identical language except that Type III has an additional requirement for ramps (507.7#3).

Removing the “A” in this proposal will allow Type IIIB construction with its stronger hourly fire-resistance requirements, thus improving building and life safety for educational buildings and their occupants.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0 impact, however, adding Type IIIB construction to this section of the code may decrease the cost of construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

This change will provide users with more options. Usually wood-frame construction materials and techniques are less expensive than comparable noncombustible types of construction with the same fire-resistance requirements.

G110-25

G111-25

IBC: 507.12

Proponents: David Bueche, representing Hoover Treated Wood Products (dbueche@frtw.com)

2024 International Building Code

Revise as follows:

507.12 Motion picture theaters. In *buildings* of Type II and III construction, the area of a motion picture theater located on the first *story above grade plane* shall not be limited where the *building* is provided with an *automatic sprinkler system* throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Reason: In Table 601, the most restrictive rating for bearing walls in Type II construction is 1 hour (Type IIA, exterior and interior). In Type III construction, the most restrictive rating for exterior bearing walls is 2 hours (in both Types IIIA and IIIB). In Table 602, for Group A (Assembly) occupancies, the most restrictive categories for exterior nonbearing walls and partitions have a 1-hour rating, based on fire separation distance.

In other words, the hourly fire-resistance rating requirements for Type III construction are just as, and in some cases, more restrictive compared to Type II construction (i.e., 2 hours for Type III vs. 1 hour for Type II).

Finally, note that for Group A-3 buildings, Types II (507.6) and III (507.7) construction have essentially the same requirements with nearly identical language except for Type III has an additional requirement for ramps (507.7#3).

Adding "Type III" to this exception will allow for exterior walls with higher hourly requirements, thus improving building and life safety for motion picture theaters and their occupants.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0 immediate impact. The addition of another use of fire-retardant-treated wood is simply an option to this section of the code that may decrease the cost of construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

This change will provide users with more options. Usually Type III construction is less expensive than Type II construction with the same fire-resistance requirements.

G111-25

G112-25

IBC: 508.1, 508.4.2

Proponents: William Koffel, Koffel Associates, Inc., representing Semiconductor Industry Association (wkoffel@koffel.com)

2024 International Building Code

SECTION 508
MIXED USE AND OCCUPANCY

Revise as follows:

508.1 General. Each portion of a *building* shall be individually classified in accordance with Section 302.1. Where a *building* contains more than one occupancy group, the *building* or portion thereof shall comply with the applicable provisions of Section 508.2, 508.3, 508.4 or 508.5, or a combination of these sections.

Exceptions:

1. Occupancies separated in accordance with Section 510.
2. Where required by ~~Table~~ Section 415.6.5, areas of Group H-1, H-2 and H-3 occupancies shall be located in a *detached building* or *structure*.

508.4.2 Allowable building area. In each *story*, the *building area* shall be such that the sum of the ratios of the actual *building area* of each separated occupancy divided by the allowable *building* area of each separated occupancy shall not exceed 1.

Exception: Where a minimum of 80 feet separates each Group H-2 and H-3 occupancy in a Group H-5 mixed-occupancy building of Type I construction, the allowable area of each Group H-2 and H-3 occupancy shall be permitted to determined in accordance with Section 506.2.

Reason: The proposal coordinates with the changes made to Section 415.6.5 during the Group A hearings. The requirements for a detached building are determined using Table 415.6.5 as directed by Section 415.6.5. As such, "Table" is revised to say "Section."

The change made to Section 415.6.5 applies the detached building requirements to Group H-2 and H-3 areas in a Group H-5 mixed occupancy building where the Group H-2 and H-3 areas are separated by a distance of at least 80 ft. In order to make these provisions work, the allowable area for such a building needs to increase. Using the current provisions, the ratio of the areas will exceed one for the Group H-2 and H-3 occupancies, even though the building area for a Group H-5 occupancy in a Type I building is unlimited.

Whereas the revisions to Section 415.6.5 "equate" an 80 foot separation to being comparable to a detached building, the proposal uses the same concept for determining allowable areas. The allowable area for each Group H-2 and H-3 area would be calculated the same as the allowable area for a detached building. It is understood that Section 508.2 is used to calculate building area but in this instance the same procedure would be used to calculate the area of each Group H-2 and H-3 area.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

The ability to construct larger semiconductor facilities without going through an alternative compliance method will decrease the cost of construction.

G112-25

G113-25

IBC: TABLE 508.4

Proponents: Greg Johnson, Johnson & Associates Consulting Services, representing self (gjohnsonconsulting@gmail.com); Robert Buchetto, HED, representing Self (rbuchetto@hed.design); Jay Peters, representing Codes and Standards International (peters.jay@me.com)

2024 International Building Code

Revise as follows:

TABLE 508.4 REQUIRED SEPARATION OF OCCUPANCIES (HOURS)[f]

Portions of table not shown remain unchanged.

OCCUPANCY	A, E		I-1[a], I-3, I-4		I-2		R[a]		F-2, S-2[b], U		B[e], D[g], F-1, M,S-1		H-1		H-2		H-3, H-4		H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
B[e], D[g], F-1, M, S-1	1	2	1	2	2	NP	1	2	1	2	N	N	NP	NP	2	3	1	2	1	NP

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.N = No separation requirement.NP = Not Permitted.

a. See Section 420.

b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but not to less than 1 hour.

c. See Sections 406.3.2 and 406.6.4.

d. Separation is not required between occupancies of the same classification.

e. See Section 422.2 for ambulatory care facilities.

f. Occupancy separations that serve to define fire area limits established in Chapter 9 for requiring fire protection systems shall also comply with Section 707.3.10 and Table 707.3.10 in accordance with Section 901.7.

g. See Table 509.1 for separations for rooms with energy storage systems using lithium-ion or lithium metal batteries.

Reason: Data centers are being proposed to be assigned a Group D occupancy classification. As such, provisions for separated uses must be provided. Current field practice often assigns and S-1 classification so proposed new Group D is added to the row containing S-1. A footnote is provided to reference incidental use Table 509.1 where a new row for lithium ion batteries will be added requiring sprinklers and a 2-hour fire separation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Data centers are typically be constructed currently with a 2 hour separation between the data hall and any accessory office spaces. This proposal mirrors current industry practices and should add no cost.

G113-25

G114-25

IBC: 509.4.2

Proponents: Ronald Geren, RLGA Technical Services, LLC, representing Self (ron@specsandcodes.com)

2024 International Building Code

SECTION 509
INCIDENTAL USES

Revise as follows:

509.4.2 Protection. Where Table 509.1 permits an *automatic sprinkler system* without a *fire barrier*, the incidental uses shall be separated from the remainder of the *building* by *smoke partitions* constructed in accordance with Section 710 with doors installed in accordance with Section 710.5.2.2 and 710.5.2.3~~construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor assembly below to the underside of the ceiling that is a component of a fire-resistance-rated floor assembly or roof assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic-closing upon detection of smoke in accordance with Section 716.2.6.6. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80. Walls surrounding the incidental use shall not have air transfer openings unless provided with *smoke dampers* in accordance with Section 710.8~~.

Reason: This just simplifies the paragraph. The requirements deleted are essentially the same requirements for smoke partitions. Since a smoke partition exists as an assembly, it makes sense to take advantage of that assembly. As a comparison, here are the requirements per Section 509.4.2 compared to the requirements for smoke partitions:

- Section 509.4.2: "[C]onstruction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor assembly below to the underside of the ceiling that is a component of a fire-resistance-rated floor assembly or roof assembly above or to the underside of the floor or roof sheathing, deck or slab above."
  - Smoke Partition, Definition per Section 202: "A wall assembly that extends from the top of the foundation or floor below to the underside of the floor or roof sheathing, deck or slab above or to the underside of the ceiling above where the ceiling membrane is constructed to limit the transfer of smoke."

    Commentary: These are nearly identical.
- Section 509.4.2: "Doors shall be self- or automatic-closing upon detection of smoke in accordance with Section 716.2.6.6."
  - Smoke Partition, Section 710.5.2.3: "Where required elsewhere in the code, doors in smoke partitions shall be self- or automatic-closing by smoke detection in accordance with Section 716.2.6.6."

    Commentary: Both sections refer to Section 716.2.6.6 for smoke-activated doors. Since the smoke partition requirement states, "Where required elsewhere in the code," this section is specifically mentioned in the proposed Section 509.4.2.
- Section 509.4.2: "Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80."
  - Smoke Partition, Section 710.5.2: "Doors in smoke partitions shall comply with Sections 710.5.2.1 through 710.5.2.3."

    Section 710.5.2.1: "Doors in smoke partitions shall not include louvers.

    "Exception: Where permitted in accordance with Section 407.3.1.1."

    Section 710.5.2.2: " Where required elsewhere in the code, doors in smoke partitions shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot [0.015424 m3/(s × m2)] of door opening at 0.10 inch of water (25 Pa) for both the ambient temperature test and the elevated temperature exposure test. Installation of smoke doors shall be in accordance with NFPA 105."

    Section 710.5.2.2.1: "Smoke and draft control doors complying only with UL 1784 shall be permitted to show the letter 'S' on the manufacturer's labeling."

    Section 710.5.2.3: Already covered in the comparison above.

Commentary: The original requirement only mentions the restriction on transfer openings and clearances per NFPA 80. NFPA 105, as referenced for smoke partitions, requires clearances complying with NFPA 80 (NFPA 105-22, Section 6.3.3). However, the smoke partition requirements take a step further by establishing specific air leakage performance "[w]here required elsewhere in the code." Thus, this section is specifically mentioned in Section 509.4.2.

- Section 509.4.2: "Walls surrounding the incidental use shall not have air transfer openings unless provided with smoke dampers in accordance with Section 710.8."
  - Smoke Partition, Section 710.8: "The space around a duct penetrating a smoke partition shall be filled with an approved material to limit the free passage of smoke. Air transfer openings in smoke partitions shall be provided with a smoke damper complying with Section 717.3.2.2.

    "**Exception:** Where the installation of a smoke damper will interfere with the operation of a required smoke control system in accordance with Section 909, approved alternative protection shall be utilized."

    Commentary: Since the original provision mentions Section 710.8, the proposed text does not need to make such a reference since it is required for smoke partitions.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Costs will be minimal since the original prescriptive requirements are nearly identical to the requirements for smoke partitions. The only cost increase will be for the "S" label (on doors and frames) and the smoke seals to comply with the leakage requirements that have been added.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost per door assembly for the label and the requisite seals around the perimeter will add $65 to $100 per opening. All other costs will remain the same. The majority of the cost will be for the "S" labels (about $40 for the door and frame) and $25 for the seals for a standard 3' by 7' door. Double doors will be at the higher end for the additional label and extra length of perimeter to seal.

G114-25

G115-25

IBC: 510.5

Proponents: Gabriel Levy, incandescence life safety, inc, representing Colorado Chapter Code Development Committee (glevy@incandescencels.com)

2024 International Building Code

SECTION 510
SPECIAL PROVISIONS

Revise as follows:

510.5 Group R-1 and R-2 buildings of Type IIIA construction. For *buildings* of Type IIIA construction in Groups R-1 and R-2, the maximum allowable height in Table 504.3 shall be increased by 10 feet (3048 mm) and the maximum allowable number of *stories* in Table 504.4 shall be increased by one where the ~~first~~ floor assembly above the *basement*, where provided, has a *fire-resistance rating* of not less than 3 hours and the floor area is subdivided by 2-hour fire-resistance-rated *fire walls* into areas of not more than 3,000 square feet (279 m^2).

Reason: This height increase should be allowed for buildings which are slab on grade, without a basement.
"First-floor" is language that is inconsistent with the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change proposal is a clarification and has no cost impact on the cost of construction for this option for special provisions.

G115-25

G116-25

IBC: 510.4, 510.7.1

Proponents: Bill McHugh, CM Services, Inc., representing National Fireproofing Contractors Association (bill@mc-hugh.us)

2024 International Building Code

SECTION 510 SPECIAL PROVISIONS

Revise as follows:

510.4 Parking beneath Group R. Where a maximum one *story above grade plane* Group S-2 parking garage, enclosed or open, or combination thereof, of Type I construction or open of Type IV construction, with grade entrance, is provided under a *building* of Group R, the number of *stories* to be used in determining the minimum type of construction shall be measured from the floor above such a parking area. The floor assembly between the parking garage and the Group R above shall comply with the type of construction required for the parking garage and shall also provide a *fire-resistance rating* not less than 4-hours or the mixed occupancy separation required in Section 508.4, whichever is greater.

510.7.1 Fire separation. *Fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711 between the parking occupancy and the upper occupancy shall correspond to the required *fire-resistance rating* prescribed in Table 508.4 for the uses involved or 4-hours, whichever is greater. The type of construction shall apply to each occupancy individually, except that structural members, including main bracing within the open parking *structure*, which is necessary to support the upper occupancy, shall be protected with the more restrictive fire-resistance-rated assemblies of the groups involved as shown in Table 601 or 4 hours, whichever is greater.*Means of egress* for the upper occupancy shall conform to Chapter 10 and shall be separated from the parking occupancy by *fire barriers* having not less than a 4- ~~2~~ hour *fire-resistance rating* as required by Section 707 with *self-closing* doors complying with Section 716 or *horizontal assemblies* having not less than a 4-~~2~~ hour *fire-resistance rating* as required by Section 711, with *self-closing* doors complying with Section 716. *Means of egress* from the *open parking garage* shall comply with Section 406.5.

Reason: The purpose of this code proposal is to address the items, risks present in parking garages below Group R occupancies. Whether it is an internal combustion engine, or battery technology powering vehicles or other devices, there is a risk in parking structures where these items are stored.

Most cars now have plastic gas tanks along with lots of plastics, used where metal was once used for bumpers, fender skirts, grilles, etc. The purpose of this proposal is to increase fire-resistance ratings from 2 hours to 4 hours for the parking garage structure, the floor above it, and the separating fire barriers, located in Group R buildings.

We have no idea when an or many electric vehicle(s) powered by lithium-ion or other type of batteries - or even an internal combustible engine will arrive and catch fire at a parking garage. Many apartment complexes with wood or other type of building element(s) on top of a parking structure - have this risk. How do I know? I just spent a year living in a Group R structure with the situation described above, 2 stories of parking, one at grade, one underground, topped by 5 stories of wood structure containing apartments.

The structure needs to withstand threats inside the building. The fire intensity and duration that lithium ion battery, other battery type, and internal combustion engine and plastic fires bring to these structures is amazing. The structures, and havens of safety need to survive and protect people. The floors above a parking garage(s) need to protect life as well, because people could be sleeping above the garage when these fires take place.

Fighting parking garage fires can be difficult. This is especially true when electric and internal combustion engine vehicles - and other items - are involved. We understand the water required to keep the batteries cool during thermal runaway is massive. Moving the vehicle outside the garage for burnout might not be an option in parking garages where exits can be a long way away, or on another floor.

The big question to ask; is the 2 hour fire-resistance-rating safe enough to protect people sleeping just above a parked vehicle or items stored that have erupted into flames with super intense heat located just under the horizontal assembly? What about the vehicle or items located next to a fire barrier shaft enclosure protecting the elevator and stairwell(s)?

The 4 hour fire-resistance rating is the highest practical fire-resistance rating that exists for most common construction building elements. The 4 hours is also the rating that current fire-resistance-rated assembly breach / opening / penetration / joint protection items such as fire-dampers, firestopping, fire rated doors, provide as well. With this rating the most stringent there is, it is fitting to be used to protect where risks and fuel loads are high.

Preventing fire spread with 4 hour fire barriers, 4 hour floors, horizontal assemblies, and protecting the structure with a 4 hour fire-resistance rating against collapse in parking garages is critical to safety and resilience. More importantly, this protects people from huge risks.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal will increase the cost of construction of the horizontal assembly, floor assembly, wall assembly by approximately 25% - 40% of only the assemblies required to have the increased fire-resistance rating. The cost will be absorbed into the rest of the building's cost of construction that is not required to be 4 hour fire-resistance rated.

The approximate cost addition is as follows:

- Shafts for elevators, stairwells with doors - Approx. 40-50 cents per sf of floor area (Approx. 2 stairwells, elevator, 2 mechanical shafts, or trash/other purposed shafts).
- Fireproofing - Approx. $0.75-1.00 per sf of floor area.

There is a new innovation in gypsum panels reducing labor costs for a 4-hour fire-resistance-rated assembly.

Estimated Immediate Cost Impact Justification (methodology and variables):

The protection is justified...because the assemblies are supporting people's homes. Apartments, condos, above these parking garages assume they are safe. The Lithium ion or other type of battery, internal combustion engine fire resulting from thermal runaway or other reason, is intense. The lithium ion battery fire has an immediate heat release, lasting a long time. The 4 hour fire-resistance-rated assembly is the closest cellulosic fire test we can get to provide longer protection to the horizontal assembly and walls in the garages - that also has listings for breach protection items. This meets the risk, in our opinion.

Estimated Life Cycle Cost Impact:

Maintaining protection of a 4 hour fire-resistance-rated assembly is no different than a 2 hour fire-resistance-rated assembly. There should be no increase in cost of maintaining protection.

G116-25

G117-25

IBC: 510.2

Proponents: Gabriel Levy, incandescence life safety, inc, representing Colorado Chapter Code Development Committee (glevy@incandescencels.com)

2024 International Building Code

SECTION 510
SPECIAL PROVISIONS

Revise as follows:

510.2 Horizontal building separation allowance. A *building* shall be considered as separate and distinct *buildings* for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where the following conditions are met:

1. The *buildings* are separated with a *horizontal assembly* without unconcealed vertical openings and having a *fire-resistance rating* of not less than 3 hours. Where a *horizontal assembly* contains vertical offsets, the vertical offset shall be constructed as a fire barrier in accordance with Section 707 and shall have a *fire-resistance rating* of not less than 3 hours.
2. The *building* below, including the *horizontal assembly* and any associated vertical offsets, is of Type IA construction.
3. *Shaft*, *stairway, ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided that the following conditions are met:

   1. The *building* above the *horizontal assembly* is not required to be of Type I construction.
   2. The enclosure connects fewer than four *stories*.
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.

4. *Interior exit stairways* located within the Type IA *building* are permitted to be of combustible materials where the following requirements are met:

   4.1. The *building* above the Type IA *building* is of Type III, IV, or V construction.

   4.2. The *stairway* located in the Type IA building is enclosed by 3-hour fire-resistance-rated construction with opening protectives in accordance with Section 716.

5. The *building* or buildings above the *horizontal assembly* shall be Group A, B, M, R or S occupancies.
6. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.

7, The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Reason: The code currently lacks explicit provisions prohibiting openings, including unenclosed exit access stairs, atria, escalators, or other similar elements, from going through podium assemblies. This oversight appears unintentional. Similar to fire walls, podium horizontal assemblies should only have rated or protected openings between construction types to prevent fire and smoke spread.

The term "unconcealed" vertical openings is used to align with the language for other types of vertical openings (IBC 712.1.2). The terms "unenclosed" or "unprotected" are not suitable for this requirement. Rated penetrations and protected ducts, while technically "unenclosed", are permissible through a podium. Similarly, exit access stairs with draft curtains and closely spaced sprinklers are considered "protected" but should not be allowed through podium assemblies.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change proposal is a clarification and has no cost impact on the cost of construction for horizontal assemblies.

G117-25

G118-25

IBC: TABLE 601

Proponents: Joseph Summers, Mashantucket Pequot Tribal Nation, representing Self

2024 International Building Code

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III					TYPE IV	TYPE V	
	A	B	A	B	A	B	A	B	C	HT	A	B
Primary structural frame[f] (see Section 202)	3[a, b]	2[a, b, c]	1[b, c]	0[c]	1[b, c]	0	3[a]	2[a]	2[a]	HT	1[b, c]	0
Bearing walls												
Exterior[e, f]	3[a]	2[a]	1	0	2[a]	2[a]	3[a]	2[a]	2[a]	2[a]	1	0
Interior	3[a]	2[a]	1	0	1	0	3[a]	2[a]	2[a]	1/HT[g]	1	0
Nonbearing walls and partitionsExterior	See Table 705.5											
Nonbearing walls and partitionsInterior[d]	0	0	0	0	0	0	0	0	0	See Section 2304.11.2	0	0
Floor construction and associated secondary structural members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary structural members (see Section 202)	1$^1/_2$[b]	1[b, c]	1[b, c]	0[c]	1[b, c]	0	1$^1/_2$	1	1	HT	1[b, c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below. Fire-retardant-treated *wood* members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 705.5).

f. Not less than the fire-resistance rating as referenced in Section 704.9.

g. Heavy timber bearing walls supporting more than two floors or more than a floor and a roof shall have a fire-resistance rating of not less than 1 hour.

Reason: Have had a few projects of Type I-B construction with both primary structural frames and exterior load-bearing walls. In these situations the fire rating of the columns can be reduced by 1-hr when supporting a roof only, but exterior load-bearing walls do not offer this reduction. These situations creates a constructability issue since you have a 2 or 3-hr exterior wall and the roof construction that is bears on these walls is 1-hr rated.

This proposal is to offer the same 1-hr reduction for load-bearing walls as it does for primary structural frames.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Range from $10k to several $100k, depending on the size and complexity of the structure.

Estimated Immediate Cost Impact Justification (methodology and variables):

This will simplify the constructability of roofs resting on load-bearing walls.

Estimated Life Cycle Cost Impact:

this is primarily for during construction. However, over the life of the structure the potential cost for window and door replacements would reduced

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Depending on the method of the wall construction the windows and doors may be required to be fire-resistant rated and the adoption of this proposal would reduce the fire-resistant requirements for windows and doors, thus reducing the cost of future alterations/renovations.

G118-25

G119-25

IBC: TABLE 601

Proponents: Richard Walke, Creative Technology Inc. and CM Services, representing National Fireproofing Contractors Association (richwalke61@gmail.com)

2024 International Building Code

Revise as follows:

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV				TYPE V	
	A	B	A	B	A	B	A	B	C	HT	A	B
Primary structural frame[f] (see Section 202)	3[a, b]	2[a, b, c]	1[b, c]	0[c]	1[b, c]	0	3[a]	2[a]	2[a]	HT	1[b, c]	0
Bearing walls												
Exterior[e, f]	3	2	1	0	2	2	3	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	3	2	2	1/HT[g]	1	0
Nonbearing walls and partitionsExterior	See Table 705.5											
Nonbearing walls and partitionsInterior[d]	0	0	0	0	0	0	0	0	0	See Section 2304.11.2	0	0
Floor construction and associated secondary structural members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary structural members (see Section 202)	1 1/2[b]	1[b, c]	1[b, c]	0[c]	1[b, c]	0	1 1/2	1	1	HT	1[b, c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. ~~Except in Group F-1, H, M and S-1 occupancies,~~ Where every part of the roof construction is 20 feet or more above the floor or mezzanine immediately below, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking ~~where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below.~~ except where any of the following conditions apply:

   1. In Group F-1, H, M and S-1 occupancies.

   2. Where the roof is occupiable.

   Fire-retardant-treated *wood* members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 705.5).

f. Not less than the fire-resistance rating as referenced in Section 704.9.

g. Heavy timber bearing walls supporting more than two floors or more than a floor and a roof shall have a fire-resistance rating of not less than 1 hour.

Reason: The intent of this proposal is to prohibit the use of the “20 ft rule” stated in Exception b of Table 601 for occupiable roofs.

Footnote b as currently written reflects the facts that a roof is typically not occupied and that if sufficient distance exists between the floor below and the bottom side of the roof assembly there is little potential for the ignition of the roofing materials on top of the roof assembly. However, if the roof is occupiable, there is a need to protect those occupants through fire-resistance-rated construction just as if they were occupying the floor beneath the roof. As such, this proposal creates an exception to the use of the “20 ft rule” for occupiable roofs.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Based on industry and manufacturer input, this code proposal will increase the cost of construction by approximately $1 to $3 per square foot of roof assembly protected.

Estimated Immediate Cost Impact Justification (methodology and variables):

This includes materials and labor costs for a typical roof assembly. The total cost in any given building will depend upon the area of the roof assembly and whether or not the "20 ft rule" even applied.

G119-25

G120-25

IBC: TABLE 601

Proponents: Richard Walke, Creative Technology Inc. and CM Services, representing National Fireproofing Contractors Association (richwalke61@gmail.com)

2024 International Building Code

Revise as follows:

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III					TYPE IV	TYPE V	
	A	B	A	B	A	B	A	B	C	HT	A	B
Primary structural frame[~~f~~g] (see Section 202)	3[a, ~~b~~c]	2[a, ~~b,~~ c, d]	1[~~b,~~ c, d]	0[~~c~~d]	1[~~b,~~ c, d]	0	3[a]	2[a]	2[a]	HT	1[~~b,~~ c, d]	0
Bearing walls												
Exterior[~~e,~~ f, g]	3	2	1	0	2	2	3	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	3	2	2	1/HT[~~g~~h]	1	0
Nonbearing walls and partitions Exterior	See Table 705.5											
Nonbearing walls and partitions Interior[~~d~~e]	0	0	0	0	0	0	0	0	0	See Section 2304.11.2	0	0
Floor construction and associated secondary structural members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary structural members (see Section 202)	1 1/2[b, c]	1[b, c, d]	1[~~b,~~ c, d]	0[~~c~~d]	1[~~b,~~ c, d]	0	1 1/2[b]	1[b]	1[b]	HT	1[~~b,~~ c, d]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. The *fire-resistance rating* of an *occupiable roof* shall be equal to or greater than the required *fire-resistance rating* of the floor construction below.

~~b~~ c. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below. Fire-retardant-treated *wood* members shall be allowed to be used for such unprotected members.

~~c~~ d. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.

~~d~~ e. Not less than the fire-resistance rating required by other sections of this code.

~~e~~ f. Not less than the fire-resistance rating based on fire separation distance (see Table 705.5).

~~f~~ g. Not less than the fire-resistance rating as referenced in Section 704.9.

~~g~~ h. Heavy timber bearing walls supporting more than two floors or more than a floor and a roof shall have a fire-resistance rating of not less than 1 hour.

Reason: The purpose of this code proposal is two-fold. First, it provides protection to the occupants of the occupiable roof. Second, it provides clarity that the entire occupiable roof must be rated.

The first purpose is achieved by requiring an occupiable roof to have a fire-resistance rating equal to the required fire-resistance rating of the floor below. This provides the same degree of fire-resistance for occupants of the occupiable roof as the occupants on the floor below. The second purpose is achieved by reference to an occupiable roof instead of an occupiable space. It is not permitted to rate just that portion of the roof beneath the occupiable space. This proposal recognizes that the size of the occupied space can change after certificate of occupancy is granted. By rating the entire occupiable roof, changes can be made in the size of the occupiable space without the need to address fire-resistance again when the cost of fire-resistance is increased due to obstructed access from the underside of the roof assembly. Ducts, piping, ceiling grid hangers, all cause production to massively slow down when in the way of fireproofing operations regardless of protection material type.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Based on industry and manufacturer input, this code proposal will increase the cost of construction by approximately $1 to $3 per square foot of roof assembly protected.

Estimated Immediate Cost Impact Justification (methodology and variables):

This includes materials and labor costs for a typical roof assembly. The total cost in any given building will depend upon the area of the roof assembly.

G120-25

G121-25

IBC: TABLE 601

Proponents: Richard Walke, Creative Technology Inc. and CM Services, representing National Fireproofing Contractors Association (richwalke61@gmail.com)

2024 International Building Code

Revise as follows:

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III					TYPE IV	TYPE V	
	A	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**C**	**HT**	**A**	**B**
Primary structural frame[~~f~~g] (see Section 202)	3[a, ~~b~~c]	2[a, ~~b,~~ c, d]	1[~~b,~~ c, d]	0[~~c~~d]	1[~~b,~~ c, d]	0	3[a]	2[a]	2[a]	HT	1[~~b,~~ c, d]	0
Bearing walls												
Exterior[~~e,~~ f, g]	3	2	1	0	2	2	3	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	3	2	2	1/HT[~~g~~h]	1	0
Nonbearing walls and partitions Exterior	See Table 705.5											
Nonbearing walls and partitions Interior[~~d~~e]	0	0	0	0	0	0	0	0	0	See Section 2304.11.2	0	0
Floor construction and associated secondary structural members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary structural members (see Section 202)	$1^1/_2$[~~b~~c]	1[~~b,~~ c, d]	1[~~b,~~ c, d]	0[~~c~~b,d]	1[~~b,~~ c, d]	0[b]	$1^1/_2$	1	1	HT	1[~~b,~~ c, d]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. *Occupiable roofs* of single-story buildings without a required *fire-resistance ratings* on the floor construction of the first floor shall have a *fire-resistance rating* of 1 hr on the *occupiable roof.*

~~b~~ c. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below. Fire-retardant-treated *wood* members shall be allowed to be used for such unprotected members.

~~c~~ d. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.

~~d~~ e. Not less than the fire-resistance rating required by other sections of this code.

~~e~~ f. Not less than the fire-resistance rating based on fire separation distance (see Table 705.5).

~~f~~ g. Not less than the fire-resistance rating as referenced in Section 704.9.

~~g~~ h. Heavy timber bearing walls supporting more than two floors or more than a floor and a roof shall have a fire-resistance rating of not less than 1 hour.

Reason: The purpose of this code proposal is three-fold. First, it provides protection to the occupants of the occupiable roof. Second, it provides clarity that the entire occupiable roof must be rated.

The first purpose is achieved by requiring an occupiable roof to have a fire-resistance rating of 1 hr. This provides a reasonable period of time for the occupants of the occupiable roof to egress the building in the case of fire. The second purpose is achieved by reference to an occupiable roof instead of an occupiable space. It is not permitted to rate just that portion of the roof beneath the occupiable space. This proposal recognizes that the size of the occupied space can change after certificate of occupancy is granted. By rating the entire occupiable roof, changes can be made in the size of the occupiable space without the need to address fire-resistance again when the cost of fire-resistance is increased due to obstructed access from the underside of the roof assembly. Ducts, piping, ceiling grid hangers, all cause production to massively slow down when in the way of fireproofing operations regardless of protection material type.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Based on industry and manufacturer input, this code proposal will increase the cost of construction by approximately $1 to $3 per square foot of roof assembly protected.

Estimated Immediate Cost Impact Justification (methodology and variables):

This includes materials and labor costs for a typical roof assembly. The total cost in any given building will depend upon the area of the roof assembly.

G121-25

G122-25

IBC: TABLE 601

Proponents: Jeffrey Grove, representing Coffman Engineers (jeff.grove@coffman.com)

2024 International Building Code

Revise as follows:

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV				TYPE V	
	A	B	A	B	A	B	A	B	C	HT	A	B
Primary structural frame[f] (see Section 202)	3[a, b]	2[a, b, c]	1[b, c]	0[c]	1[b, c]	0	3[a]	2[a]	2[a]	HT	1[b, c]	0
Bearing walls												
Exterior[e, f]	3	2	1	0	2	2	3	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	3	2	2	1/HT[g]	1	0
Nonbearing walls and partitionsExterior	See Table 705.5											
Nonbearing walls and partitionsInterior[d]	0	0	0	0	0	0	0	0	0	See Section 2304.11.2	0	0
Floor construction and associated secondary structural members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary structural members (see Section 202)	$1^1/_2$[b]	1[b, c]	1[b, c]	0[c]	1[b, c]	0	$1^1/_2$	1	1	HT	1[b, c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below. ~~Fire-retardant-treated *wood* members shall be allowed to be used for such unprotected members.~~

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 705.5).

f. Not less than the fire-resistance rating as referenced in Section 704.9.

g. Heavy timber bearing walls supporting more than two floors or more than a floor and a roof shall have a fire-resistance rating of not less than 1 hour.

Reason: IBC 603.1 Item 1.3 permits fire-retardant treated wood in roof construction of Type I or II buildings. The final sentence of Table 601 footnote b creates redundancy and potential misinterpretation regarding FRT wood use. The current wording could incorrectly suggest FRT wood is limited to unprotected roof members above 20 feet, when it can be used in any Type I or II construction roof assembly meeting Table 601's fire-resistance requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal addresses the unintended redundancy and potential misinterpretation regarding FRT wood use. This code change proposal therefore has no impact to the cost of construction.

G122-25

G123-25

IBC: TABLE 601

Proponents: Jeffrey Grove, representing Coffman Engineers (jeff.grove@coffman.com)

2024 International Building Code

Revise as follows:

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV				TYPE V	
	A	B	A	B	A	B	A	B	C	HT	A	B
Primary structural frame[f] (see Section 202)	3[a, b]	2[a, b, c]	1[b, c]	0[c]	1[b, c]	0	3[a]	2[a]	2[a]	HT	1[b, c]	0
Bearing walls												
Exterior[e, f]	3	2	1	0	2	2	3	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	3	2	2	1/HT[g]	1	0
Nonbearing walls and partitionsExterior	See Table 705.5											
Nonbearing walls and partitionsInterior[d]	0	0	0	0	0	0	0	0	0	See Section 2304.11.2	0	0
Floor construction and associated secondary structural members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary structural members (see Section 202)	1 1/2[b]	1[b, c]	1[b, c]	0[c]	1[b, c]	0	1 1/2	1	1	HT	1[b, c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing, ~~and~~ decking , and portions of columns above 20 feet where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below. Fire-retardant-treated *wood* members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 705.5).

f. Not less than the fire-resistance rating as referenced in Section 704.9.

g. Heavy timber bearing walls supporting more than two floors or more than a floor and a roof shall have a fire-resistance rating of not less than 1 hour.

Reason: For columns that support roofs greater than 20 feet above any floor or mezzanine immediately below, Table 601 Footnote b is understood to primarily be enforced in two ways:

- Columns are required to be encased with fireproofing the full height of the column, including the area of the column 20 feet or more above any floor or mezzanine immediately below, or
- Columns are encased for the first 20 feet above any floor or mezzanine immediately below, with the height of the column above 20 feet permitted to be exposed. This interpretation is recognized by other standards (such as NFPA 101) but not explicit in the IBC codified language. This proposal helps to reinforce this interpretation.

This code modification proposes that fireproofing not be required for the column height above 20 feet, and retains the requirement for fireproofing less than or equal to 20 feet above the floor or mezzanine immediately below.

Encasement is intended to protect structural stability by delaying heating and weakening of structural framing elements due to fire exposure. Encasement is effective where structural members are exposed to high temperatures near to a fire with high fire exposure, with no substantial benefit to life safety and structural stability where encased members are remote from a fire with reduced fire exposure.

The prescriptive building code acknowledges this behavior in the current Table 601 Footnote b, by permitting primary structural frame members, roof framing and decking and every part of roof construction 20 feet or more above the floor or mezzanine immediately below to be exempt from fireproofing. The exemption of fireproofing greater than 20 feet above the floor or mezzanine acknowledges the lesser severity at higher elevations.

As heat transfer is a function of structural framing size and roof framing members are considerably smaller than columns, for an equivalent fire severity and exposed structural framing, roof framing members will be the limiting factor for structural stability compared to columns.

Given applied protection for roof framing is permitted to be exempt and structural framing for roof framing is considered to be the limiting factor for structural stability, portions of columns greater than 20 feet above the floor or mezzanine immediately below should also be permitted to be exempt for fireproofing, as the level of safety and structural stability is considered to be maintained for this condition.

Bibliography: NFPA 101, Life Safety Code

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposal will result in a cost decrease for fire-proofing columns above 20 feet in this scenario. The cost can vary significantly depending upon the fireproofing strategy, but a lower estimate is approximately $5 per square foot for cementitious coatings. For buildings with multiple tall columns which support the roof this can present significant savings.

Estimated Immediate Cost Impact Justification (methodology and variables):

Costing information was gathered with the assistance of installing contractors and vendors.

G123-25

G124-25

IBC: TABLE 601

Proponents: Charles Anderson, City of Minneapolis, representing Self (c.scott.anderson@minneapolismn.gov)

2024 International Building Code

Revise as follows:

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV				TYPE V	
	A	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**C**	**HT**	**A**	**B**
Primary structural frame[f] (see Section 202)	3[a, b]	2[a, b, c]	1[b, c]	0[c]	1[b, c]	0	3[a]	2[a]	2[a]	HT	1[b, c]	0
Bearing walls												
Exterior[e, f]	3	2	1	0	~~2~~ 1	~~2~~ 1	3	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	3	2	2	1/HT[g]	1	0
Nonbearing walls and partitions Exterior	See Table 705.5				1[e]	1[e]				See Table 705.5		
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	0	0	0	See Section 2304.11.2	0	0
Floor construction and associated secondary structural members (see Section 202)	2	2	1	0	1	0	2	2	2	HT	1	0
Roof construction and associated secondary structural members (see Section 202)	1 1/2[b]	1[b, c]	1[b, c]	0[c]	1[b, c]	0	1 1/2	1	1	HT	1[b, c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor or mezzanine immediately below. Fire-retardant-treated *wood* members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed for roof construction, including primary structural frame members, where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 705.5).

f. Not less than the fire-resistance rating as referenced in Section 704.9.

g. Heavy timber bearing walls supporting more than two floors or more than a floor and a roof shall have a fire-resistance rating of not less than 1 hour.

Reason: Under the UBC, the only legacy code I am familiar with, type III construction required exterior walls to be of non-combustible construction. This generally meant masonry or poured concrete construction. Bearing walls were required to be 4-hr rated and non-bearing walls were rated based on occupancy classification and Fire Separate Distance. Where FSD was 5 feet or less 4-hr rating was required. Where FSD was more than 5 feet and less than 20 feet were 2-hr rating was required. There was an allowance for fire retardant treated wood to be included in walls with a 2-hr or less required rating.

Under the UBC all exterior walls of most type III construction had a significant fire resistive rating.

With the introduction of the IBC in 2000 this changed significantly. The fire resistive rating for exterior bearing walls was reduced from 4-hr to 2-hr. Exterior non-bearing walls were reduced to 1-hr for any walls with a FSD less than 30'. The exception that allows FRT in walls with a 2-hr rating or less was maintained. It did not take designers long to recognize the significance of this change.

The entire exterior wall of type III construction can now be entirely of combustible construction. FRT lumber is still considered combustible construction. Given the higher allowable floor area and height type III construction buildings can, in many urban environments encompass entire blocks. Therefore the non-bearing walls have a FSD in excess of 30 feet so are permitted to have no fire resistive rating. In these cases there is very little difference between type III and V construction: The difference being the use of FRT and a smattering of 2-hr rated bearing walls.

This proposed change is an attempt to have the code catch up to the current construction practices and perhaps address some unintended results of the changes to the type III construction type in the very first IBC.

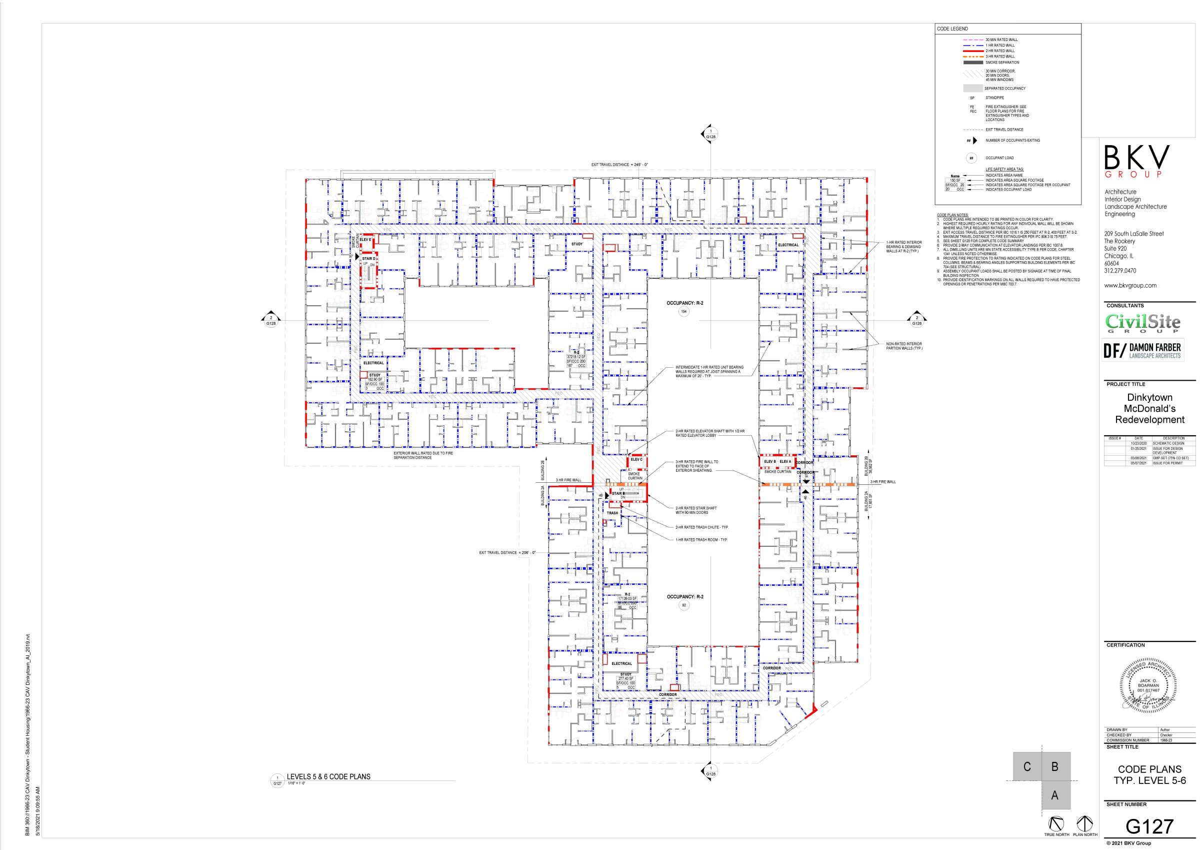
Type III construction is used extensively in the construction of R-2 dwelling units. The current construction practice is to run the floor and roof faming members parallel to the long dimension of the building. Limiting the amount of exterior bearing wall to the greatest extent possible. In a simple rectangular building this is not a significant issue. However most of these structures have numerous recesses in the exterior walls, due either to meeting zoning requirements for articulated facades or to provide for private decks and balconies. These articulations result is numerous short sections of exterior bearing walls. Many as short as 3-5 feet. The code requires that exterior bearing walls have a 2-hr fire resistive rating, designers, contractors and code officials spend an enormous amount of time and energy tracking all of these isolated wall assemblies through the building. This can get even more difficult when on upper levels the building steps back to create a smaller footprint on the upper levels. Again often in response to zoning requirements. Now not only the exterior bearing wall on this upper level is required to be 2-hr rated but all the supporting construction down through the interior of the building must also be 2-hr rated. Often the upper floor will have a different framing arrangement than the lower floor with a larger footprint. So the exterior bearing wall on floor 4 may in fact be above but back from an exterior non bearing wall on the floor 3.

The end result of applying these 2-hr rating requirements to all combustible construction is a great deal of work designing and maintaining isolated fire resistive elements. There is no practical or effective protection of the building construction. But at least we meet the code.

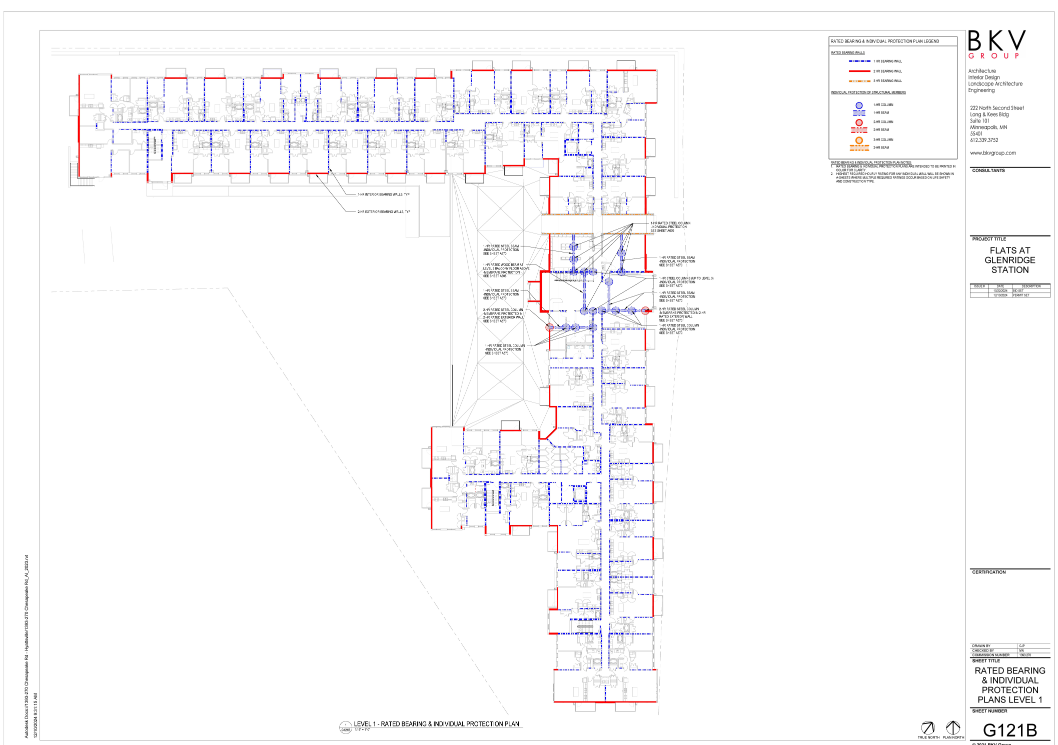
In lieu of this exercise in code compliance I am proposing we go back to the basic premise of type III construction. That is, that all exterior walls be provided with a fire resistive rating. Given the current construction practices most floor and wall assemblies in R-2 construction will have a minimum fire resistive rating of 1-hr. Yes there is an allowance to reduce it to 30 min when sprinkler system is being provided, but in practical terms the assemblies still meet the 1-hr rating.

Type III construction should as a requirement of the construction type have all exterior walls with a minimum 1-hr fire resistive rating. This may be increased based on FSD and is so noted in the footnote. This universal minimum 1-hr rating is more consistent with the historic type III construction and provides a better justification for the increased allowable floor area and height of type III vs type V construction. Further it makes more logical sense to have rated floor and roof assemblies supported by rated wall assemblies then non-rated assemblies which is currently permitted.

Attached example 1 shows a typical large scale type III apartment building. The exterior 2-hr rated walls are shown in red. Note that the entire north wall is non-rated construction. Note that in the middle of the north wall there are two 4 foot long walls perpendicular to the lot line that are 2- hr rated. The east and west walls have 2-hr rated assemblies for approx. 46% of the exterior wall and those rated assemblies are located at the extreme ends of the walls. The building walls facing the courtyard are also exterior walls and therefore include some 2-hr ratings.



Attached example 2 shows another typical type III apartment building. This one has balconies. Because of the definition of bearing walls these balconies create a series of exterior walls that qualify as bearing walls. The entire exterior wall design is a running pattern of non rated wall next to 2-hr rated wall next to non-rated wall next to 2-hr rated wall and on and on.



The point of these two examples is to show that, while it is possible to meet the letter of the code, it does not meet the original intent of the code sections. This alternating protected / non-protected pattern does not provide any realized protection of the structure, occupants, or first responders.

This proposed change at least restores the intent of type III construction in that it provides a minimum fire resistive rating for all exterior walls.

Bibliography: 1997 UBC

2000 IBC

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The reduction in detailing 2-hr rated combustible construction should ultimately balance any increase in construction cost to provide 1-hr construction in the non-bearing walls.

G124-25

G125-25

IBC: 602.1

Proponents: Ardel Jala, representing Seattle Department of Construction & Inspections (ardel.jala@seattle.gov); Jenifer Gilliland, representing Seattle Department of Construction & Inspections (jenifer.gilliland@seattle.gov)

2024 International Building Code

Revise as follows:

602.1 General. *Buildings* and *structures* erected or to be erected, altered or extended in height or area shall be classified in one of the five *construction types* defined in Sections 602.2 through 602.5. The *building elements* shall have a *fire-resistance rating* not less than that specified in Table 601 and *exterior walls* shall have a *fire-resistance rating* not less than that specified in Table 705.5. Where required to have a *fire-resistance rating* by Table 601, *building elements* shall comply with the applicable provisions of Section 703.2. The protection of penetrations, openings, ducts and air transfer openings in *building elements* shall not be required unless required by other provisions of this code.

Reason: This code change proposal adds penetrations to the list of elements not required to be protected unless required by other provisions of the code. Where an opening is permitted without protection in fire-resistance rated building elements as per this provision, a through penetration or membrane penetration should also be permitted without protection.

Approval of this code change is consistent with the Fire Safety Committee approval of FS18-24 at the ICC Group A Committee Action Hearings #1 in Orlando, Florida. FS18-24 clarifies that exterior walls permitted to have unprotected openings based on Section 705.9 are not required to have penetration protection. FS18-24 did not receive comment at CAH #2 and has moved onto the consent agenda for 2026.

Approval of this code change is also consistent Fire Safety Committee disapproval of FS45-24 at the ICC Group A Committee Action Hearings #1 in Orlando, Florida. The FS45-24 proposal added penetration protection at fire-resistance rated bearings walls required to be rated based on construction type.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is not cost impact because there is no requirement for protection.

G125-25

G126-25

IBC: 602.1

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Philip Oakes, representing NASFM; Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Building Code

Revise as follows:

602.1 General. *Buildings* and *structures* erected or to be erected, altered or extended in height or area shall be classified in one of the five *construction types* defined in Sections 602.2 through 602.5. The *building elements* shall have a *fire-resistance rating* not less than that specified in Table 601 and *exterior walls* shall have a *fire-resistance rating* not less than that specified in Table 705.5. Where required to have a *fire-resistance rating* by Table 601, *building elements* shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in *building elements* shall not be required unless required by other provisions of this code.

Exception: Noncombustible structural members supporting *photovoltaic panels* are not required to meet the fire resistance rating for any of the following conditions:

1. Rooftop-mounted *photovoltaic (PV) panel systems* supported by a structure and having no use underneath.
2. *Elevated photovoltaic (PV) support structures* with noncombustible framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array to allow heat and gases to escape, as determined by the *building official.*
3. *Elevated photovoltaic (PV) support structures* installed on the roof of an open parking structure where all the following conditions are met (see Figure 503.1):
   - 3.1. *Elevated photovoltaic (PV) support structures* installed on the roof of an open parking structure where all the following conditions are met (see Figure 503.1):
   - 3.2. The area within the perimeter of PV support structures has maximum rectangular dimension of 40 feet by 150 feet (12 195 mm by 45 720 mm).
   - 3.3. The driveway aisle separating PV support structures has a minimum width of 25 feet (7620 mm) clear.
   - 3.4. *Elevated PV support structures* are used only for parking purposes with no storage.
   - 3.5. *Elevated PV support structures* are completely open on all sides, other than necessary structural supports, with no interior partitions.
   - 3.6. *Elevated PV support structures* comply with Section 3111.3.5.2.

Reason: This proposal addresses the concern as to whether the structural elements supporting a rooftop mounted PV panel system or an elevated PV support structure is required to be protected with the same fire-resistive construction as the building below.

The proposal provides clarity for exceptions to fire-resistance for those structural elements.

These new exceptions to IBC Section 602.1 correlate with exceptions found in California Building Code Section 602.1 for several cycles. Although this language is not identical to language found in the California Building Code, the technical requirements are the same. The exceptions are edited to use IBC defined terms and to be appropriate for a nationwide use, rather than just in California.

This proposal maintains fire safety for the building as well as for firefighters.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

It encourages solar energy without adversely impacting safety.

G126-25

G127-25

IBC: 602.4

Proponents: David Bueche, representing Hoover Treated Wood Products (dbueche@frtw.com)

2024 International Building Code

Revise as follows:

602.4 Type IV. Type IV construction is that type of construction in which the *building elements* are *mass timber* or noncombustible materials and have *fire-resistance ratings* in accordance with Table 601. *Mass timber* elements shall meet the *fire-resistance-rating* requirements of this section based on either the *fire-resistance rating* of the *noncombustible protection*, the *mass timber*, or a combination of both and shall be determined in accordance with Section 703.2. The minimum dimensions and permitted materials for *building elements* shall comply with the provisions of this section and Section 2304.11. *Mass timber* elements of Types IV-A, IV-B and IV-C construction shall be protected with *noncombustible protection* applied directly to the *mass timber* in accordance with Sections 602.4.1 through 602.4.3. The time assigned to the *noncombustible protection* shall be determined in accordance with Section 703.6 and comply with Section 722.7.*Cross-laminated timber* shall be *labeled* as conforming to ANSI/APA PRG 320 as referenced in Section 2303.1.4.Exterior *load-bearing walls* and *nonload-bearing walls* shall be *mass timber* construction, or shall be of noncombustible construction.

Exception: Exterior *load-bearing walls* and *nonload-bearing walls* of Type IV-HT Construction in accordance with Section 602.4.4.

The interior *building elements*, including *nonload-bearing walls* and partitions, shall be of *mass timber* construction or of noncombustible construction.

~~Exception~~ Exceptions:

1. Interior *building elements* and *nonload-bearing walls* and partitions of Type IV-HT construction in accordance with Section 602.4.4.
2. *Fire-retardant-treated wood* complying with Section 2303.2 shall be permitted for interior *nonload-bearing walls* and partitions for Types IV-A, IV-B and IV-C construction.

Combustible concealed spaces are not permitted except as otherwise indicated in Sections 602.4.1 through 602.4.4. Combustible stud spaces within light frame walls of Type IV-HT construction shall not be considered concealed spaces, but shall comply with Section 718.In *buildings* of Type IV-A, IV-B, and IV-C construction with an occupied floor located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, up to and including 12 *stories* or 180 feet (54 864 mm) above *grade plane*, *mass timber* interior exit and elevator hoistway enclosures shall be protected in accordance with Section 602.4.1.2. In *buildings* greater than 12 *stories* or 180 feet (54 864 mm) above *grade plane*, interior exit and elevator hoistway enclosures shall be constructed of noncombustible materials.

Reason: In Table 601, the hourly fire-resistance ratings for interior nonbearing walls and partitions in Types IV-A, IV-B, and IV-C, are the same for the other construction types where fire-retardant-treated wood (FRTW) is permitted (ex. Type IA and IIA are also 0 hour.)

603.1.1 recognizes that FRTW can be used for nonload-bearing partitions in Type I and II construction where the required fire-resistance rating is 2 hours or less. By allowing this exception, there will be no decrease in the minimum hourly fire-resistance rating by including FRTW for Types IV-A, IV-B, and IV-C construction for interior nonbearing walls and partitions, nor will there be any adverse impact to building or life safety.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0. This provides another option by adding Type III construction to this section of the code which may decrease the cost of construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

Fire-retardant-treated wood is generally less expensive than mass timber or noncombustible materials. Because FRTW is used as an alternative to these materials in this application, the cost may be less.

G128-25

IBC: 602.4.2.2.2, 602.4.2.2.4

Proponents: Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); Tim Earl, GBH International, representing the Gypsum Association (tearl@gbhint.com); Stephen Skalko, Stephen V. Skalko, P.E. & Associates LLC, representing Masonry Alliance for Codes and Standards (svskalko@svskalko-pe.com)

2024 International Building Code

602.4.2.2 Interior protection. Interior faces of all *mass timber* elements, including the inside face of exterior *mass timber* walls and *mass timber* roofs, shall be protected, as required by this section, with materials complying with Section 703.3.

602.4.2.2.1 Protection time. *Noncombustible protection* shall contribute a time equal to or greater than times assigned in Table 722.7.1(1), but not less than 80 minutes. The use of materials and their respective protection contributions specified in Table 722.7.1(2) shall be permitted to be used for compliance with Section 722.7.1.

Revise as follows:

602.4.2.2.2 Protected area. Interior faces of *mass timber* elements, including the inside face of exterior *mass timber walls* and *mass timber roofs*, shall be protected in accordance with Section 602.4.2.2.1.

Exceptions: Unprotected portions of *mass timber* ceilings and walls complying with Section 602.4.2.2.4 and the following:

1. Unprotected portions of *mass timber* ceilings and walls complying with one of the following:
   1.1. Unprotected portions of *mass timber* ceilings, including attached beams, limited to an area less than or equal to ~~100~~ 20 percent of the floor area in any *dwelling unit* within a *story* or fire area within a *story* .

   1.2. Unprotected portions of *mass timber* walls, including attached columns, limited to an area less than or equal to 40 percent of the floor area in any *dwelling unit* within a *story* or fire area within a *story* .

   1.3. Unprotected portions of both walls and ceilings of *mass timber*, including attached columns and beams, in any *dwelling unit* or fire area and in compliance with Section 602.4.2.2.3.
2. *Mass timber* columns and beams that are not an integral portion of walls or ceilings, respectively, without restriction of either aggregate area or separation from one another.

602.4.2.2.3 Mixed unprotected areas. In each *dwelling unit* or *fire area* , where both portions of ceilings and portions of walls are unprotected, the total allowable unprotected area shall be determined in accordance with Equation 6-1.

$$(U_{tc}/U_{ac}) + (U_{tw}/U_{aw}) \leq 1 \qquad \textbf{(Equation 6-1)}$$

where:

U_{tc} = Total unprotected *mass timber* ceiling areas.

U_{ac} = Allowable unprotected *mass timber* ceiling area conforming to Exception 1.1 of Section 602.4.2.2.2.

U_{tw} = Total unprotected *mass timber* wall areas.

U_{aw} = Allowable unprotected *mass timber* wall area conforming to Exception 1.2 of Section 602.4.2.2.2.

602.4.2.2.4 Separation distance between unprotected mass timber elements. In each *dwelling unit*or *fire area*, unprotected portions of *mass timber* walls and ceilings shall be not less than 15 feet (4572 mm) from unprotected portions of other walls and ceilings, measured horizontally along the ceiling and from other unprotected portions of walls measured horizontally along the floor.

Reason: This code change proposal reinstates the provisions of IBC 602.4.2.2.2 (Protected area) and 602.4.2.2.4 (Separation distance between unprotected mass timber elements) back to the original 2021 IBC provisions recommended by the Ad-Hoc Committee on Tall Wood Buildings.

The Ad-Hoc Committee on Tall Wood Buildings (TWB) developed provisions for Type IVA, B, and C construction in the 2021 edition of the IBC. These provisions were based on the ATF fire test program.

In the 2024 edition of the International Building Code, the provisions established by TWB were relaxed to allow fully exposed mass timber ceilings for Type IVB (partially encapsulated) mass timber construction.

The 2024 changes to the TWB recommended provisions were based on a series of fire tests conducted at the Research Institute of Sweden (RISE). The experiments were limited to a compartment size of 23 ft x 22.5 ft x 9 ft, representative of residential units or an office for about 8 persons. The tests were considered by the code change proponents to perform satisfactorily, based on no significant fire re-growth being observed and temperatures within the compartment decreasing continuously from the time of the fully-developed phase until the end of the fire test.

However, tests on compartments of this size do not capture the fire dynamics of large compartments. Exposed timber alters the fire dynamics within a compartment, resulting in more intense temperatures, longer fire durations, and a slower decay phase of the fire when compared to rooms without exposed timber (Rackauskaite et al., 2021).

In 2021 a new series of tests, the “Code Red” tests, were conducted by Arup and Imperial College London at the CERIB facility in France. The main driver of these tests was to investigate how fires form and develop in larger CLT spaces, such as those more typical to office buildings and occupancies other than residential apartments. The tests were carried out in a large open-plan compartment with a floor area of 352 m^2 (approximately 3800 ft^2) with a fully exposed, unloaded, cross-laminated timber (CLT) ceiling and glue laminated timber (glulam) columns.

In the first of this series of experiments, significant external flaming was observed through the openings. Analysis of the experimental results showed the presence of the timber structure approximately doubled the heat released compared to the value expected from the fuel source alone. Smoldering combustion of the timber elements continued for hours following the extinction of visible flaming, burning in several hotspots, resulting in holes through the CLT slab (Kotsovinos et al. 4 November 2021). These results are not considered satisfactory or consistent with the performance criteria outlined by TWB in the original provisions for tall wood buildings in the IBC.

The fourth experiment in the series was identical to the first experiment, however 50% of the CLT at the ceiling was encapsulated. The results of this experiment showed that partial encapsulation resulted in delay of ignition of the CLT ceilings. Based on delayed CLT ignition, the fire initially spread more slowly, and resulted in a less severe fire when compared to the first experiment with no encapsulation (100% exposed CLT ceiling). Lower peak temperatures were also measured in the compartment with the partially encapsulated ceiling as compared to the fully exposed CLT ceiling. Flames outside the door opening in the compartment with the partially encapsulated ceiling were also smaller in extent and height compared to those observed in the fully exposed ceiling experiment. The CLT encapsulation was described as effectively protecting the majority of the CLT from fire ignition as well as “a multi-layer system providing better resilience” (Kotsovinos et al. 7 October 2022).

The results of the Code Red tests are consistent with concurrent research at other institutions. A case study was conducted by Ni and Gernay to investigate the impact of exposed timber surface on the severity of a mass timber compartment fire and its corresponding demand on fire suppression. When timber elements are not protected from the fire by encapsulation, these timber elements contribute to the fuel load of the fire, altering the fire dynamics by increasing the duration and intensity of the fire. This is noted as particularly significant for compartment surface areas such as CLT ceilings, floors and walls (Ni and Gernay, 2002). Ni and Gernay quantified the additional heat contributed by exposed timber in a fire. Part of the heat will remain in the compartment, increasing the severity of thermal exposure conditions for the structure, while part of the heat will be released outside the building, which may put adjacent structures at a greater risk of ignition. In the case study, the duration and severity of compartment fire increased with increasing proportion of exposed CLT surfaces. This is consistent with what was observed in the results of the Code Red experiments.

Based on current and ongoing research, the changes to the 2024 IBC to permit 100% exposed mass timber ceilings in Type IVB construction is not justified in other than small compartments limited to 84 m^2 or roughly 900 square feet (Rackauskaite et al., 2021). The approaches to fully exposed mass timber ceilings cannot be considered accurate when applied to large open plan or well- ventilated compartments where fuel controlled fires may be more likely. The controls for these conditions currently do not exist in the 2024 IBC code provisions. Reinstatement of the 2021 IBC code provisions will ensure a level of fire safety consistent with that intended by the TWB.

Bibliography: Cary Kopczynski & Company. 2018. Cross laminated timber feasibility study—A comparison between cross laminated timber and cast-in-place concrete framing for mid-rise urban buildings. Cary Kopczynski & Company, Seattle. http://buildingstudies.org/pdf/related_studies/Cross_Laminated_Timber_Feasibility_Study_Feb-2018.pdf

Gu, Hongmei & Liang, Shaobo & Bergman, Richard. (2020). Comparison of Building Construction and Life-Cycle Cost for a High-Rise

Mass Timber Building with its Concrete Alternative. Forest Products Journal (2020)70 (4): 482-492. https://doi.org/10.13073/FPJ-D-20-00052

Kotsovinos P, Rackauskaite E, Christensen E, et al. Fire dynamics inside a large and open-plan compartment with exposed timber ceiling and columns: *CodeRed #01. Fire and Materials*. 2023; 47(4): 542-568. http://doi/10.1002/fam.3049

Kotsovinos P, Christensen EG, Glew A, et al. Impact of partial encapsulation on the fire dynamics of an open-plan compartment with exposed timber ceiling and columns: *CodeRed #04. Fire and Materials*. 2023; 47(4): 597-626. doi:10.1002/fam.3112

Ni, S., Gernay, T. On the Effect of Exposed Timber on the Severity of Structural Fires in a Compartment and Required Firefighting Resources. *Fire Technol* **58**, 2691–2725 (2022). https://doi.org/10.1007/s10694-022-01254-x

Rackauskaite E, Kotsovinos P, Barber D (2021) Letter to the editor : design fires for open-plan buildings with exposed mass-timber. Fire Technol 57:487–495. https://doi.org/10.1007/s10694-020-01047-0

Cost Impact: Increase

- **fpl_2020_gu001.pdf**
  https://www.cdpaccess.com/proposal/9811/30380/documentation/145436/attachments/download/4257/
- **Cross_Laminated_Timber_Feasibility_Study_Feb-2018.pdf**
  https://www.cdpaccess.com/proposal/9811/30380/documentation/145436/attachments/download/4256/

Estimated Immediate Cost Impact:

Acoustical and fire protection costs for cross laminated timber are expected to range from $2 to $6 per square foot (Cary Kopczynski & Company 2018). Addition costs for acoustical dampening in comparable structures of other than CLT construction are anticipated to be $1 to $2 per square foot (Gu et al. 2020). The cost increase for initial construction cost would therefore be expected to range from $1 to $4 per square foot.

Estimated Immediate Cost Impact Justification (methodology and variables):

Data regarding immediate cost impact is based on feasibility (Cary Kopczynski & Company 2018) and cost impact (Gu et al. 2020) studies, which are noted and attached.

Estimated Life Cycle Cost Impact:

The code change proposal will decrease Life Cycle Cost Impact. A major component of life cycle cost is associated with fire suppression costs, in particular required fire flow and water supply.

In addition to quantifying the additional heat contributed by exposed timber in a fire, Ni and Gernay considered the increased requirements for fire flow and water supply for fire suppression by fire service personnel based on the increased energy released in the compartment by burning of exposed timber. In the case study, as the exposed timber surface increases from 0% to 100%, the required fire flow increases by 47% and the required water supply increases by 91% to balance the heat contributed by the burning timber (Ni and Gernay 2022). This will translate to an increased life cycle cost for buildings with exposed timber ceilings.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

The case study developed by Ni and Gernay is referenced and attached.

G128-25

G129-25

IBC: 602.4.1.1, 602.4.2.1, 602.4.3.1

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org); Jason Smart, representing American Wood Council (jsmart@awc.org)

2024 International Building Code

Revise as follows:

602.4.1.1 Exterior protection. The outside face of *exterior walls* of *mass timber* construction shall be protected with *noncombustible protection* with a minimum assigned time of 40 minutes in accordance with Section 722.7.1~~, as specified in Table 722.7.1(1)~~. Components of the *exterior wall covering* shall be of noncombustible material except *water-resistive barriers* having a peak heat release rate of less than 150kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18MJ/kg as determined in accordance with ASTM E1354 and having a *flame spread index* of 25 or less and a *smoke-developed index* of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.

602.4.2.1 Exterior protection. The outside face of *exterior walls* of *mass timber* construction shall be protected with *noncombustible protection* with a minimum assigned time of 40 minutes in accordance with Section 722.7.1~~, as specified in Table 722.7.1(1)~~. Components of the *exterior wall covering* shall be of noncombustible material except *water-resistive barriers* having a peak heat release rate of less than 150kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18MJ/kg as determined in accordance with ASTM E1354, and having a *flame spread index* of 25 or less and a *smoke-developed index* of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.

602.4.3.1 Exterior protection. The exterior side of walls of combustible construction shall be protected with *noncombustible protection* with a minimum assigned time of 40 minutes in accordance with Section 722.7.1~~, as determined in Table 722.7.1(1)~~. Components of the *exterior wall covering* shall be of noncombustible material except *water-resistive barriers* having a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E1354 and having a *flame spread index* of 25 or less and a *smoke-developed index* of 450 or less as determined in accordance with ASTM E84 or UL 723. The ASTM E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.

Reason: Sections 602.4.1.1, 602.4.2.1, and 602.4.3.1 require 40 minutes of noncombustible protection for the outside face of exterior walls constructed of mass timber. Those sections directly reference Table 722.7.1(1) which is incorrect as it specifies the general noncombustible protection ratings for mass timber based on the fire resistance rating requirements of Table 601 and Table 705.5, but does not contain the provisions for how to achieve the required level of protection. This code change corrects that issue by referencing Section 722.7.1 instead, which allows for a calculated rating in accordance with Section 703.6, or prescriptive compliance per Table 722.7.1(2) and Section 722.7.2.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. This code change is a clarification only.

G129-25

G130-25

IBC: 602.4.4.3

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org)

2024 International Building Code

Revise as follows:

602.4.4.3 Concealed spaces. Concealed spaces shall not contain combustible materials other than *building elements* and electrical, mechanical, fire protection, or plumbing materials and equipment permitted in plenums in accordance with Section 602 of the *International Mechanical Code*. Concealed spaces shall comply with applicable provisions of Section 718. Concealed spaces with combustible *building elements* shall be protected in accordance with one or more of the following:

1. The building shall be sprinklered throughout in accordance with Section 903.3.1.1 and automatic sprinklers shall also be provided in the concealed space.
2. The concealed space shall be completely filled with noncombustible insulation.
3. Combustible surfaces within the concealed space shall be fully sheathed with not less than $^5/_8$-inch *Type X gypsum board* or covered with concrete or gypsum concrete topping not less than 3/4 inch (19.1 mm) in thickness.

Exception: Concealed spaces within interior walls and partitions with a 1-hour or greater *fire-resistance rating* complying with Section 2304.11.2.2 shall not require additional protection.

Reason: This proposal has two changes. 1) The proposal adds “with combustible building elements” as a corollary to the first sentence to clarify applicability of the three enumerated requirements to concealed spaces with combustible building elements (e.g., the building element surfaces that enclose the concealed space). Without the addition of “with combustible building elements” it could be interpreted that the three enumerated requirements apply to concealed spaces that do not have any combustible surfaces. 2) The proposal expands item 3 to provide an option for floor plenums in Type IV-HT construction where the concealed space may be above the mass timber in a raised floor assembly. Materials commonly used on heavy timber floor surfaces include concrete and gypsum concrete toppings. The minimum ¾-inch thickness requirement is taken from ANSI/AWC *2024 Fire Design Specification (FDS) for Wood Construction* for heavy timber construction. The use of 3/4" thickness for concrete or gypsum concrete is specific to Type IV-HT construction and does not have impact on the 1-inch thick non-combustible material requirement for Type IV-A (Section 602.4.1.3) or Type IV-B (Section 602.4.2.3) construction for floors.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal adds an additional option for protection of combustible building elements in concealed spaces. It cannot increase the cost of construction because the existing compliance options are still available. However, this proposal is not considered editorial. Therefore, the only option available is to say it will decrease construction costs. This proposal could potentially decrease costs if this option is used, but will have no effect on construction costs if it is not used.

G130-25

G131-25

IBC: 602.5

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Building Code

Revise as follows:

602.5 Type V. Type V construction is that type of construction in which the structural elements, *exterior walls* and interior walls are of any materials permitted by this code.<u>Type V-A is a construction type that is protected throughout with 5/8-inch (15.875 mm) Type X gypsum board or an equivalent prescriptive method. Type V-B is a construction type that is unprotected.</u>

Reason: No wording is present which defines the meanings of "-A" and "-B" for Type V.
If there is, then please replicate or redirect to this section.

When we design a building that will exceed the maximum parameters established in the IRC publication, we must make reference the IBC for our product and that product may have a construction type of "protected combustible" where we might be able to avoid employing a NFPA sprinkler system.

It would appear as if this section 602.5 shall also contain subsections as shown in the previous "Type" sections.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a definition that shall be added to the publication that will minimize misinterpretation.

G131-25

G132-25

IBC: SECTION 202 (New), 602.3, 603.1, SECTION 2515 (New), 2515.1 (New), 2515.2 (New), 2515.3 (New), 2515.4 (New), ICC Chapter 35 (New)

Proponents: Keith P Nelson, representing DuPont (keith.nelson@dupont.com)

THIS CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2024 International Building Code

Add new definition as follows:

MAGNESIUM-OXIDE-CEMENT PANEL PRODUCT. The general name for a family of panel, board, and sheet products having a core consisting essentially of magnesium-oxide-cement and reinforced with organic or inorganic fibers.

SECTION 602
CONSTRUCTION CLASSIFICATION

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the *exterior walls* are of noncombustible materials and the interior *building elements* are of any material permitted by this code. ~~*Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2~~ The following materials shall be permitted within *exterior wall* assemblies of a 2-hour rating or less:~~.~~

1. *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2.
2. *Magnesium-oxide-cement panel product* complying with Section 2515.

SECTION 603
COMBUSTIBLE MATERIAL IN TYPES I AND II CONSTRUCTION

603.1 Allowable materials. Combustible materials shall be permitted in *buildings* of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* complying with Section 2303.2 shall be permitted in:
   - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less except in *shaft enclosures* within Group I-2 occupancies and *ambulatory care facilities.*
   - 1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
   - 1.3. Roof construction, including girders, trusses, framing and decking.

     Exceptions:

     1. In *buildings* of Type IA construction exceeding two stories above grade plane, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
     2. Group I-2, roof construction containing *fire-retardant-treated wood* shall be covered by not less than a Class A *roof covering* or roof assembly, and the roof assembly shall have a *fire-resistance rating* where required by the construction type.

   - 1.4. Balconies, porches, decks and exterior *stairways* not used as required exits on *buildings* three *stories* or less above *grade plane*.

2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

   Exceptions:

   1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
   2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.

3. Foam plastics in accordance with Chapter 26.
4. *Roof coverings* that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Section 803.
8. *Trim* installed in accordance with Section 806.6.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated* wood complying with Section 2303.2, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. *Stages* and *platforms* constructed in accordance with Sections 410.2 and 410.3, respectively.
13. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic *veneer* installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.15.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.4.4 and 705.2.3.1.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.1.2.
21. Sprayed fire-resistive materials and intumescent fire-resistive materials, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.15 and 1705.16, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect *joints* in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of *buildings* of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code*.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the *building* is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
27. Wood nailers for parapet flashing and roof cants.

28. Vapor retarders as required by Section 1404.3.

29. *Magnesium-oxide-cement panel products* complying with Section 2515.

Add new text as follows:

SECTION 2515
MAGNESIUM-OXIDE-CEMENT PANEL PRODUCT

2515.1 General. *Magnesium-oxide-cement panel products* shall comply with Section 2515.2 through 2515.4.

2515.2 Listing and labeling. The *magnesium-oxide-cement panel products* shall be *listed* and *labeled* for compliance with ICC 1125 and an End Use Severity Rating of 1, 2, or 3.

2515.3 Installation. The *magnesium-oxide-cement panel products* shall be designed and installed in accordance with the listing and manufacturer's installation instructions, or an approved design.

2515.4 Testing. The *magnesium-oxide-cement panel products* shall comply with either of the following:

1. Where tested in accordance with ASTM E84 or UL 723, panels shall have a *listed* and *labeled flame spread index* of not more than 10 and a *smoke-developed index* of not more than 25. The ASTM E84 or UL 723 test shall be continued for an additional 20-minute period and the flame front shall not progress more than 10.5 feet (3200 mm) beyond the centerline of the burners at any time during the test.Enter text
2. When tested in accordance with ASTM E2768, panels shall have a *listed* and *labeled flame spread index* of not more than 10 and a *smoke-developed index* of not more than 25and where the flame front does not progress more than 10.5 feet (3200 mm) beyond the centerline of the burners at any time during the test.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

1125-XXXX Standard for Specification of Magnesium Oxide Board and Construction (IS-MGOB)

Reason:
The code change recognizes the use of magnesium-oxide panels in Type I, II & III exterior wall construction as qualified through compliance with the ICC-1125 performance standard under development. The MgO industry desires to add these requirements to the IBC given the import of offshore materials, the scaling of North American production capacity, and the use of all these materials in commercial construction. The surface burning characteristics limitation is more stringent than the existing exterior sheathing material in Section 2303.2. Applicable code requirements such as assembly fire performance tests still apply. Installation is to be in accordance with the manufacturer's instructions or an approved design.

The product is currently evaluated under ICC-ES Acceptance Criteria AC-386 for Fiber-Reinforced Magnesium-Oxide-Based Sheets and AC-530 for Fiber-Reinforced Magnesium-Oxide-Based Sheets with a Factory-Bonded Water-Resistive Overlay Membrane. The requirements of ICC 1125 are based upon the contents of AC386.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal provides another sheathing product alternative and as such does not raise or decrease the cost of construction. The designer is free to choose which sheathing product is most effective for the application. The cost to the manufacturer is neutral as the testing requirements are similar for ICC-1125 and the ICC-ES Acceptance Criteria.

Staff Analysis: A review of the standard proposed for inclusion in the code, ICC 1125-XXXX Standard for Specification of Magnesium Oxide Board and Construction (IS-MGOB), with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

G132-25

G133-25

IBC: 603.1

Proponents: John Mengedoht, representing NBBJ

2024 International Building Code

SECTION 603
COMBUSTIBLE MATERIAL IN TYPES I AND II CONSTRUCTION

Revise as follows:

603.1 Allowable materials. Combustible materials shall be permitted in *buildings* of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* complying with Section 2303.2 shall be permitted in:
   - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less except in *shaft enclosures* within Group I-2 occupancies and *ambulatory care facilities.*
   - 1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
   - 1.3. Roof construction, including girders, trusses, framing and decking.

     Exceptions:

     1. In *buildings* of Type IA construction exceeding two stories above grade plane, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
     2. Group I-2, roof construction containing *fire-retardant-treated wood* shall be covered by not less than a Class A *roof covering* or roof assembly, and the roof assembly shall have a *fire-resistance rating* where required by the construction type.

   - 1.4. Balconies, porches, decks and exterior *stairways* not used as required exits on *buildings* three *stories* or less above *grade plane*.
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

   Exceptions:

   1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
   2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.

3. Foam plastics in accordance with Chapter 26.
4. *Roof coverings* that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Section 803.
8. *Trim* installed in accordance with Section 806.6.

9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated* wood complying with Section 2303.2 , 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. *Stages* and *platforms* constructed in accordance with Sections 410.2 and 410.3, respectively.
13. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic *veneer* installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.15.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.4.4 and 705.2.3.1.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.1.2.
21. Sprayed fire-resistive materials and intumescent fire-resistive materials, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.15 and 1705.16, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect *joints* in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of *buildings* of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code*.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the *building* is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
27. Wood nailers for parapet flashing and roof cants.
28. Vapor retarders as required by Section 1404.3.
29. <u>Exterior soffit materials with a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in the maximum thickness intended for use in accordance with ASTM E84 or UL 723.</u>

Reason: The IBC does not directly address exterior soffit materials other than at roof overhangs in combustible construction (Section 1412). This proposal would allow combustible materials at exterior soffits in Type I and II construction that meet Class A criteria for flame spread and smoke development. This is the same criteria as the most restrictive applications for interior ceiling finishes in all occupancy groups.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Many code officials permit Class A materials at exterior soffits in Type I and II construction, perhaps due to the similarity to interior ceiling finishes. This proposal will not change that, nor will it have any impact on other construction types.

G133-25

G134-25

IBC: 603.1

Proponents: David Bueche, representing Hoover Treated Wood Products (dbueche@frtw.com)

2024 International Building Code

Revise as follows:

603.1 Allowable materials. Combustible materials shall be permitted in *buildings* of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* complying with Section 2303.2 shall be permitted in:
   - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less except in *shaft enclosures* within Group I-2 occupancies and *ambulatory care facilities.*
   - 1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
   - 1.3. Roof construction, including girders, trusses, framing and decking.

     Exceptions:

     1. In *buildings* of Type IA construction exceeding two stories above grade plane, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
     2. Group I-2, roof construction containing*fire-retardant-treated wood* shall be covered by not less than a Class A *roof covering* or roof assembly, and the roof assembly shall have a *fire-resistance rating* where required by the construction type.

   - 1.4. Balconies, porches, decks and exterior *stairways* not used as required exits on *buildings* three *stories* or less above *grade plane*.
   - <u>1.5 Floors, including trusses, framing and sheathing, of Type IIB construction where fire-resistance-rated construction is not required.</u>
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

   Exceptions:

   1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
   2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.

3. Foam plastics in accordance with Chapter 26.
4. *Roof coverings* that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Section 803.
8. *Trim* installed in accordance with Section 806.6.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.

10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated* wood complying with Section 2303.2 , 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. *Stages* and *platforms* constructed in accordance with Sections 410.2 and 410.3, respectively.
13. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic *veneer* installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.15.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.4.4 and 705.2.3.1.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.1.2.
21. Sprayed fire-resistive materials and intumescent fire-resistive materials, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.15 and 1705.16, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect *joints* in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of *buildings* of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the International Mechanical Code.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the *building* is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
27. Wood nailers for parapet flashing and roof cants.
28. Vapor retarders as required by Section 1404.3.

Reason: In Table 601, Type IIB floors have a “0” fire resistance rating. Fire-retardant-treated wood is allowed in Section 603 in several areas. The height limitations for many sprinklered occupancy groups for Type IIB are the same as IIIB, where untreated wood floors are allowed. Many floor systems are designed for diaphragm action, and fire-retardant-treated floor joists, fire-retardant-treated floor trusses, and fire-retardant-treated plywood is used for this application but requires approval as an alternate by the AHJ. This code provision will provide design professionals with an additional option.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0 immediate impact. The addition of another use of fire-retardant-treated wood is simply option to this section of the code that may decrease the cost of construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

Fire-retardant-treated wood is generally less expensive than noncombustible materials. Because FRTW may be used as an alternate to these materials, the cost may be less.

G134-25

G135-25

IBC: 603.1

Proponents: David Bueche, representing Hoover Treated Wood Products (dbueche@frtw.com)

2024 International Building Code

Revise as follows:

603.1 Allowable materials. Combustible materials shall be permitted in *buildings* of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* complying with Section 2303.2 shall be permitted in:
   - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less except in *shaft enclosures* within Group I-2 occupancies and *ambulatory care facilities.*
   - 1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
   - 1.3. Roof construction, including girders, trusses, framing and decking.

     Exceptions:

     1. In *buildings* of Type IA construction exceeding two stories above grade plane, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
     2. Group I-2, roof construction containing *fire-retardant-treated wood* shall be covered by not less than a Class A *roof covering* or roof assembly, and the roof assembly shall have a *fire-resistance rating* where required by the construction type.

   - 1.4. Balconies, porches, decks and exterior *stairways* not used as required exits on *buildings* three *stories* or less above *grade plane*.
   - <u>1.5 Mezzanine floor construction and associated secondary members where the fire-resistance-rated floor assembly has the fire resistance of that required by the type of construction and is solidly filled with insulation or is constructed with *fireblocking* of *fire-retardant-treated wood*.</u>
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

   Exceptions:

   1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
   2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.

3. Foam plastics in accordance with Chapter 26.
4. *Roof coverings* that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Section 803.
8. *Trim* installed in accordance with Section 806.6.

9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated* wood complying with Section 2303.2 , 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. *Stages* and *platforms* constructed in accordance with Sections 410.2 and 410.3, respectively.
13. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14 and Section 705.2.3.1.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic *veneer* installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.15.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.4.4 and 705.2.3.1.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.1.2.
21. Sprayed fire-resistive materials and intumescent fire-resistive materials, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.15 and 1705.16, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect *joints* in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of *buildings* of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the International Mechanical Code.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the *building* is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
27. Wood nailers for parapet flashing and roof cants.
28. Vapor retarders as required by Section 1404.3.

Reason: Many mezzanine floors are designed to carry heavy loads and as diaphragms to resist lateral forces. Plywood is ideally suited for these applications, and designers frequently want to use plywood in their mezzanine floor designs. Currently, in Types I and II construction, design professionals must seek approval from the AHJ through Section 104.2.3 and the alternative materials process.

Mezzanine floors do not contribute to either the building area or number of stories as regulated by Section 503.1. This is also the case for kiosks. Kiosks are allowed to be constructed of fire-retardant-treated wood in malls of any type of construction (see Section 402.6.2). By logical extension, mezzanine floors should be allowed to be constructed of fire-retardant-treated wood in Types I and II construction.

This code proposal does not alter any of the requirements in Section 505.2 for Mezzanines or the fire-resistance requirements for floor construction per Table 601. For example, in addition to being constructed of fire-retardant-treated wood elements (lumber framing, plywood sheathing, and fireblocking), a mezzanine floor in a Type IIA building would be required to have a 1-hour fire-resistance rating.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0. The addition of fire-retardant-treated wood as an option to this section of the code may decrease the cost of construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

Fire-retardant-treated wood is generally less expensive than noncombustible materials. Because FRTW may be used as an alternate to these materials, the cost may be less.

G135-25

G136-25

IBC: 1202.2.1

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Building Code

SECTION 1202
VENTILATION

Revise as follows:

1202.2.1 Ventilated attics and rafter spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking, ~~and~~ bridging, and insulation shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall be not less than $^{1}/_{150}$ of the area of the space ventilated. Ventilators shall be installed in accordance with manufacturer's installation instructions.

Exception: The net free cross-ventilation area shall be permitted to be reduced to $^{1}/_{300}$ provided both of the following conditions are met:

1. In Climate Zones 6, 7 and 8, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the *attic* or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the *ventilation* provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

Reason: This proposal makes a small but important addition to the ventilated attic section. The code correctly recognizes that ventilation openings are to permit free movement of air. Current language addresses blocking and bridging but fails to acknowledge insulation as another element which can interfere with air flow. This proposal addresses that oversight.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The additional requirement that insulation not block ventilation openings should not have a significant impact on cost in most instances. In cases where attic baffles are needed and were not included in the project specifications, there may be an increase related to the cost of the baffles.

G136-25

G137-25

IBC: 1202.2.1

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Building Code

Revise as follows:

1202.2.1 Ventilated attics and rafter spaces. Enclosed *attics* and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall be not less than $^{1}/_{150}$ of the area of the space ventilated. Ventilators shall be installed in accordance with manufacturer's installation instructions.

Exception: The net free cross-ventilation area shall be permitted to be reduced to $^{1}/_{300}$ provided both of the following conditions are met:

1. In Climate Zones 6, 7 and 8, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the *attic* or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the required *ventilation* provided in the bottom one-third of the attic space. ~~by eave or cornice vents.~~ Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

Reason: As presently written, the location of inlet vent openings is restricted to eaves and cornices when taking the 1/300 reduction in net free ventilation area. The proposed change removes this unnecessary limitation and permits intake vents to be placed in the bottom one-third of the attic space. This aligns with existing language in the IRC, making the provisions consistent between the two codes.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0, but this proposal is expected to provide an opportunity for lower construction costs by providing additional options.

Estimated Immediate Cost Impact Justification (methodology and variables):

The methodology used to support an expectation of lower costs is logic. As available options increase, the opportunity to optimize cost and function improves.

G137-25

G138-25

IBC: 1202.3

Proponents: Benyamin Madani, representing self (benyamin@poisearch.com)

2024 International Building Code

Revise as follows:

1202.3 Unvented attic and unvented enclosed rafter assemblies. Unvented *attics* and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all of the following conditions are met:

1. The unvented *attic* space is completely within the *building thermal envelope*.
2. No interior Class I vapor retarders are installed on the ceiling side (*attic* floor) of the unvented *attic* assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, not less than a $^{1}/_{4}$-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing *underlayment* above the structural sheathing.
4. In Climate Zones 5, 6, 7 and 8, any *air-impermeable insulation* shall be a Class II vapor retarder or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Insulation shall comply with either Item 5.1 or 5.2, and additionally Item 5.3.

5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

5.1.1. Where only *air-impermeable insulation* is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.

5.1.2. Where air-permeable insulation is provided inside the *building* thermal envelope, it shall be installed in accordance with Item 5.1.1. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the *R*-value percentages in Table 1202.3 for condensation control.

5.1.3. Where both air-impermeable and air-permeable insulation are provided, the *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with the *R*-value percentages in Table 1202.3 for condensation control. The *air-permeable insulation* shall be installed directly under the *air-impermeable insulation*.

5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months. The average temperature of sheathing shall be determined in accordance with Equation 12-1:

$$ATS = T_i - ((T_i - T_o) \times (A_p / (A_i + A_p))) \quad \textbf{(Equation 12-1)}$$

where:

ATS = Average temperature of sheathing

T_i = Indoor air temperature

T_o = Outdoor air temperature (the monthly average outside air temperature of the three coldest months)

A_p = Air permeable insulation

A_i = Air impermeable insulation

5.2. In Climate Zones 1, 2 and 3, air-permeable insulation installed in unvented *attics* shall meet the following requirements:

5.2.1. A *vapor diffusion port* shall be installed not more than 12 inches (305 mm) from the highest point of the roof, measured vertically from the highest point of the roof to the lower edge of the port.

5.2.2. The port area shall be greater than or equal to $^{1}/_{150}$ of the ceiling area. Where there are multiple ports in the *attic*, the sum of the port areas shall be greater than or equal to the area requirement.

5.2.3. The *vapor permeable* membrane in the *vapor diffusion port* shall have a vapor permeance rating of greater than or equal to 20 perms when tested in accordance with Procedure A of ASTM E96.

5.2.4. The *vapor diffusion port* shall serve as an air barrier between the *attic* and the exterior of the building.

5.2.5. The *vapor diffusion port* shall protect the *attic* against the entrance of rain and snow.

5.2.6. Framing members and blocking shall not block the free flow of water vapor to the port. Not less than a 2-inch (50 mm) space shall be provided between any blocking and the roof sheathing. Air-permeable insulation shall be permitted within that space.

5.2.7. The roof slope shall be greater than or equal to 3 units vertical in 12 units horizontal (3:12).

5.2.8. Where only air-permeable insulation is used, it shall be installed directly below the structural roof sheathing, on top the attic floor, or on top of the ceiling.

5.2.9. Where only air-permeable insulation is used and is installed directly below the structural roof sheathing, air shall be supplied at a flow rate greater than or equal to 50 cubic feet per minute (23.6 L/s) per 1,000 square feet ($93 m^2$) of ceiling.

5.3. The air shall be supplied from ductwork providing supply air to the *occupiable space* when the conditioning system is operating. Alternatively, the air shall be supplied by a supply fan when the conditioning system is operating. Where preformed insulation board is used as the *air-impermeable insulation* layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

Exceptions:

1. Section 1202.3 does not apply to special use *structures* or enclosures such as swimming pool enclosures, data processing centers, *hospitals* or art galleries.
2. Section 1202.3 does not apply to enclosures in Climate Zones 5 through 8 that are humidified beyond 35 percent during the three coldest months.

Reason: Most third party plan checkers to municipalities are asking to proof the proposed roof insulation will meet this code section as city inspectors have no measuring tools to calculate it at the site, for that, I am proposing this equation to be added to the code section.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed equation provides clarity on how to measure average temperature at roof sheathing.

G138-25

G139-25

IBC: 1202.5 (New), 1202.5.1 (New), 1202.5.2 (New), 1202.5, 1202.5.1, 1202.5.1.1, 1202.5.1.2, ASHRAE Chapter 35 (New); IMC®: 402.1 (New), 402.2 (New), [BG] 402.1, [BG] 402.2, [BG] 402.3, [BG] 402.4

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

Add new text as follows:

1202.5 Natural ventilation for all occupancy groups. Natural ventilation for all occupancy groups shall be in accordance with Sections 1202.5.1 through 1202.5.2.4.

1202.5.1 Natural ventilation for occupancy groups other than Group R . Natural ventilation for occupancy groups other than Group R shall comply with the natural ventilation procedure provisions of ASHRAE 62.1.

1202.5.2 Natural Ventilation for use in Group R . Natural ventilation for Group R shall comply with Sections 1205.5.2.1 through 1205.5.2.4

Revise as follows:

~~1202.5~~ **1202.5.2.1 Natural ventilation.** Natural *ventilation* of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the *building* occupants.

~~1202.5.1~~ **1202.5.2.2 Ventilation area required.** The openable area of the openings to the outdoors shall be not less than 4 percent of the floor area being ventilated.

~~1202.5.1.1~~ **1202.5.2.3 Adjoining spaces.** Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m^2). The openable area of the openings to the outdoors shall be based on the total floor area being ventilated.

> **Exception:** Exterior openings required for *ventilation* shall be allowed to open into a *sunroom* with *thermal isolation* or a patio cover provided that the openable area between the sunroom *addition* or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m^2). The openable area of the openings to the outdoors shall be based on the total floor area being ventilated.

~~1202.5.1.2~~ **1202.5.2.4 Openings below grade.** Where openings below grade provide required natural *ventilation*, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

Add new standard(s) as follows:

ASHRAE

ASHRAE
180 Technology Parkway
Peachtree Corners, GA 30092

62.1-2022	Ventilation for Acceptable Indoor Air Quality

2024 International Mechanical Code

Add new text as follows:

__**402.1**__ __**Natural ventilation for occupancy groups other than Group R**__**.** __Natural ventilation for occupancy groups other than Group R shall comply with the natural ventilation procedure provisions of ASHRAE 62.1.__

__**402.2**__ __**Natural ventilation for use in Group R**__ **.** __Natural ventilation for Group R shall comply with Sections 402.2.1 through 402.2.4__

Revise as follows:

[BG] ~~402.1~~ __402.2.1__ Natural ventilation. *Natural ventilation* of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with *ready access* so that the openings are readily controllable by the *building* occupants.

[BG] ~~402.2~~ __402.2.2__ Ventilation area required. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

[BG] ~~402.3~~ __402.2.3__ Adjoining spaces. Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining rooms shall be unobstructed and shall have an area not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m^2). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

Exception: Exterior openings required for ventilation shall be permitted to open into a thermally isolated sunroom addition or patio cover, provided that the openable area between the sunroom addition or patio cover and the interior room has an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m^2). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

[BG] ~~402.4~~ __402.2.4__ Openings below grade. Where openings below grade provide required *natural ventilation*, the outdoor horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

Reason: In climate zones with outdoor ambient temperature extremes, where the design professional has elected to employ natural ventilation, although in compliance with existing code language in theory, practical application and utilization of openable doors and windows as the sole source of ventilation air, is not consistently employed in practice, during months when either a heating or cooling system is conditioning an occupied space. ASHRAE 62.1, Section 6.4.1 Prescriptive Compliance Path, requires a mechanical ventilation system in conjunction with the natural ventilation. This mechanical ventilation system must comply with either section 6.2 Ventilation Rate Procedure and/or section 6.3 Indoor Air Quality Procedure of ASHRAE 62.1-2022. Under the exceptions provided to 6.4.1, IF a design professional wanted to delete the redundant mechanical system required, they must provide controls that ensure the openings are either open during times of occupancy OR are fixed as permanently open.

Consequently, 62.1-2022 section 6.4 (Natural Ventilation Procedure) provides both engineered (6.4.2) and prescriptive (6.4.1) options for compliance, which ensures proper natural ventilation despite outdoor ambient temperature and without sole reliance on openable doors and windows, absent extensive design calculations employed in the engineered method.

With the challenges faced in terms of indoor air quality, highlighted during the COVID pandemic, deficiencies in both existing and new HVAC systems became apparent. These challenges created a conflict between HVAC systems and the organic need to ventilate areas, leading to inconsistent temperature control and the decreased energy efficiency of HVAC systems. ASHRAE 62.1-2022 provides clear methods for the utilization of natural ventilation, accounting for the challenges faced during this crisis.

The PMGCAC and the BCAC recommends that the Code Correlation Committee assign a [BG] scoping to new IMC Sections 402.1 and 402.2.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Bibliography: For reference, the IBC definitions for various Group R occupancies are:

Group R-1 is multifamily (transient) such as hotels and motels.

Group R-2 is multifamily (nontransient) such as apartment buildings.

Group R-3 is for one- and two-family homes and townhouses outside the scope of the IRC, for example 4-story townhouses.

Group R-4 are assisted living facilities, group homes, etc.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$200 to $10,000

Estimated Immediate Cost Impact Justification (methodology and variables):

Due to the unlimited variations in building design, placing a predetermined dollar amount on the net cost increase of this proposal is impossible. The increase in the cost of construction is due to additional openings for the conveyance of outdoor air, meant for ventilation, required to comply with ASHRAE 62.1 2022. Smaller buildings may only need a simple mechanical ventilation system for bringing in outdoor air. As part of a planned HVAC system, the cost should be minimal. Much larger buildings would require more complex systems for bringing in outdoor air and as such the cost would be be much greater.

Estimated Life Cycle Cost Impact:

When considering the annual financial impact of Sick Building Syndrome, the COVID pandemic, annual influenza infections and other airborne illnesses which directly impacts individuals, municipalities, and corporations alike, though undefinable, the financial savings would exponentially outweigh the initial cost increase for construction.
Example 1: According to the World Economic Forum the COVID pandemic alone cost the world 11 trillion dollars for the pandemic response with an additional 10 trillion in lost earnings.

Example 2: According to the Elsevier publication *Building and Environment Journal Vol. 188* dated 1-15-21 in the US alone, the annual cost attributed to sick building syndrome in commercial workplaces is estimated at between 10 and 70 billion dollars. On average workers spend 90 percent of their time indoors while on the job.

Example 3: According to the Elsevier article dated June 22, 2018, and titled: *Economic Burden of seasonal influenza in the United States;* the total annual cost burden of seasonal influenza in the US stands at 11.2 billion dollars.

Staff Analysis: The proposed referenced standard, ASHRAE 62.1-2022 Ventilation for Acceptable Indoor Air Quality, is currently referenced in the IMC.

G139-25

G140-25

IBC: 1203.1, 1203.2 (New)

Proponents: Clayton Trevillyan, representing City of Tucson (clayton.trevillyan@tucsonaz.gov); Jane Gilbert, Miami Dade County, representing Miami-Dade County (jane.gilbert@miamidade.gov); Mary Wright, Office of Heat Response and Mitigation, City of Phoenix, representing self (mary.wright@phoenix.gov); Ali Frazzini, representing Los Angeles County Chief Sustainability Office (afrazzini@cso.lacounty.gov); Pedro Quintela, Miami Dade County, representing RER (pq2@miamidade.gov)

2024 International Building Code

Revise as follows:

1203.1 ~~Equipment and systems~~ Heating systems. Interior spaces intended for human occupancy shall be provided with active or passive space heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

Exceptions: Space heating systems are not required for:

1. Interior spaces where the primary purpose of the space is not associated with human comfort.
2. Group F, H, S or U occupancies.

Add new text as follows:

1203.2 Cooling systems. Dwelling units and sleeping units located in Climate Zones 0, 1, 2, 3, 4, 5A, and 5B, shall be provided with cooling systems capable of maintaining an indoor temperature at or below 80°F (26.7°C) in the habitable space. Where permanently installed fans are capable of generating 120 fpm (0.6 m/s) air speed inside the habitable space, the required cooling system shall be capable of maintaining an indoor temperature at or below 85°F (29.4°C). The installation of one or more portable systems shall not be used to achieve compliance with this section.

Exceptions:

1. Cooling systems are not required for interior spaces where the primary purpose of the space is not associated with human comfort.
2. In Climate Zone 5A or 5B, where site-specific climate conditions warrant, as *approved* by the *building official.*

Reason: The building code requires minimum heating of spaces for the safety of the occupants. The code is silent on requirements for cooling, despite the negative impacts of elevated exterior thermal conditions on humans. The built environment is a safe haven from the effects of weather and climatic conditions, heat not being an exception for people to seek shelter from the elements. Media attention to heat-related health emergencies on the elderly and people in underserved communities demonstrates the need for improvements in the built environment[1]. As a result of increased summer temperatures, nearly half of heat-related deaths happen inside a person's home[3] and some jurisdictions have already mandated cooling be provided in new buildings while many others are considering extreme heat related ordinances. A coordinated application of the codes that can be consistently applied to new construction is warranted due to the trend in local agencies with differing requirements throughout the country.

This proposal is a performance specification to ensure life safety in the built environment due to higher expected summer thermal conditions. The solution can either be active or passive systems, or a combination of these systems to provide relief from elevated thermal conditions. The active systems may include traditional central mechanical air conditioning systems that are provided in most modern homes and do not represent a significant change to how most buildings are constructed. Passive cooling systems utilize unique design features of the building that prevent heat from entering the building and/or removing heat from the building. Passive design applications include building orientation, insulation, solar control (shading and landscaping), ventilation and other methods that naturally, and without input energy, would provide and maintain thermal comfort. Passive systems could be more cost effective in both the short term and the long term as compared to active mechanical systems for circumstances where a few design changes could comply with specified interior temperature. The interior temperature of 80°F was selected as the maximum temperature for the thermal comfort of the interior environment based on ANSI/ASHRAE Standard 55-2023[2] and generally at, or above the temperature in most local ordinances.

The second sentence recognizes that air movement provides a cooling effect as experienced by the occupants of the building. ASHRAE Standard 55-2023[3] states that air movement of only 120 feet per minute results in a 5°F cooling effect on the occupants within this temperature range. Where permanent fans are installed, the resulting interior maximum temperature can be increased 5°F above the baseline temperature of 80°F that would be required for either the active or passive systems installed in accordance with the first sentence of the code change proposal. This is an additional cost-effective method to provide the minimum cooling effect on human bodies where thermal comfort and safety is provided in the built environment. Permanently installed fans can include ceiling fans, wall-mounted fans, bladeless ceiling fans, or any permanently installed fan that can be verified at the time of final inspection that the equipment is installed.

The third sentence is a carryover from the heating requirement in 1203.1, where the expectation for compliance is permanently installed equipment that can be utilized by the occupant as needed for thermal comfort and lifesaving opportunities from dangerous heat related health considerations.

Bibliography:

1. Kenny, Glen P., Jane Yardley, Candice Brown, Ronald J. Sigal, and Ollie Jay. “Heat Stress in Older Individuals and Patients with Common Chronic Diseases.” CMAJ 182, no. 10 (July 13, 2010): 1053–60. https://doi.org/10.1503/cmaj.081050
2. ANSI/ASHRAE 55-2023: Thermal Environmental Conditions for Human Occupancy. Atlanta, GA, US: ASHRAE, 2023
3. Kim, Elizabeth B. (June 19, 2024). Heat waves in the US kill more people in their homes than anywhere else. Cincinnati Enquirer. https://www.cincinnati.com/story/news/2024/06/19/heat-advisory-risk-dying-at-home-or-in-cars/74130082007/

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0 - $31+ per square foot of new or renovated habitable buildings.

The immediate cost impact to construction is for newly constructed or renovated buildings. There is no immediate cost to existing buildings. This value ranges greatly depending on variables that include but are not limited to:

- If the proposed construction would include cooling regardless of this code change. Zero cost impact will apply to many regions and project scopes for new permits.
- If the project includes a system that can be further supplemented at relatively low cost due to other air handling equipment that would have otherwise been included in the project scope.
- The method of proposed cooling and quality of equipment.
- Level of efficiency and sustainability of system design.
- The climate zone of project area.

Estimated Immediate Cost Impact Justification (methodology and variables):

1. Estimation from major HVAC contractor (Watsco)

“There are a lot of variables (i.e. size of the building, type of system, region, needs, installation costs). Below are some rough estimates"

- For commercial buildings the average cost can range from $15 to $30 per sq ft for a basic system but can go up to $40+ for more complex or high efficiency systems.
- For multi-family buildings the average cost can range from $2,500-$5,000 per unit for a basic system increasing in price for high efficiency units. ($40 pf @ 2 units for 4000 sf)

Comparison necessary to isolate cost of heating systems alone (e.g. furnace/boiler systems) to identify cost differential.

2. RSMeans Data (remeansonline.com)

$8-30 per sf

https://www.businesshue.com/commercial-hvac-cost-per-square-foot/

3. AC cost report (page 28)

https://www.energytrust.org/wp-content/uploads/2018/06/AC-Research_PhaseII_9MAR2018_Final.pdf

4. Report from IEA, claiming that fans are the best affordable and available active cooling technology.

https://www.iea.org/reports/sustainable-affordable-cooling-can-save-tens-of-thousands-of-lives-each-year

G140-25

G141-25

IBC: 1203.1

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov)

2024 International Building Code

Revise as follows:

1203.1 Equipment and systems. Interior spaces intended for human occupancy shall be provided with active or passive space heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day. <u>The installation of portable space heaters shall not be used to achieve compliance with this section.</u>

Exceptions: Space heating systems are not required for:

1. Interior spaces where the primary purpose of the space is not associated with human comfort.
2. Group F, H, S or U occupancies.

Reason: ICC provision regarding internal temperature limits does not specifically prohibit use of portable space heaters, which some could misconstrue as being allowed to be used in lieu of HVAC equipment, or at the very least undersized or incorrect HVAC equipment. Reliance on portable space heaters presents fire safety, energy efficiency, internal comfort, and thermal environment issues.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact as this proposal was only adding language for cooling systems, as well as clarifying that portable equipment cannot be used to achieve temperature limits. The intent of the building code was already requiring the use of built in heating and cooling systems to achieve temperature limits, making clarification to prohibit use of portable equipment irrelevant to cost of construction.

G141-25

G142-25

IBC: 1204.1

Proponents: Michele Mihelic, American Institute of Architects, representing American Institute of Architects (AIA) (michelemihelic@aia.org); Dee Leclair, SSOE Group, representing AIA National Codes & Standards Committee (dleclair@ssoe.com); Robert Margarella, Mason and Hanger, representing AIA - American Institute of Architects (jonah.margarella@masonandhanger.com)

2024 International Building Code

Revise as follows:

1204.1 General. Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section 1204.2 or shall be provided with artificial light in accordance with Section 1204.3. Exterior glazed openings shall open directly onto a *public way* or onto a *yard* or *court* in accordance with Section 1205.

Exception: The lighting requirements for sleeping units and sleeping rooms within dormitories shall be limited to natural light in accordance with Section 1204.2.

Attached Files

- **AIA_Proposal_IBC-Lighting-Windowless_Attach.pdf**
  https://www.cdpaccess.com/proposal/12008/35439/files/download/9250/

Reason: The proposed changes aim to ensure that all spaces intended for human occupancy, including sleeping units and dormitories, are provided with natural light. Natural light has numerous benefits, including improving occupants' health and well-being, reducing energy consumption, and enhancing the overall quality of indoor environments. By specifying the requirements for natural light and exterior glazed openings, the proposal ensures consistency and clarity in the code.

Justification: The justification for this proposal is based on the following key points:

1. **Health and Well-being:**
   - **Mental Health and Well-being:** Access to natural light has been shown to improve mental health, boost mood, and regulate circadian rhythms. This is particularly crucial in sleeping units and dormitories, where individuals spend extended periods.
   - **Physical Health:** Natural light exposure supports vitamin D synthesis, which is essential for bone health and immune function.
2. **Safety**:
   - **Enhanced Visibility:** Natural light enhances visibility in indoor spaces, reducing the risk of accidents and injuries caused by inadequate lighting.
   - **Emergency Situations:** In case of power outages or emergencies, natural light provides a reliable source of illumination, aiding in safe evacuation and reducing panic.
3. **Welfare**:
   - **Quality of Life:** Natural light contributes to a more pleasant and inviting environment, improving the overall quality of life for occupants.
   - **Productivity and Comfort:** Adequate natural lighting has been linked to increased productivity and comfort, benefiting both residential and commercial spaces.
4. **Energy Efficiency:** Natural light reduces the reliance on artificial lighting, leading to lower energy consumption and reduced carbon footprint. This aligns with sustainability goals and supports energy-efficient building practices.
5. **Code Consistency:** The proposal clarifies and standardizes the requirements for natural light in various types of spaces, ensuring that the code is easy to understand and apply. This reduces ambiguity and helps designers and builders comply with the code more effectively.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The cost impact of the proposed changes is anticipated to be minimal to moderate. While there may be initial costs associated with incorporating larger glazed areas or additional windows in new constructions or renovations, these costs are offset by the long-term benefits of improved occupant health and reduced energy consumption. Additionally, the proposal does not mandate specific types of glazing or construction methods, allowing for flexibility in achieving compliance in a cost-effective manner. About $1400, see justification below.

Estimated Immediate Cost Impact Justification (methodology and variables):

Estimated cost: 2. X 4 1/2" YES 45 TU with 1" Low E glass runs about $80.00 per sq ft installed, preliminary pricing.

Estimated sleeping unit within dormitories (larger), 250 SF, code requires min. 8% of the floor area = 20 SF x $80/SF = $1,600

Estimated sleeping unit within dormitories (smaller), 180 SF, code requires min. 8% of the floor area = 14.4 SF x $80/SF = $1,152

G142-25

G143-25

IBC: 1204.1, 1204.2 (New), 1204.2, 1204.2.1, 1204.2.3 (New), 1204.2.4 (New), 1204.2.2 (New), 1204.2.6 (New)

Proponents: Juan Miro, Miro Rivera Architects, representing Self (admin@mirorivera.com)

2024 International Building Code

SECTION 1204
LIGHTING

Revise as follows:

1204.1 General. Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section 1204.2 or shall be provided with artificial light in accordance with Section 1204.3.~~ Exterior glazed openings shall open directly onto a *public way* or onto a *yard* or *court* in accordance with Section 1205.~~

Exceptions:

1. In dwelling units and sleeping units in Group R, I-1, I-2 occupancies, all living, dining, and sleeping rooms with a floor area of 70 square feet (6.5 m^2) or more shall be provided with natural light in accordance with Section 1204.2 and artificial light in accordance with Section 1204.3.
2. In Group I-4 occupancies all living and sleeping rooms for persons receiving custodial care shall be provided with natural light in accordance with Section 1204.2 and artificial light in accordance with Section 1204.3.
3. In Group E occupancies, all regular classrooms shall be provided with natural light in accordance with Section 1204.2 and artificial light in accordance with Section 1204.3.

Add new text as follows:

1204.2 Natural Light . Where required, natural light shall be provided in accordance with Section 1204.2.1, 1204.2.2, 1204.2.3, 1204.2.4, 1204.2.5 or 1204.2.6. Openings shall comply with Sections 1204.2.5 and 1204.2.6.

Revise as follows:

1204.2.1~~1204.2~~ Direct Natural light. The room shall be provided with exterior openings with a ~~minimum~~ net glazed area ~~shall be~~ of not less than 8 percent of the floor area of the room ~~served~~.

1204.2.2~~1204.2.1~~ Adjoining spaces. For the purpose of natural lighting, any room is permitted to be considered as a portion of an adjoining room where one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room or 25 square feet (2.32 m^2), whichever is greater. The net glazed area of exterior openings shall be at least 8 percent of the aggregate floor area.

Exception: Openings required for natural light shall be permitted to open into a *sunroom* with *thermal isolation* or a patio cover where the common wall provides a glazed area of not less than one-tenth of the floor area of the interior room or 20 square feet (1.86 m^2), whichever is greater.

Add new text as follows:

1204.2.3 Remote rooms. A room without sufficient exterior openings is permitted to borrow natural lighting from an adjoining room that meets the requirements of Section 1204.2.1 if the remote room, adjoining room and exterior openings meet all of the following criteria:

1. The ceiling height in both the remote room and adjoining room shall be no less than 9 feet 4 inches (2844 mm) at the lowest point.

2. The top of the exterior glazing shall be no less than 9 feet (2743 mm) above the finished floor.
3. The opening between the remote room and the adjoining room shall be parallel to the plane of the exterior glazed openings, as near as possible to the ceiling and either:
   3.1. If open and unobstructed, shall have an area at least 8 percent of the floor area of the remote room or 25 square feet (2.32 m^2), whichever is greater.
   3.2 If equipped with transparent or translucent glazing, shall have a net glazed area at least 10 percent of the floor area of the remote room or 30 square feet (2.8 m^2), whichever is greater.
4. The remote room shall be immediately adjacent to the adjoining room.
5. The net glazed area of exterior openings shall be at least 8 percent of the aggregate floor area of the adjoining room and remote room.

1204.2.4 Residential basements. Where at least 40 percent of the net floor area of a Group R *dwelling unit*, not used as *congregate living facilities*, is located entirely above grade and provided with natural light in accordance with Section 1204.2.1 or 1204.2.2, *basement* spaces shall be provided with natural light as follows:

1. Bedrooms shall have exterior openings with a net glazed area of at least 6 percent of the floor area of the room.
2. For *habitable* spaces other than bedrooms, the *basement* level, as a whole, shall be provided with exterior openings with a net glazed area of at least 4 percent of the aggregate floor area of all *habitable* spaces in the basement.

1204.2.5 Exterior openings. Exterior openings required by Section 1204.2 for natural light shall open directly onto a *public way*, *yard* or *court*, as set forth in Section 1205.

Exceptions:

1. Required exterior openings are permitted to open into a roofed porch or exterior balcony where the roofed porch or exterior balcony meets all of the following criteria:
   1.1. Abuts a *public way*, *yard* or *court* complying with Section 1205.
   1.2. Has a ceiling height of not less than 7 feet (2134 mm).
   1.3. Has a longer side, parallel to the plane of the openings, at least 65 percent open and unobstructed from finished floor to underside of surface above.
2. Skylights are not required to open directly onto a *public way*, *yard* or *court*.

1204.2.6 Openings below grade. Where openings below grade are used to provide required natural light, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

1204.3 Artificial light. Artificial light shall be provided that is adequate to provide an average illumination of 10 footcandles (107 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

1204.4 Stairway illumination. *Stairways* within *dwelling units* and *exterior stairways* serving a *dwelling unit* shall have an illumination level on tread runs of not less than 1 footcandle (11 lux). *Stairways* in other occupancies shall be governed by Chapter 10.

Attached Files

- **Appendix D- Testimonials.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/9120/
- **Appendix C- Images Samples of Windowless Rooms.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/9118/
- **Appendix B - City Codes vs current IBC Code.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/9117/
- **06 UT Professors City Council letter.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/9116/
- **05 Student letter to council_Windowless Housing Initiative.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/9115/
- **04 TxA statement.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/9113/
- **03 AIAAustin_20230718_WindowlessBedroomsLetter[1].pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/9112/
- **02B_Windowless Rooms articles and citations.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/9015/
- **02A_Cited research publications links.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/8826/
- **01_122724_Miro-Kafrawi_The case against windowless rooms_Updated.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/files/download/8825/

Reason: The surprising allowance of windowless rooms in the IBC (International Building Code) is indefensible, considering the decades of informative empirical and scientific studies by medical, neuroscience and psychology experts that prove the importance of windows for daylight and outside views for occupants, particularly in small, confined spaces.

Lisa Heschong, a renowned specialist and author on the importance of daylight in our lives, emphasizes "that access to natural light, outdoor or indoor, should be a human right." As a result of the surmounting supporting evidence, she is advocating for the World Health Organization (WHO) to include daylight as a key component of human health along with *clean air, clean water, nutritious food and safe shelter.*

Whether it is the effect of daylight throughout the day, long term observation or casual occasional glances to nature, the sky, the urban environment, or simply the sense of spatial extension from confined rooms, the application of a window has sufficient scientific support to confirm that it provides essential ingredients for mental, physical health, social and economic benefits for occupants.

The reasons to advocate for the redefinition of the code are based on empirical and scientific evidence gathered over several decades. The reasons are summarized as follows:

1. Health and Wellbeing:

- **Physical Health**: Daylight assists in regulating circadian rhythms, developing better sleep patterns and overall health. It also aids in Vitamin D synthesis, which is crucial for immune function, bone health, and preventing diseases such as cardiovascular issues and certain cancers.
- **Mental Health**: Exposure to natural light reduces the risk of depression, anxiety, and Seasonal Affective Disorder (SAD). It enhances the mood and provides a strong sense of well-being.

2. Psychological Benefits:

- **Restorative Effects**: Views of nature and daylight have been proven to reduce stress and mental fatigue. The psychological benefits show dramatic increases in alertness, mood and perception of quality of life.

- **Connection to Nature**: Windows that provide views of the outside world allow for a connection with nature, which in turn creates a sense of escape and minimizes feelings of confinement and claustrophobia. “It's not what comes in the window, it’s what goes out the window. Windows provides access to external reality, but they also provide escape from the inescapable reality of confinement. Inhabitants of enclosed spaces need that opportunity.”[1]

3. Cognitive and Productivity Benefits:

- **Enhanced Performance**: Natural light boosts cognitive function and productivity. It improves concentration, decision-making, and overall performance in work and study environments.
- **Improved Sleep Quality**: Proper exposure to daylight helps regulate sleep cycles, leading to better sleep quality and morning alertness, which in turn enhances daytime productivity and cognitive functions.

4. Economic Benefits:

- **Increased Productivity**: Occupants in well-lit environments, especially when accompanied by natural views reveal higher levels of productivity, positivity and engagement, hence improving overall performance.

5. Sustainability Benefits:

- **Energy Savings**: Utilizing natural light reduces the need for artificial lighting, resulting in significant energy savings and accumulatively reduces burden on the national power grids.
- **Reduction of the carbon footprint**: On a national level, the accumulative effect of reducing energy consumption across all these windowless bedrooms will have a profound effect in the fight against climate change.

6. Social and Community Impact:

- **Urban Sustainability**: Implementing a compact city model should not come at any cost. Sustainable compact and energy efficient development will create a new set of social and health related problems if minimum standards for quality of life in our buildings and neighborhoods are not upheld. Incorporating daylight into building designs promotes urban sustainability by enhancing the quality of life and supporting energy-efficient practices.
- **Inclusive Design**: Generally, windowless bedrooms affect lower income citizens due to the cost saving, low-rent and high profit benefits for developers. Ensuring access to natural light in bedroom spaces supports social inclusivity, contributing to healthier, more equitable communities.

7. Relevant Precedents:

- **Existing US Precedents:** Chicago, Washington DC and Austin have amended the IBC in their jurisdiction to prevent the construction of windowless rooms. New York City, the densest city in the country, has its own code that does not allow windowless rooms based on historical empirical evidence. This requested change will change the base code nationally, so other cities will not need to do it individually.
- **Existing International Precedent:** Windowless rooms are banned in city codes from dense cities like Madrid, Barcelona, Mumbai, and Mexico City and in codes that regulate the construction industry in entire countries as diverse as China to Paraguay. The requested change will align the IBC with codes worldwide on this requirement.

Please refer to Appendix A attached to this statement to review all articles authored by Juan Miro and additionally citations of the articles in other publications.

Please refer to Appendix B attached to this statement to see the impact of the minimum glazed area requirements between cities that have banned windowless rooms in comparison to the current IBC code.

Please refer to Appendix C attached to this statement to observe few selected samples of existing windowless rooms for privately developed student housing near the University of Texas in Austin, TX.

Please refer to Appendix D attached to this statement for reference to testimonials from various students and citizens who have discovered the existence of windowless rooms.

Please refer to Appendix E attached to this statement for reference to letters from organizations, students and professors addressing the issue of windowless rooms.

The submitted code change for IBC is for Chapter 12- Interior Environment, Section 1204 – Lighting. The proposed language for the code change matches the code change text used in the '*2019 Chicago Building Code with revised April 2022 Supplement*'. This Chicago version of the amendments applies to the following occupancies that is recommended to be applied to the IBC:

- Group R occupancies: includes sub-groups R-1, R-2, R-3
- Group I-1 occupancies
- Group I-2 occupancies
- Group I-4 occupancies
- Group E occupancies

We have an opportunity to correct disastrous loopholes in our building codes to provide healthy living conditions for everyone of all classes and age groups. It is at the core of our responsibilities as architects to consider and provide the minimum essential quality of space for individuals and families to have the opportunity to have a dignified quality of life in their living and working environments.

[1] Dr. Sandra Häuplik-Meusburger et al, *Windows as an Integral Element in Space Architecture*, (73rd International Astronautical Congress (IAC), Paris, France, 18-22 September 2022, pg.9)

- **Appendix Final.pdf**
  https://www.cdpaccess.com/proposal/11447/35152/documentation/181302/attachments/download/9107/

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Note: Compiled cited papers in attached files are organized in the order listed below.

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8. Mohamed Boubekri et al, *Impact of Windows and Daylight Exposure on Overall Health and Sleep Quality of Office Workers: A Case-Control Pilot Study*, (Journal of Clinical Sleep Medicine, 2024)

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10. Belinda Lowenhaupt Collins, *Windows and People: A literature survey - Psychological Reaction to Environments with and Without Windows*, NBS Building Science Series, volume 70, 1975)
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PART 02B:

Windowless Rooms – Links to Articles

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3. "Opinion: Council's resolution to ban windowless rooms not enough." Juan Miró. *Austin AmericanStatesman*. September 20, 2023. https://www.statesman.com/story/opinion/columns/yourvoice/2023/09/20/opinion-councils-resolution-to-ban-windowless-rooms-not-
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   Arquitectura Viva. April 1, 2023. https://arquitecturaviva.com/articulos/habitaciones-sin-ventanas
5. "Windowless dorm rooms are proliferating, exacerbating a growing student mental health crisis. They should be banned." Juan Miró. *The Architect's Newspaper*. October 14, 2022.
   https://www.archpaper.com/2022/10/windowless-dorm-rooms-proliferating-exacerbating-a-growingstudent-mental-health-crisis-they
6. "Windowless Bedrooms Should Never Be an Option. Let's Ban Them for Good." Juan Miró. *Texas Architect*. September/October 2022. https://magazine.texasarchitects.org/2022/09/08/windowlessbedrooms-should-never-be-an-option-lets-ban-them-for-good/
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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Changing building codes to cancel windowless bedrooms would have several varied tangible and intangible cost impacts in construction, real estate development and socio-economic factors as outlined below:

Economic and Social Impacts:

1. **Improved Health and Wellbeing**: Access to natural light is scientifically proven to improve mental and physical health, potentially reducing healthcare costs as per the many supporting empirical and scientific evidence.

   The case study of the most recent code change in Austin to end the application of windowless rooms for student housing is the latest example of a city trying to protect it citizens. There are several supporting documentations included in this change request that highlight the importance of this issue in Austin.

2. **Enhanced Productivity**: Better-lit living and working spaces will enhance productivity and quality of life, that will have an indirect yet sizeable improvement to economic growth.
3. **Sustainability Benefits**: Increased use of natural light reduces reliance on artificial lighting, which will reduce energy savings, enhance environmental sustainability (reduce carbon footprint) via the building life cycle, and overall assist in fight against climate change.
4. **Social benefit of protection**: Protection of the most vulnerable citizens of society who are most likely to endure windowless rooms: low-income citizens, single mothers, students in dorms of higher education, children in schools, senior citizens, refugees and people with mental health issues.

Real Estate Development Costs:

1. **Higher Development Costs**: A bulky building with rooms without windows costs less that a building where all living spaces have windows. The reason is that with interior rooms away from the facade, a building can capture more interior space with a smaller ratio of exterior walls, which are more expensive to build than interior walls. So, when given the chance, developers have been quietly building bulky buildings for student's housing in Austin for as long as they have been able to because student housing is very profitable. Developers are cutting corners to save money where it should not be permitted in the first place. In the case of Austin, these construction cost savings have not resulted in rent reductions for students compared to buildings outside West Campus.

   In Austin's council meetings where the issue of windowless rooms has been discussed, no developer has defended the construction of windowless rooms. They simply have quietly taken advantage of building these types of rooms for as long as the code has allowed. The reason there is minimal support in favor of such in-humane conditions is that having windows in all living spaces is common sense.

2. **Market Value Impact:** Home and apartments with natural light and views are more desirable, increasing market value.
3. **Long-Term Savings**: While bulky buildings with windowless rooms may be cheaper to build than 'normal' buildings with windows, the occupant's health benefits will lead to more desirable buildings and therefore, long-term value for tenants and/or homeowners.

G143-25

G144-25

IBC: 1204.1.1 (New), 1204.3

Proponents: Nicholas Resetar, representing Glazing Industry Code Committee (nresetar@ralaw.com); Thom Zaremba, Roetzel & Andress, representing National Glass Association (tzaremba@ralaw.com); Thomas Culp, Birch Point Consulting LLC, representing Aluminum Extruders Council (culp@birchpointconsulting.com)

2024 International Building Code

1204.1 General. Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section 1204.2 or shall be provided with artificial light in accordance with Section 1204.3. Exterior glazed openings shall open directly onto a *public way* or onto a *yard* or *court* in accordance with Section 1205.

Add new text as follows:

1204.1.1 Classrooms. In Group E occupancies, not less than 50 percent of all classrooms shall be provided with both natural light in accordance with Section 1204.2 and artificial light in accordance with Section 1204.3.

Exceptions:

1. Day care facilities within a different primary occupancy are not required to comply with this section.

2. Existing buildings undergoing *alterations* or a change of occupancy are not required to comply with this section.

Revise as follows:

1204.3 Artificial light. Artificial light shall be provided that is adequate to provide an average illumination of not less than 10 footcandles (107 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

Reason: The lighting requirements of Section 1204.1 are acceptable for most occupancies. However, classrooms in Group E-Occupancies are
different from any other Occupancy type. Classrooms in E-Occupancies are used primarily for teaching children. During the long hours they spend
in classrooms, children are not only learning, but their brains and psychological makeups are developing. To maximize their learning and growth
potentials, children need natural daylight in classrooms where they are growing and being taught. For example, one study conducted over a one year
period found that both testing and behavioral outcomes are markedly improved when classrooms use natural light. It found that children in
classrooms with natural daylighting progressed 20% faster on math testing and 26% faster on reading testing. The research also found that
classrooms that provided students with greater amounts of natural light correlated to a 15% to 23% overall improvement in academic outcomes.
Research clearly shows that children in classrooms need natural daylight for optimal development and performance. The adoption of this proposal
will ensure that children attending class in our schools will have the best possible opportunity to grow and develop in classrooms lit by the natural
light of the sun.

In the 2019 Group A and 2022 Group B development cycles, similar proposals was brought forward. While the committees and governmental vote were supportive of the concept, the proposals
were ultimately unsuccessful. This proposal is different from these proposals. First and foremost, since it is unlikely that all
classrooms can be located on exterior walls where natural daylight is easily accessed, this proposal limits its natural daylighting mandate to 50% of
classrooms. Second, this proposal does not include I-4 Occupancies. Third, this proposal clarifies that this proposal only applies to newly constructed educational buildings and does not seek and/or intend to displace
the use of artificial light.

Finally, the modified code language clarifies that it does not apply to daycare facilities within other building types such an office building, and that it
would not apply to existing buildings or reconfigured spaces. As shown in the table below, the intended application is for new stand-alone
educational buildings. Furthermore, only requiring compliance for 50% of classrooms provides the necessary flexibility for spaces such as music rooms, shops, and gyms.

Example - **Covered?**

New stand-alone school building - Yes
New stand-alone daycare building - Yes
Existing buildings and reconfigurations - No
Training center / tutoring center in an office building or strip mall (classified as Group B) - No
Classroom in church (classified as Group A-3) - No
Daycare in church (classified as Group A-3) - No
Daycare in office building (primary occupancy is Group B) - No
Daycare in home or apartment complex (primary occupancy is Group R) - No

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Angela Read - Rochester Institute of Technology - "Integration of Daylighting into Educational (School) Building Design for Energy Efficiency, Health
Benefit, and Mercury Emissions Reduction Using Heliodon for Physical Modeling" - https://repository.rit.edu/theses/9699/

Cost Impact: Increase

Estimated Immediate Cost Impact:

The net effect of the public comment and code change proposal will increase the cost of construction. Classrooms already in compliance would cost $0.00. To add one window in order to bring to compliance would cost approximately $500.00 per unit.

Estimated Immediate Cost Impact Justification (methodology and variables):

The code change proposal will nominally increase the cost of construction in the event glazing and/or glass construction materials are more costly than the alternative.

Estimated Life Cycle Cost Impact:

School operating costs will decrease with decreased teacher and employee absenteeism, decreased employee health care costs, and increased teacher retention. Societal and community costs will decrease with increased student performance and outcomes.

G144-25

G145-25

IBC: 1206.1

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Building Code

SECTION 1206
SOUND TRANSMISSION

1206.1 Scope. This section shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent *dwelling units* and *sleeping units* or between *dwelling units* and *sleeping units* and adjacent public areas.

Exception: *Sleeping units* in Group I-2 are not required to comply with this section.

Reason: For Group R and I-1, there are separation requirements in Section 420 that have the walls extend to the roof deck above. Group I-2, nursing homes and hospitals do not have rated corridors or unit separations. So asking them to extend the separate wall to the ceiling for sound transmission would be additional costs.

There are FGI and privacy concerns that will address sound transmission/masking in patient care area, including the sleeping units, in hospitals and nursing homes. To avoid conflicts, these facilities should not be held to the same criteria as apartment buildings.

FGI provides a higher standard for sound isolation between 35 and 60 STC, and is adopted in over 44 states (ranging from 1996 to 2022 editions). https://fgiguidelines.org/guidelines/adoption-map/#:~:text=The%20data%20on%20state%20adoption,adopted%20only%20the%20HVAC%20requirements.

However, this standard is not in mandatory language or developed through the ANSI process, so it cannot be referenced in the codes as a requirement.

This proposal is submitted by the ICC Committee for Healthcare (CHC).

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is to avoid conflicts. Since this is already required for licensure, there will be no increase in the cost of construction.

G145-25

G146-25

IBC: SECTION 1206, 1206.1, 1206.2, 1206.2.1 (New), 1206.2.2 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 1206
SOUND TRANSMISSION

1206.1 Scope. This section shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent *dwelling units* and *sleeping units* or between *dwelling units* and *sleeping units* and adjacent public areas.

Revise as follows:

1206.2 Airborne sound. Walls, partitions and floor-ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class of not less than 50 where tested in accordance with ASTM E90, or have a Normalized Noise Isolation Class (NNIC) rating of not less than 45 if field tested, in accordance with ASTM E336 for airborne noise. ~~Alternatively, the sound transmission class of walls, partitions and floor-ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions and floor-ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E90. Engineering analysis shall be performed by a *registered design professional*. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to entrance doors; however, such doors shall be tight fitting to the frame and sill.~~

Exception: Entrance doors that are tight fitting to the frame and sill are not required to comply with this section.

Add new text as follows:

1206.2.1 Engineering basis. Alternatively, the sound transmission class of walls, partitions and floor-ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions and floor-ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E90. Engineering analysis shall be performed by a *registered design professional*.

1206.2.2 Penetrations. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings.

Reason: There are no technical change. The current text has too much information in one section. This proposal separates the requirements. The last sentence is an exception, so it is stated as such.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial. There are no changes in requirements.

G147-25

IBC: 1206.3 (New)

Proponents: Oleg Bulshteyn, representing a resident of a multifamily building with poor sound insulation (olegbulshteyn@hotmail.com)

2021 International Building Code

SECTION 1206
SOUND TRANSMISSION

1206.1 Scope. This section shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent *dwelling units* and *sleeping units* or between *dwelling units* and *sleeping units* and adjacent public areas.

1206.2 Airborne sound. Walls, partitions and floor-ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class of not less than 50 where tested in accordance with ASTM E90, or have a Normalized Noise Isolation Class (NNIC) rating of not less than 45 if field tested, in accordance with ASTM E336 for airborne noise. Alternatively, the sound transmission class of walls, partitions and floor-ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions and floor-ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to entrance doors; however, such doors shall be tight fitting to the frame and sill.

Add new text as follows:

1206.3 Structure-borne sound. The impact insulation class of floor-ceiling assemblies shall be field tested after the building is constructed to make sure that the building meets the code impact sound insulation requirement.

Reason: According to National Multifamily Housing Council (www.nmhc.org), noise has been identified as a major issue by residents of multifamily residential buildings. In addition, according to Alexandria, VA Office of Housing, noise transmission is one of the biggest issues for renters in multifamily buildings. The problem is worst in buildings constructed of wood above concrete podiums, and better in steel and concrete high rises. Finally, thousands of resident reviews are available on the internet citing poor sound insulation of multifamily residential buildings including those recently constructed. Some of these reviews have been included as the attachments.It might increase cost in the form of testing somewhat, but we are talking about the quality of life issue here. The existing building codes/construction techniques do not seem to result in the adequate level of the sound insulation in multifamily buildings, which is evident by the thousands of noise-related complaints.

Bibliography: 9_2_2 Rawlings_S_Magee_J.pdf (veneklasenresearchfoundation.org)
Soundproofing Techniques (nhcsi.org)
NMHC | Innovation Challenge Finalists Selected
How to Complain About Apartment Noise Successfully - Noise Free America: A Coalition to Promote Quiet
Microsoft Word - Noise and Sound Control at Your Home.docx (inceusa.org)

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The field testing will have no impact directly on the cost of construction since the test is after construction is completed.

G147-25

G148-25

IBC: 1208.2

Proponents: Charles Moore, representing Framery (charles.moore@frameryacoustics.com)

2024 International Building Code

Revise as follows:

1208.2 Minimum ceiling heights. *Occupiable spaces*, *habitable spaces* and corridors shall have a ceiling height of not less than 7 feet 6 inches (2286 mm) above the finished floor. Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall have a ceiling height of not less than 7 feet (2134 mm) above the finished floor.

Exceptions:

1. In one- and two-family *dwellings*, beams or girders spaced not less than 4 feet (1219 mm) on center shall be permitted to project not more than 6 inches (152 mm) below the required ceiling height.
2. If any room in a *building* has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum area thereof.
3. The height of *mezzanines* and spaces below *mezzanines* shall be in accordance with Section 505.2.
4. Corridors contained within a *dwelling unit* or *sleeping unit* in a Group R occupancy shall have a ceiling height of not less than 7 feet (2134 mm) above the finished floor.
5. Modular rooms, acoustic pods, enclosed furniture, lactation rooms and other temporarily occupied spaces used in Group B Occupancy.

Reason:

Modular Rooms, Acoustic Pods, Enclosed Furniture, Location Rooms and other temporarily occupied spaces used in Group B Occupancy should be exempt from the Interior Heights of 1208.2.

With the rise of open-office environments and the growing popularity of phone and video conferences, it becomes increasingly important to provide acoustically isolated spaces for employees to use. These can be part of the built environment as small rooms, but most often these have very problematic HVAC and ventilation issues and the sound isolation is very poor. Modular pre-built structures can be purpose built to address these issues and offer a much better working environment with improved lighting and ventilation over the Interior Space that it is located within.

The current IBC doesn't have an ideal way to handle these modular pre-built temporarily occupied spaces. When you try to apply the building code to these unique spaces, there are conflicting requirements. These should not extend to the ceiling, and the tops of these must be 18in below sprinklers to allow for proper sprinkler deployment. While at the same time if they must meet interior height requirements, you now must have a very tall interior space in order to satisfy both requirements.

I believe that these meet the intent of the code by providing a quiet and comfortable space for a defined function. The spaces are also completely voluntary, meaning that if anyone would be uncomfortable using this space, they can simply exit the "temporarily occupied space" This is quite different from a bathroom or kitchen or other Occupiable space which is necessary and required in the office environment.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This would have no impact on the cost of construction. This would allow the use of Acoustic Pods and other modular pre-built "utility spaces" or "temporarily occupied spaces" to be used without being restricted by the interior height requirements of 1208.2 which is not applicable to these voluntarily used spaces.

G148-25

G149-25

IBC: 1211.1

Proponents: Jonathan Roberts, representing UL Solutions (jonathan.roberts@ul.com)

2024 International Building Code

SECTION 1211
UV GERMICIDAL IRRADIATION SYSTEMS

Revise as follows:

1211.1 General. ~~Where~~ ~~ultraviolet~~ Ultraviolet (UV) germicidal irradiation systems and equipment shall comply with one of the following:

1. ~~are~~ Where provided in rooms, they shall be *listed* and *labeled* in accordance with UL 8802 and installed in accordance with their listing and the manufacturer's instructions.
2. Where installed in air ducts, plenums, or within the enclosures of heating and cooling equipment, they shall be installed in accordance with the *International Mechanical Code*.

Reason: The product standards and installation requirements are different for HVAC-related UV germicidal systems and equipment. UL 8802 is for both systems and equipment which are within an occupiable space where there is the potential for exposure to occupants. Germicidal systems and equipment that are part of the HVAC system or HVAC equipment are not within the scope of UL 8802 and are installed in mechanical spaces and have requirements focused on exposure during servicing or maintenance, thus users are directed to the IMC for the appropriate standard (UL 60335-2-40) and other requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal does not introduce new requirements, but merely clarifies the requirements that are applicable to both types of ultraviolet (UV) germicidal irradiation systems.

G149-25

G150-25

IBC: 2703.1, 2703.2.1, 2703.2.2 (New)

Proponents: Bryan Holland, representing National Electrical Manufacturers Association (NEMA) (bryan.holland@nema.org)

2024 International Building Code

SECTION 2703
LIGHTNING PROTECTION SYSTEMS

Revise as follows:

2703.1 General. ~~Where provided, lightning~~ Lightning protection systems shall comply with Sections 2703.2 through 2703.3.

2703.2 Installation. Lightning protection systems shall be installed in accordance with NFPA 780 or UL 96A. UL 96A shall not be utilized for *buildings* used for the production, handling or storage of ammunition, *explosives*, *flammable liquids, flammable gases* or other *explosive* ingredients including dust.

2703.2.1 Surge protection. Where lightning protection systems are installed, surge protection ~~protective devices~~ shall also be installed in accordance with NFPA 70 and either NFPA 780 or UL 96A, as applicable.

Add new text as follows:

2703.2.2 Where required. Lightning protection systems shall be installed on each building and structure assigned a risk category III or IV in accordance with Table 1604.5.

> **Exception:** Lightning protection systems shall not be required for any building or structure where determined to be unnecessary by evaluation using the Lightning Risk Assessment in NFPA 780 or an *approved* alternative method.

2703.3 Interconnection of systems. All lightning protection systems on a *building* or *structure* shall be interconnected in accordance with NFPA 780 or UL 96A, as applicable.

Reason: This proposal has two objectives. The first is to make two editorial revisions to the existing language for clarity and technical accuracy. The qualifier “where provided” in 2703.1 is unnecessary. In 2703.2, “surge protective device” is changed to just “surge protection” as both NFPA 70 and NFPA 780 require or permit surge protection in the form of surge arrestors, surge-protective devices, and surge protectors. All three may be required depending on the voltage classes present at the building or structure being protected:

- Type 1 or Type 2 listed surge-protective devices (SPDs) are required to be permanently installed on premises wiring systems operating at 1,000 volts or less
- Surge arresters are required to be permanently installed on circuits, equipment, or systems operating over 1,000 volts
- Listed surge protectors are required to be permanently installed for signal, data, and communication systems

The second objective, in a new 2703.2.2, is to mandate the installation of lightning and surge protection systems on buildings or structures that:

1. represent a substantial hazard to human life in the event of failure
2. have been designated as essential facilities and buildings where loss of function represents a substantial hazard to occupants or users

Lightning is one the largest contributors to building fire in the US and abroad. During the five-year-period of 2007-2011, NFPA estimates that U.S. local fire departments responded to an estimated average of 22,600 fires started by lightning per year. These fires caused an estimated average of nine civilian deaths, 53 civilian injuries and $451 million in direct property damage per year. These estimates are based on data from the U.S. Fire Administration (USFA) National Fire Incident Reporting System (NFIRS) and the National Fire Protection Association (NFPA) annual fire department experience survey. Lightning-caused fires, structural damage, and other losses are one of the most common troubles faced by American business today. A Carnegie-Mellon study showed that 33% of U.S. businesses are affected by lightning and that more businesses are negatively impacted by lightning storms than by floods, fires, explosions, hurricanes, earthquakes, and violence. Insured losses on property in the U.S. can exceed $5 billion dollars annually from lightning alone. According to the Insurance Information Institute, lightning fires in non-residential properties caused an average of $108 million in direct property damage each year from 2007 to 2011. The average annual damage in non-residential properties includes: $28 million in storage facilities, $22 million in places of assembly, such as houses of worship and restaurants, $19 million in nonhome residential properties such as hotels and motels, $15 million in mercantile and business properties such as offices, specialty shops and department stores, $15 million in industrial and manufacturing facilities, $3 million in outside properties, $3 million in educational and healthcare facilities, and $3 million in miscellaneous properties. These stats only take into account the insured losses reported and do not include uninsured losses, lost productivity, lost sales, lost inventory, and other considerable factors.

Bibliography: 1. “Lightning fires and lightning strikes”, Marty Ahrens, National Fire Protection Association, June 2013

2. "Securing the Supply of Electrical Services," by Jay Apt, Carnegie Mellon University, presented at the Carnegie Mellon Conference on Crisis Readiness, "Before the Next Crisis: Steps to Secure America's Essential Systems," February 28, 2006.

3. Hartford Insurance Group, Sept 14, 2006
4. “Facts + Statistics: Lightning”, Insurance Information Group

Cost Impact: Increase

Estimated Immediate Cost Impact:

The code change proposal will increase the cost of construction for risk category III and IV buildings and structures where the NFPA 780 lightning risk assessment recommends protection. The average cost of a complete lightning protection system, including design, materials, installation, and maintenance is less than 1% up to 3% of total construction cost of a building, whereas the average cost to renovate a building with lightning protection after completion of construction is approximately 10 times that of a new building under construction. The cost of the lightning protection system can be off set as much as 80% by insurance premium rate deductions and rebates. Lightning risk assessment calculations are readily available online, for free, and takes approximately 15-25 minutes to complete.

Based on the installation cost study link below, the national average 2015 costs for lightning protection on a low rise building would be $0.65/sf of roof area using aluminum, and a 5 story building would be $1.44/sf of roof area (slightly higher cost for copper)

Estimated Immediate Cost Impact Justification (methodology and variables):

A comprehensive lightning protection installation cost study can be reviewed here: https://ecle.biz/coststudy/.

Estimated Life Cycle Cost Impact:

G150-25

G151-25

IBC: 2703.2, 2703.2.1, 2703.3, AFNOR (New)

Proponents: Jennifer Hatfield, J. Hatfield & Associates, representing National Lightning Protection (jen@jhatfieldandassociates.com)

2024 International Building Code

SECTION 2703
LIGHTNING PROTECTION SYSTEMS

2703.1 General. Where provided, lightning protection systems shall comply with Sections 2703.2 through 2703.3.

Revise as follows:

2703.2 Installation. Lightning protection systems shall be installed <u>by one of the following methods:</u>

1. <u>In</u> ~~in~~ accordance with NFPA 780 or UL 96A. UL 96A shall not be utilized for *buildings* used for the production, handling or storage of ammunition, *explosives*, *flammable liquids, flammable gases* or other *explosive* ingredients including dust.
2. <u>Listed and labeled in accordance with NF C 17-102 and the manufacturers installation instructions.</u>

2703.2.1 Surge protection. Where lightning protection systems are installed, surge protective devices shall also be installed in accordance with NFPA 70<u>, or</u> ~~and~~ either NFPA 780 or UL 96A, as applicable.

2703.3 Interconnection of systems. All lightning protection systems on a *building* or *structure* shall be interconnected in accordance with <u>NFPA 70, or either</u> NFPA 780 or UL 96A, as applicable.

Add new standard(s) as follows:

AFNOR

French Standardization Association (AFNOR Group)
11 rue Francis de Pressense
Saint-Denis, 93210
France

<u>NF C 17-102 - 2011 (Reaffirmed 2016)</u> <u>Early Streamer Emission Lightning Protection Systems Standard</u>

Reason: Last code cycle, a new section on lightning protection systems were added to the IBC. There was a proposal (G175-21) to require said systems that was disapproved whereas a proposal (G176-21) to not require them, but to provide criteria if one wants to add a lightning system was approved. In the committee reasoning for the disapproval of G175-21, "the committee felt that this system should be applied by choice, and not as a building requirement". Whereas the committees reasoning for the approval of G176-21 stated that they "felt that this provided direction and criteria if you wanted to add a lightning protection system."

Unfortunately, what the committee did not hear was that there are different types of lightning protection systems and the language adopted in Section 2703 could be inferred as only allowing certain types of systems. There are different types of lightning protection systems available, each with their own standards, and a consumer should be able to choose which type they want installed. That occurs today, where both a Franklin Rod system and an Early Streamer Emission (ESE) system can be installed.

These two lightning protection systems are not totally different. Both use the same specifications for conductors, earthing terminations, equipotential bonding and surge protection devices. Where they differ is the type of rods used. It is also not unusual to mix both systems on a site or large building.

ESE systems have been installed in the United States and around the world for over forty years, with more than a million installed worldwide, including thousands in the United States with high profile projects. ESE systems are installed on hotels, college and professional sports venues, manufacturing facilities and office buildings, among other types of buildings and facilities, across the country and worldwide.

Each lightning protection system method provides solutions for unique applications around the world. One or the other may be more suitable for a specific project. For example, ESE rods might be more suitable for large premises whereas some highly electromagnetic sensitive premises may require a Franklin Rod system to provide a maximum number of conductors and earthing terminations.

In many countries it is up to the engineers and installers to choose the lighting protection system technology that is appropriate for the project. The type chosen, leads the engineer/installer to the appropriate standard that must be followed. For example, in many countries the Franklin Rod Systems must follow the IEC 62 305 series 1 to 4 (identical to NFPA 780) and Early Streamer Emission Systems must follow the NF C 17-102 standard.

The IBC should also allow engineers and installers to determine which system is more suitable for their projects, depending on its specification. Then, based on what type of system is installed, the code should require it to follow the appropriate standard. This proposal aims to make it clear that a choice remains, and like proposal G176-21, is intended to ensure whichever system is installed, it must follow installation guidelines.

Specifically, this proposal provides for the use of the NF C 17-102 Standard that provides guidelines for the design and installation of early streamer emission lightning protection systems. This standard was developed by AFNOR, which is the French Standards Development Organization similar to ANSI here in the United States. Like ANSI, AFNOR has various technical committees that develop standards with a consensus based approach. NF C 17-102 was first published in 1995 and then updated and replaced by the 2011 edition. AFNOR reaffirmed the NF C 17-102 Standard in 2016.

Many of the ESE systems installed in the United States and that use the NF C 17-102 standard have also been certified by a nationally recognized testing laboratory. This proposal ensures that all systems that use the NF C 17-102 be listed and labeled so to ensure certification occurs.

The proposal also provides clarity that when addressing surge protection and interconnection of systems, one can use NFPA 70, NFPA 780 or UL96A, as all three provide proper installation guidelines.

In summary, the proposal ensures all types of lightning systems can be used if they follow a set of guidelines; thereby clarifying and improving the language as it was originally adopted in the IBC. This will ensure the I-codes do not box out a type of lightning protection system that has been in the marketplace for decades. The original intent of the language, to not require lightning protection systems, but when one is installed, ensure it meets certain requirements, remains intact.

Bibliography: NF C 17-102-2011, Early Streamer Emission Lightning Protection Standard, AFNOR Group

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply clarifies all the methods available if installing a lightning protection system.

Staff Analysis: A review of the standard proposed for inclusion in the code, NFC 17-102:2011 Early Streamer Emission Lightning Protection Systems, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

G151-25

G152-25

IBC: 2703.4 (New)

Proponents: Jonathan Roberts, representing UL Solutions (jonathan.roberts@ul.com)

2024 International Building Code

SECTION 2703
LIGHTNING PROTECTION SYSTEMS

Add new text as follows:

2703.4 Inspection of system. Where required by the building official, compliance of the completed installation with NFPA 780 or UL 96A shall be documented by a certificate of inspection furnished by an approved agency based on a physical on-site inspection.

Reason: This proposal is consistent with NFPA 780, 1.5.3 which requires the completed lightning protection system to be certified through a physical on-site inspection by a qualified and impartial organization acceptable to the authority having jurisdiction. The phrase “certificate of inspection furnished by an approved agency” is used in several other locations in the IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These inspections are already taking place at the request of building officials this proposal provides verification of the inspection process and compliance with the standards.

G152-25

G153-25

IBC: SECTION 2703 (New), 2703.1 (New), 2703.2 (New)

Proponents: Michael Anthony, Standards Michigan, LLC, representing IEEE Education & Healthcare Facilities Committee (maanthon@umich.edu)

2024 International Building Code

Add new text as follows:

SECTION 2703 PERFORMANCE-BASED BUILDING PREMISE WIRING DESIGN FOR NON-EMERGENCY FEEDER CIRCUITS.

2703.1 Genaral. Feeder circuits identified in the NFPA 70 shall be permitted to be sized based on demonstrated load provided that sizing calculations are performed by a qualified person, as determined by the regulatory authority having jurisdiction.

2703.2 Demonstrated load. The demonstrated load shall be the historical maximum demand watt information recorded over at least a 24-month period for the same type of facility as the one in question, equated to watts per m^2.

Reason: We present this concept to the ICC community fully aware that it may be perceived as 'outside ICC jurisdiction' and will receive a smart rejection.. Our intent is to raise awareness of an ongoing discussion that began at the University of Michigan as far back as 1999. Electrical professionals there observed that at least half of our building's interior distribution transformers (numbering in the thousands across nearly 50 million square feet) were seldom loaded above 20 percent of their kVA rating throughout their lifecycle. The application of LED illumination and variable speed drives accelerated the downward trend.

We have authored multiple IEEE technical papers on this subject. We maintain collaboration with fellow design engineers (experts at NFPA and in the consulting industry) to narrow the gap between design load and observed load. More detail is found in the link below:

[Additional information: https://standardsmichigan.com/ibc-chapter-27-proposal/]

The proposed text is intended to be a placeholder. It closely mirrors the Canadian Electrical Code, which allows performance-based design discretion in sizing building interior power chains. By contrast, NEC wiring design is prescriptive, aligning with NFPA's primary mission of advancing fire safety.

Oversized power chains contribute to waste in customer-owned transformers, service panels, enclosure metal, architectural space for service rooms and switchgear, ventilation systems, sheet metal in ceiling plenums, air flow motors, illumination, egress entrance design, and more.

NFPA's own electrical experts acknowledge this issue. Despite research projects sponsored by its Research Foundation to inform technical committee members, proposals to reduce material and energy waste are routinely rejected by 'vertical incumbents'— manufacturers, testing labs, insurance, inspection entities— who benefit economically from oversized building power chains.

In summary, while NFPA has been supportive and respectful of user interests (building owners), the link provided presents more significant technical substantiation, and is respectful of the balance NFPA must maintain with other constituencies .

This proposal, at the very least, aims to broaden awareness of this obvious cost-saving opportunity. We want to find a home for it in any of the dominant standards catalogs that inform safe and sustainable building construction (e,g, ICC, NFPA, ASHRAE, IEEE, NECA, NEMA, etc.)

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Since the electrical power chain typically accounts for about 20% of a building's initial cost, this proposal enables the electrical engineer to design a power chain that has the practical effect of reducing those costs by an additional 20%. It also provides energy savings through reduced material usage and heat losses over the building's entire lifecycle. For billion dollar projects, this could be a potential cost savings of $900,000 to $1,750,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal will reduce immediate cost and life cycle cost of a building by permitting designers to specify electrical closets, wires, conduit, transformers, cooling networks and related power chain elements between **load** side of the electric service and the receptacle and lighting branch circuit networks according to historical, observed and projected electrical demand profile of nearly every occupancy class typically found on an educational settlement.

G153-25

G154-25 Part I

IBC: 3001.2, TABLE 3001.3, 3001.5, 3002.5, [F] 3003.2, 3007.1, 3008.7.1, EN Chapter 35 (New), ISO Chapter 35 (New)

Proponents: Stephen Smith, representing Center for Building in North America (stephen@centerforbuilding.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

3001.2 Elevator emergency communication systems. An elevator emergency two-way communication system that includes both visual and audible communication modes complying with the requirements in ASME A17.1/CSA B44 <u>or ISO 8100-1</u> shall be provided in each elevator car. The system shall provide a means to enable authorized personnel to verify:

1. The presence of someone in the car.
2. That the person(s) is trapped.

Once an entrapment is verified, the system shall enable authorized personnel to:

1. Determine if assistance is needed.
2. Communicate when help is on the way.
3. Communicate when help arrives on site.

Exception: If the elevator standard used does not include a requirement for two-way visual communication, then the interior of the elevator cabin shall include a sign with a phone number that can accept text messages, along with a unique identifier for occupants to identify their elevator car.

TABLE 3001.3 ELEVATORS AND CONVEYING SYSTEMS AND COMPONENTS

TYPE	STANDARD
Automotive lifts	ALI ALCTV
Belt manlifts	ASME A90.1
Conveyors and related equipment	ASME B20.1
Elevators, escalators, dumbwaiters, moving walks, material lifts	ASME A17.1/CSA B44, ASME A17.7/CSA B44.7; <u>or ISO 8100-1, ISO 8100-2</u>
Industrial scissor lifts	ANSI MH29.1
Platform lifts, stairway chairlifts, wheelchair lifts	ASME A18.1

3001.5 Change in use. A change in use of an elevator from freight to passenger, passenger to freight, or from one freight class to another freight class shall comply with Section 8.7 of ASME A17.1/CSA B44 <u>or both ISO 8100-1: Annex C and ISO 8100-1: 7.3.2 (b)</u>.

3002.5 Emergency doors. Where an elevator is installed in a single blind hoistway or on the outside of a *building*, there shall be installed in the blind portion of the hoistway or blank face of the *building*, an emergency door in accordance with ASME A17.1/CSA B44 <u>or ISO 8100-1</u>.

[F] 3003.2 Fire fighters' emergency operation. Elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1/CSA B44 <u>or EN81-72</u>.

3007.1 General. Where required by Section 403.6.1, every floor above and including the lowest level of fire department vehicle access of the *building* shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44 <u>or EN81-72</u>.

Exceptions:

1. Elevators that only service an open or enclosed parking garage and the lobby of the *building* shall not be required to serve as fire service access elevators.

2. The elevator shall not be required to serve the top floor of a *building* where that floor is utilized only for equipment for *building* systems.

3008.7.1 Elevator recall. The *fire command center* or an alternate location *approved* by the fire department shall be provided with the means to manually initiate a Phase I Emergency Recall of the occupant evacuation elevators in accordance with ASME A17.1/CSA B44 or EN81-72.

Add new standard(s) as follows:

EN

European Committee for Standardization
Rue de la Science 23 B
Brussels, Belgium 1040
Belgium

EN81-72:2020	Firefighters lifts
ISO 8100-1:2019	Safety rules for the construction and installation of passenger and goods passenger lifts
ISO 8100-2:2019	Design rules, calculations, examinations and tests of lift components

G154-25 Part I

G154-25 Part II

IBC: 1607.12.1, 1613.5, EN Chapter 35 (New), ISO Chapter 35 (New)

Proponents: Stephen Smith, representing Center for Building in North America (stephen@centerforbuilding.org)

2024 International Building Code

Revise as follows:

1607.12.1 Elevators. Members, elements and components subject to dynamic *loads* from elevators shall be designed for *impact loads* and deflection limits prescribed by ASME A17.1/CSA B44 or both ISO 8100-1 and ISO 8100-2.

1613.5 Elevators, escalators and other conveying systems. Elevators, escalators and other conveying systems and their components shall satisfy the seismic requirements of ASCE 7, ~~and~~ ASME A17.1/CSA B44 and EN81-77, as applicable.

Add new standard(s) as follows:

EN

European Committee for Standardization
Rue de la Science 23 B
Brussels, Belgium 1040
Belgium

EN81-77:2022	Lifts subject to seismic condition
ISO 8100-1:2019	Safety rules for the construction and installation of passenger and goods passenge
ISO 8100-2:2019	Design rules, calculations, examinations and tests of lift components

Reason: In 1957, elevator regulators, inspectors, and manufacturers from around Europe met in Milan to discuss harmonizing safety standards. “It was learned,” wrote Finland's longtime representative to the European elevator standard's technical committee, “that differing opinions concerning safety existed, though risks connected to elevators should be the same in all countries.” Each country in Europe at the time had its own elevator safety standard, but as part of a project of European unification, their rules were gradually consolidated into what would become Europe’s EN 81 family of elevator standards.[1] In North America, a similar process took place a few decades later as the United States and Canada harmonized their standards into a unified ASME/CSA set of standards, with A17.1/B44 as the flagship text.[2] A battle between the European and North American standards played out around the world, and Europe won. Virtually every country in the world now either accepts or is working towards convergence with European elevator standards, which were inscribed as global standards standards in the form of ISO 8100-1 and ISO 8100-2, as China – which now has far and away the world’s largest fleet of elevators, and the majority of new installations globally – finally sided with the Europeans.[3]

The global harmonization of elevator rules around the ISO 8100 standards and related EN 81 family of standards has marooned the United States and Canada on a technological and market island. Americans have access to a narrower range of models built by a small and shrinking pool of manufacturers. We are left to pick through slimmer catalogs of components than our counterparts outside of North America, who can buy parts conforming to the global standard on the more competitive global market. For a few concrete examples, compare the number of landing and car doors and lift machines that Wittur is able to sell in North America compared to their offerings in Europe, or the number of elevator door detectors that WECO – the world’s largest manufacturer of the devices – has available in the two markets.[4]

We lag behind the rest of the world in practices – the machine room less elevator came late to America, and hydraulic models that have mostly fallen out of fashion abroad still make up a significant share of new installations in the U.S. We have the world’s highest elevator costs, with devices in similarly sized buildings costing three to four times what they do in high-income countries in Western Europe, even after adjusting for cost-of-living differences. New walk-up apartment buildings are commonplace across the United States, up to three stories in garden apartments throughout the country and up to six stories in places that have made small-lot multifamily buildings easier to build through amendments to Section 1006. In Western Europe, on the other hand, with its much more affordable elevators, walk-ups are nearly extinct in even low-rise new construction.[5]

The primary goal of referenced elevator standards is safety, but there is no solid evidence that the ASME standards provide more safety for workers within the elevator industry (who are disproportionately at risk from elevators) than global standards. What limited evidence there is hints at the opposite. Beyond risks to elevator workers from installed devices, the walk-up buildings that continue to proliferate in America pose significant risk to residents and other construction workers. Over 1 million Americans are treated in emergency rooms each year for injuries incurred while using stairs, and thousands lose their lives.[6]

Referencing the ISO and EN global standards in addition to ASME’s North American ones would be a big shift for the elevator industry and regulators, but it is a well-trod path that hundreds of other countries around the world have already gone down. The A17.1 standard is more prescriptive than the ISO standards, but even ASME has recognized the benefits of performance-based design, with its A17.7 performance-based elevator standard, as has the ICC with its own Performance Code for Buildings and Facilities. Lawmakers' rising interest in affordability and infill urban development may push the industry to accept the global elevator standards outside of the model code process, with bills introduced in the 2025 legislative session in Washington State to force adoption of the ISO's elevator standards, with the support of the state AARP chapter.[7]

My proposal takes a step towards opening the North American market up to global standards by offering owners the option of choosing elevators that conform to the status quo ASME standard, or the global ISO and related EN standards. The ISO 8100-1 and ISO 8100-2 standards contain the bulk of what is addressed in the ASME A17.1 standard, but there remain a few items referenced in the IBC that are outside of their scope. For these items, I have found the relevant EN standards (EN standards, written by CEN-CENELEC, form the basis of the ISO 8100 standards as well). I believe these European standards are the most appropriate to reference, since Europe is the home of most global elevator manufacturers and of the global regulatory system for elevators, and is by far the largest high-income market for elevators in the world, with many times as many installed devices as in North America.

EN 81-72 contains Phase I emergency recall operation and Phase II emergency in-car operation instructions (in 5.8, "Control systems") that are similar to those in ASME A17.1. EN 81-73 contains rules for the behavior of elevators during fires. Seismic requirements found in ASME 17.1 have parallels in EN 81-77, written to address the many seismically active places in Europe (like Turkey or Italy) where this standard is adopted.

There are two IBC sections where I was not able to find a clean parallel to an ISO or EN standard: behavior during floods, and two-way visual communications.

For the latter, the reference to ASME A17.1 in IBC 1612, "Flood Loads," is simply left in place – building owners in flood hazard areas would need to either demonstrate an equivalence to the AHJ if they wanted to use devices not certified to ASME A17.1, or use equipment fully conforming to ASME A17.1.

The two-way visual communication requirement is trickier, since it applies to all devices, not just in special areas. Leaving the requirement in place as-is would therefore render the allowance in other sections for ISO/EN-conforming devices unusable. There is no ISO or EN equivalent to this new requirement, so my proposed solution is that equipment meeting ISO standards would, unless or until the standard is rewritten to include a visual communication requirement, require a sign with a phone number to text for people who cannot otherwise use the audio equipment provided. This is in line with common practice abroad, where most elevator cabs are provided with phone numbers. This would have the ancillary benefit of giving trapped riders another means to reach the proper authorities (that is, the elevator service company) rather than calling 911, which often leads firefighters to damage equipment while trying to disentrap riders, leaving elevators out of service while they wait for repairs and often leaving building inaccessible in the meantime. While a visual communication system that relies on the user to have a charged cell phone and cell service is not foolproof (no system is – even the current code requirements may leave the 8 percent of the U.S. population unable to speak English very well unserved), the anecdote provided by the proponent of EB 94-15 in support of one of the original proposals leading to this code section involved trapped riders with access to working phones with cell service.[8] I realize that the exception I have inserted into this section may not meet the intent of prior cycles' committees, and I am open to other solutions here (such as requiring that communications devices meet the standards laid out in a specific ASME A17.1 section).

Elevator standards are referenced in multiple chapters of the IBC, making any proposal to add an additional referenced standard option challenging. While the main references are in Chapter 30 with some additional references in Chapter 16, both heard during Group B this year, there are some ancillary references in chapters 9 and 10, which were heard last year during Group A. While these references are more important than what is usually considered correlative, the elevator standard is referenced in so many different places that it would not otherwise be possible to introduce a new set of referenced standards in a single year, and any proposal adhering strictly to the separation of groups would end up disjointed and confusing. Given that the heart of the matter belongs in Chapter 30, I believe this proposal is best addressed during Group B.

If this proposal is successful, the following will be proposed in Group A.

1009.4.1 Standby power. The elevator shall meet the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1/CSA B44 <u>or ISO 8100-1</u>. Standby power shall be provided in accordance with Chapter 27 and Section 3003.

[F] 907.3.3 Elevator emergency operation. *Automatic fire detectors* installed for elevator emergency operation shall be installed in accordance with the provisions of ASME A17.1/CSA B44 <u>or both EN81-72 and EN81-73</u> and NFPA 72.

[F] 911.1.6 Required features. The *fire command center* shall comply with NFPA 72 and shall contain all of the following features: (portions not shown remain unchanged)17. Elevator fire recall switch in accordance with ASME A17.1/CSA B44 <u>or both EN81-72 and EN81-73</u>

Bibliography:

1. Ilkka Mäntyvaara, “40 Years of Elevator-Code Standardization,” *Elevator World*, May 1, 2012, https://elevatorworld.com/article/40-years-of-elevator-code-standardization/.
2. *The A17.1 Code: A Century of Progress for Safety, 1921-2021* (Elevator World, 2021).
3. “IAEC Position Paper: Should ASME A17.1/CSA B44 ‘Converge’ with ISO 8100?” (International Association of Elevator Consultants, October 22, 2018), https://www.elevatoru.org/resources/Documents/IAEC-Convergence-Paper-Final.pdf; Christian de Mas Latrie, “Lift Associations ELA and CEA Align on Interpretation of Standards,” *Elevator World*, February 1, 2022, https://elevatorworld.com/article/closing-the-distance-between-europe-and-china/.
4. “Wittur,” accessed February 2, 2024, https://www.wittur.com/; “WECO Elevator Products Ltd.: Products,” accessed February 7, 2025, https://wecocanada.com/products/; “WECO Elevator Products,” accessed February 7, 2025, https://www.wecoeurope.com/products/door-detectors/.
5. Stephen Jacob Smith, “Elevators” (Center for Building in North America, May 2024), https://bit.ly/3XRH4lj.
6. Smith, 40–42.
7. Washington State Legislature, “SB 5156 - 2025-26: Concerning Elevator Standards in Smaller Apartment Buildings,” accessed February 7, 2025, https://app.leg.wa.gov/billsummary?BillNumber=5156&Year=2025; Washington State Legislature, “HB 1183 - 2025-26: Concerning Building Code and Development Regulation Reform,” accessed February 7, 2025, https://app.leg.wa.gov/billsummary?BillNumber=1183&Year=2025&Initiative=False.
8. United States Census Bureau, “People That Speak English Less Than ‘Very Well’ in the United States,” April 8, 2020, https://www.census.gov/library/visualizations/interactive/people-that-speak-english-less-than-very-well.html; “2015 Group A Proposed Changes to the I-Codes Memphis Committee Action Hearings” (Memphis: International Code Council, April 19, 2015), EB 94-15, https://www.iccsafe.org/wp-content/uploads/IEBC4.pdf.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

It is difficult to quantify exactly the cost decrease. Based on a review of dozens of proposals across the two continents, elevators in high-income countries in Western Europe are roughly a third the cost of those in the U.S., however some of this cost decrease comes from small cabin sizes, some comes from labor inefficiencies that may or may not change with the a new standard, and some comes from factors external to codes and standards (like America's more difficult product liability environment, or its stricter immigration policies). My rough estimate based on dozens of interviews and overall evaluation of the market is that harmonizing with global standards will decrease the cost of an elevator for a mid-rise building by the low to mid-five figures. Very roughly, one-quarter of the $150,000 cost for a mid-rise multifamily elevator.

Estimated Immediate Cost Impact Justification (methodology and variables):

See above.

Estimated Life Cycle Cost Impact:

I expect lower costs due to increased availability of parts and testing procedures (for example, lower-cost alternative electronic testing). The magnitude is difficult to estimate, but I would guess that the percentage decrease in costs would be at least in the low double digits. In general, annual operating costs for mid-rise elevators in the U.S. are in the range of $7,500, compared to a third or quarter of that in Western Europe after adjustment for purchasing power parity in Western Europe (see pgs. 37-39 of my report for more details). However, like the immediate cost differential, this gap has more contributing factors beyond ASME vs. ISO/EN standards.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

See above.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

EN 81-72:2020 Firefighters lifts
ISO 8100-1:2019 Safety rules for the construction and installation of passenger and goods passenger lifts
ISO 8100-2:2019 Design rules, calculations, examinations and tests of lift components

G154-25 Part II

G155-25

IBC: 3002.1.1, 3006.2, 3006.2.1

Proponents: Stephen Smith, representing Center for Building in North America (stephen@centerforbuilding.org)

2024 International Building Code

CHAPTER 30
ELEVATORS AND CONVEYING SYSTEMS

SECTION 3002
HOISTWAY ENCLOSURES

Revise as follows:

3002.1.1 Opening protectives. Openings in fire-resistance-rated hoistway enclosures shall be protected as required in Chapter 7.

~~**Exception**~~ **Exceptions**:

1. The elevator car doors and the associated hoistway doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I Emergency Recall Operation.
2. Elevator hoistway door located in the wall of a *corridor* required to be fire-resistance rated in accordance with Section 1020.1 is not required to be smoke protected in accordance with Section 716.2.2.1.1.

SECTION 3006
ELEVATOR LOBBIES AND HOISTWAY OPENING PROTECTION

3006.2 Elevator hoistway door protection required. Elevator hoistway doors shall be protected in accordance with Section 3006.3 where an elevatorserves an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access and ~~hoistway connects more than three *stories*,~~ is required to be enclosed within a *shaft enclosure* in accordance with Section 712.1.1; and any of the following conditions apply:

1. The *building* is not protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 ~~or 903.3.1.2~~.
2. The *building* contains a Group I-1, Condition 2 occupancy.
3. The *building* contains a Group I-2 occupancy.
4. The *building* contains a Group I-3 occupancy.
5. ~~The elevator hoistway door is located in the wall of a *corridor* required to be fire-resistance rated in accordance with Section 1020.1.~~

Exceptions:

1. Protection of elevator hoistway doors is not required where the elevator serves only *open parking garages* in accordance with Section 406.5.
2. Protection of elevator hoistway doors is not required at the levels of exit discharge, provided that the levels of exit discharge is equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. Protection of elevator hoistway doors is not required on levels where the elevator hoistway doors open to the exterior.

Delete without substitution:

~~**3006.2.1 Rated corridors.** Where *corridors* are required to be fire-resistance rated in accordance with Section 1020.2, elevator hoistway openings shall be protected in accordance with Section 3006.3.~~

Reason: Elevator hoistway opening protection was the topic of a number of earlier proposals and changes. Now that those have had time to take effect, we can see the cost impact of the ultimate changes, allowing us to weigh the costs and benefits more clearly. The costs appear to be very high, while the benefits are low to nonexistent. In addition to clarity on costs, an update to the IBC removing the hoistway ventilation requirement has eliminated a major source of the stack effect.

Quotes obtained in two U.S. cities show significant costs to these requirements, which were not documented in the 2015 code change proposal that was ultimately adopted – $5,700 per landing in a Pacific Northwest city in 2023, and $10,400 per landing in New York City (to put this into perspective, the *full cost* of an installed elevator in Western Europe lies somewhere within this range). On top of these base prices, there are additional charges for many types of elevators and for contractor markup. Maintenance and repair costs are also likely to be significant given the monopolistic nature of the market for such specialized devices not used in other countries. The extremely high cost and low availability of elevators in the United States has come under scrutiny recently. As of this writing on Jan. 10, 2025, legislators have already introduced bills to change codes and standards related to elevators, and it is likely that hoistway protection requirements will attract their attention as well, given their high costs and questionable benefits. The ICC has a chance to get in front of this issue.

Generations of real-world experience has shown us that the benefits of these requirements are low to nonexistent. Earlier versions of building codes were interpreted to require elevator hoistway opening protection in some jurisdictions in the wake of the MGM Grand fire in 1980, but interviews suggest that most jurisdictions (especially those in the Northeast with many high-rises) either did not contain these provisions or were not interpreted in such a way as to require the protection. As the ICC Code Technology Committee (CTC) noted in 2012, the generations of experience without the protection were good – "code officials participating in the study group stated that lobbies have traditionally not been required in these type buildings in their jurisdictions and their experience has been good." The MGM Grand fire was multifactorial, and if the same fire had broken out in a building built to today's code but without elevator hoistway opening protection, nobody would have died or been seriously injured, especially above the ground floor, due to revised elevator recall operations, modified HVAC design, requirements for protecting building joints, and increased sprinkler requirements in today's codes.

New York City property data allows us to quantify the experience with multistory elevator buildings without hoistway opening protection. City property data suggests that there are nearly 31,000 elevator buildings of at least four stories in the city (roughly the current threshold for required hoistway opening protection in the IBC), which contain a total of 1.75 million apartments and roughly half of New York City's population. Together, these multifamily buildings have 275 million life-years of experience (that is, the number of occupants times the age of the building). The CTC in 2012 was not able to identify any fatalities due to a lack of hoistway opening protection in these buildings, and I have not been able to either.

Elevator hoistway opening protection has, since the IBC was updated to explicitly require it, not been adopted by all jurisdictions. New York City, with by far the largest stock of high-rise elevator buildings in the country, continues to not require it on floors with R-2 occupancies (NYC BC 3006.1.1, exception 5). Chicago has stricken Section 3006 from its IBC adoption entirely (Chicago BC 3006).

Updates to the ASME A17.1 standard and then later to the IBC to eliminate the required ventilation opening at the top of the shaft have also lessened the stack effect that might occur, drawing smoke upwards through the shaft and creating a need for opening protection.

Regarding the international nature of the IBC, I was unable to find a single jurisdiction outside of the United States that requires elevator hoistway protection (lobbies, smoke curtains, pressurization, or hold-open doors) for ordinary multistory buildings. Even Canada, which often adopts U.S. building code requirements and which has been experiencing a high-rise apartment boom across the country in recent years, has not adopted these requirements.

Elevator hoistway protection opening requirements in the IBC have become an example of what Margaret Law and Paula Beever described in their seminal 1994 lecture "Magic Numbers and Golden Rules", where major fires lead to an exhaustive enumeration of layered failures, all of which are then addressed in prescriptive codes, leading to overkill:

> *The outcome of [studies of major fires] is generally to identify the major contributory factors which led to the incident becoming as serious as it did. The investigation is likely to be conducted on several levels concerned with details...The results of all of these studies are likely to emerge as a set of recommendations for improvements in an attempt to ensure that such an incident could not be repeated. The problem is that the results are unlikely to be formulated as a series of alternatives, the implementation of any of one of which would have avoided the tragedy, but rather as a set of measures which must be adopted as a whole. This approach, whilst very well intentioned, leads to new sets of golden rules because of a failure of rational analysis.*

In 2012, the CTC recommended limiting elevator hoistway protection requirements to buildings exceeding 420 ft. in height, based on "the many fire safety features required by the building code, including automatic sprinklers, that mitigate the hazard of the spread of smoke via elevator hoistways." Since that proposal was disapproved, my proposal compromises with a much more conservative height limit: 120 ft. This threshold aligns elevator hoistway protection requirements with other requirements in the code, such as fire service access elevators (IBC 403.6.1).

If this committee indicates an openness, however, I do believe that the CTC's 2012 recommendation to eliminate the requirement for buildings up to 420 ft. in height was sound, and I would be happy to return in the fall with an updated proposal in line with their 420-ft. recommendation, or somewhere in between my proposal and theirs.

Bibliography: Baldassarra, Carl. "CTC Elevator Lobbies Study Group Report for CTC Meeting June 28-29, 2012." International Code Council: 2012. https://bit.ly/3PwOj2Q.

Smith, Stephen. *Elevators*. Center for Building in North America: 2024. https://bit.ly/3XRH4Ij.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Two quotes for smoke curtains (a commonly used form of elevator hoistway opening protection for low- and mid-rise buildings) obtained in the Pacific Northwest and New York City, respectively, show that the devices cost cost $5,700 to $10,400 per car, per landing. The devices are required on every story above the ground floor. Eliminating the requirement would save this amount of money per car per landing above the ground floor, plus contractor markup, markup applied for special devices (for example, one manufacturer charged more for common brands of elevators), ongoing maintenance and repair costs, and replacement costs.

Estimated Immediate Cost Impact Justification (methodology and variables):

See above.

G155-25

G156-25

IBC: 3002.3

Proponents: Sagiv Weiss-Ishai, San Francisco Fire Department, representing SFFD (sagiv.weiss-ishai@sfgov.org); Joseph Cervantes, Self, representing Space Age Electronics (joseph.cervantes@1sae.com)

2024 International Building Code

3002.3 Emergency signs. A pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the exit stairways and not to use the elevators in case of fire. Where elevators are not a component of the *accessible means of egress*, the sign shall read: IN CASE OF FIRE~~, ELEVATORS ARE OUT OF SERVICE. USE EXIT~~. DO NOT USE ELEVATOR. USE EXIT STAIRS. Where the elevator is a component of the *accessible means of egress*, a sign complying with Section 1009.11 shall be provided.

Exception: The emergency sign shall not be required for elevators that are used for occupant self-evacuation in accordance with Section 3008.

Reason: The purpose of this proposal is to change the Elevator sign language to indicate: USE EXIT STAIRS" instead of "USE EXIT". This is an additional proposal to the proposal ID # 11305 to change the sign verbiage to indicate: "DO NOT USE ELEVATOR" instead of "ELEVATORS ARE OUT OF SERVICE". The reasons for this proposed change are:

1. Most of the current signs posted in buildings today are not conforming to IBC Section 3002.3 (See attached 7 examples from different buildings in different states and cities) - Instead of indicating "Elevators are out of Service" as required by 3002.3, Most actual signs posted in buildings, indicate "In Case of Fire - Do Not Use Elevator" - In my opinion, the main reason for this other (and very common) sign language is that the code required language is confusing and is not clear and does not provide clear guidance and instructions to occupants compared to the actual posted signs clearly instructing buildings' occupants: "Do Not Use Elevator" in case of Fire emergencies regardless if the elevators are still operational and running (which is considered as Normal Service Operation). In many fires, as long as the fire/smoke is remote from elevator spaces (lobbies, landings, machine/control rooms) - The elevator/s are still operating in Normal Service and they are not recalled upon smoke or fire detection activation (Phase I Emergency Recall Operation) and they are not taken out of service. This means that potentially, occupants of the building can use the running/operational elevator/s during a fire emergency and this situation can result in entrapment and a life safety risk to the passengers using the elevator/s.

2. This proposal is intended to revert the 2024 language "USE EXIT" to the previous IBC language: "USE EXIT STAIRS". I have provided reference attachments from the 2018 and 2021 IBC same section 3002.3 showing the sign verbiage: "USE EXIT STAIRS" - in my opinion, this verbiage should not change to only indicate: "USE EXIT" since the intent of this sign is for elevators on all floors of the building. Only on the Egress/ground level - there is an EXIT to the outside of the building which does not require the use of EXIT STAIRS. In all other floors/levels served by Elevator/s - Occupants should be instructed to specifically use the "EXIT STAIRS" since they are instructed to NOT use the elevators.

3. The main reason that it is unsafe to use elevator/s anywhere in the building during a fire emergency is loss of building power, which can cause the elevator/s to stop inside the hoistway with potential passengers entrapped inside the elevator car while there is a fire in the building which may cause harm to the entrapped passengers. The building power system can be lost due to the fire hazard itself (high heat, sprinklers activation and water conditions, etc.) which can harm the building electrical service and/or electrical power cables, electrical rooms, power panels, etc. which are feeding the elevator controls and driving machines. This could happen even if the elevator/s are remote from the fire and are not affected by smoke and are not yet recalled and taken out of Normal Service operation. Therefore, the sign per Section 3002.3 indicating "Elevators are out of Service" can be confusing and misleading for building occupants who are instructed to EXIT the building by using the exit stairways. This sign can also create confusion with voice Fire Alarm systems generating pre-recorded messages instructing building occupants to evacuate the building using the stairways and to not use the elevators. "IN CASE OF FIRE, DO NOT USE ELEVATOR. USE EXIT STAIRS" is the safest verbiage with the specific clear instructions to occupants.

4. The intent of the sign as indicated in Section 3002.3 is: "....**INSTRUCTING** occupants to use the exit stairways and **NOT TO USE THE ELEVATORS IN CASE OF FIRE**" - However, the specific required sign verbiage indicating "Elevators are Out of Service" is not consistent with the intent of this section which is "INSTRUCTING OCCUPANTS". When the sign indicates: "Elevators are out of Service" - It does not provide clear instruction to occupants what to do as intended by this section. Occupants may wonder: What does it mean "Elevators are Out of Service" ? Does it mean that we should NOT use the elevators even if they are still operational in Normal Service ? Or maybe, we should use the elevator/s since they are NOT out of service and they are still running. This may create confusion since the required code verbiage does not provide clear instructions to occupants what they should do or should not do in case of fire. 5. The actual reality situation in many buildings is that there are many actual posted signs for elevators which are currently in

violation of the building code section 3002.3 - These non-compliant signs indicate clear instruction to occupants but they do not comply with the specific code language which creates code violation. This violation can potentially cause building inspectors and/or other AHJs who are enforcing the building code to require the removal of the non-compliant signs and to require them to be replaced with code compliant signs which may trigger high cost for building owners (if correction to this code violation is enforced) . Therefore - Changing the wording per this proposal may provide a retroactive acceptance for existing signs indicating "Do Not Use Elevator" to remain as-is and to not be replaced on a code-violation basis. 6. The Elevator code ASME A17.1 (current 2022 edition) and also in many previous ASME A17.1 code cycles includes an "Elevator Corridor Call Station Pictograph" based on Section and Figure 2.27.9 (See attachment). However, since this pictograph/sign is NOT considered as an elevator equipment - The elevator code refers to the building code in section 2.27.9 indicating: "**When the building code requires a sign be posted** .....**instructing occupants not to use the elevator in case of fire**". This means that the governing code for the sign is the **building code** and not the elevator code. If the wording of the sign will be changed in the building code based on this proposal, it will not create a conflict with the elevator code since the elevator code recognizes the building code as the governing code for this sign with the intent of SAFE Egress for occupants of the building by "Instructing Occupants" to use stairs during fire and to not use the elevators. The elevator code has other safety requirements for PASSENGERS using elevators during normal elevator operation but NOT during fire emergencies. Therefore, the elevator code clearly refers to the building code addressing the building's **OCCUPANTS** during fire emergencies who should be **instructed** not to use the elevators. Therefore, If the building code is changed per this proposal, only the pictograph in the elevator code figure 2.27.9 will have to be changed but nothing will need to be changed in section 2.27.9 itself.

Codes / I-Codes / 2021 International Building Code (IBC)

Chapter 30 Elevators and Conveying Systems

3002.2 Number of elevator cars in a hoistway. INSIGHTS

Where four or more elevator cars serve all or the same portion of a building, the elevators shall be located in not fewer than two separate hoistways. Not more than four elevator cars shall be located in any single hoistway enclosure.

INSIGHTS (1)

3002.3 Emergency signs. INSIGHTS

An *approved* pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the exit stairways and not to use the elevators in case of fire. The sign shall read: IN CASE OF FIRE, ELEVATORS ARE OUT OF SERVICE. USE EXIT STAIRS.

Exceptions:

1. The emergency sign shall not be required for elevators that are part of an *accessible* means of egress complying with Section 1009.4.
2. The emergency sign shall not be required for elevators that are used for occupant self-evacuation in accordance with Section 3008.

Codes / I-Codes / 2018 International Building Code (IBC)

Chapter 30 Elevators and Conveying Systems

3002.3 Emergency signs. INSIGHTS

An *approved* pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the *exit stairways* and not to use the elevators in case of fire. The sign shall read: IN CASE OF FIRE, ELEVATORS ARE OUT OF SERVICE. USE EXIT STAIRS.

Exceptions:

1. The emergency sign shall not be required for elevators that are part of an *accessible means of egress* complying with Section 1009.4.
2. The emergency sign shall not be required for elevators that are used for occupant self-evacuation in accordance with Section 3008.

❖ Elevators may be unsafe during a fire because:

- Persons may push a corridor button and then wait for an elevator that may never respond. Note that the button will not illuminate if the elevator is in fire fighter emergency operation. Valuable time in which to leave the building safely is lost.
- Elevators cannot start until the car and hoistway doors are closed. A panic could lead to over-crowding of an elevator and blockage of the doors, thus preventing closing.
- Power failure during a fire can happen at any time and thus lead to entrapment.
- Elevators respond to car and corridor calls. One of these calls may be at the fire floor.

Dangerous delivery of the elevator to the fire floor can be caused by:

- An elevator passenger pressing the car button for the fire floor.
- One or both of the corridor call buttons being pushed on the fire floor.
- Heat melting or deforming the corridor push button or its wiring at the fire floor.

49 SOUTH VAN NESS, LEVEL 5
SOUTH VAN NESS
MISSION STREET
You Are Here
Alarm Pull Station
Exit Path
Fire Extinguisher
Elevator
Exit Stair
Two-Way Communication
CALL 911 FIRE / POLICE / MEDICAL
IN FIRE EMERGENCY,
DO NOT USE ELEVATOR.
USE EXIT STAIRS.
In the event of an emergency, alarm will sound with a pulsing tone and strobe lights will flash followed by a recorded message with instructions. The Public Address system will be used for announcements. Listen for instructions.
PERSONS WITH DISABILITIES
Shall call 911, report their location, proceed to nearest exit or stairwell, and await assistance.

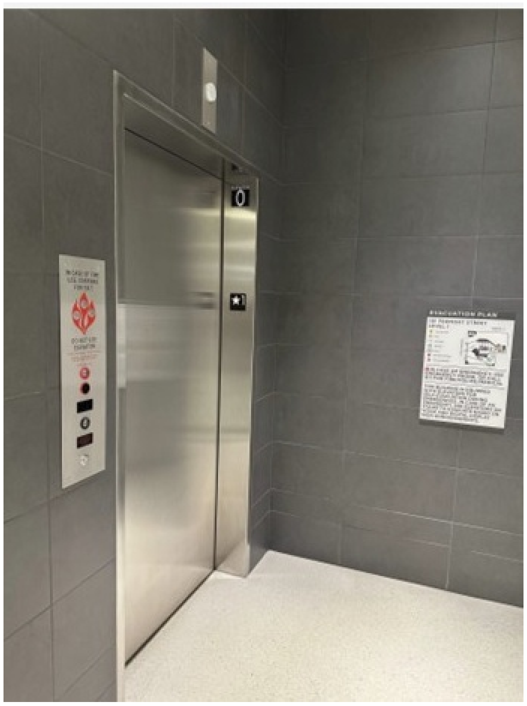

IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS.
2


4
SERVICE ELEVATOR
ELEVATOR TRAVELS TO: B2, 1ST & 4TH FLOORS ONLY
IN CASE OF FIRE USE STAIRWAY FOR EXIT
DO NOT USE ELEVATOR


IN CASE
OF FIRE
USE STAIRS
FOR EXIT
DO NOT USE
ELEVATORS

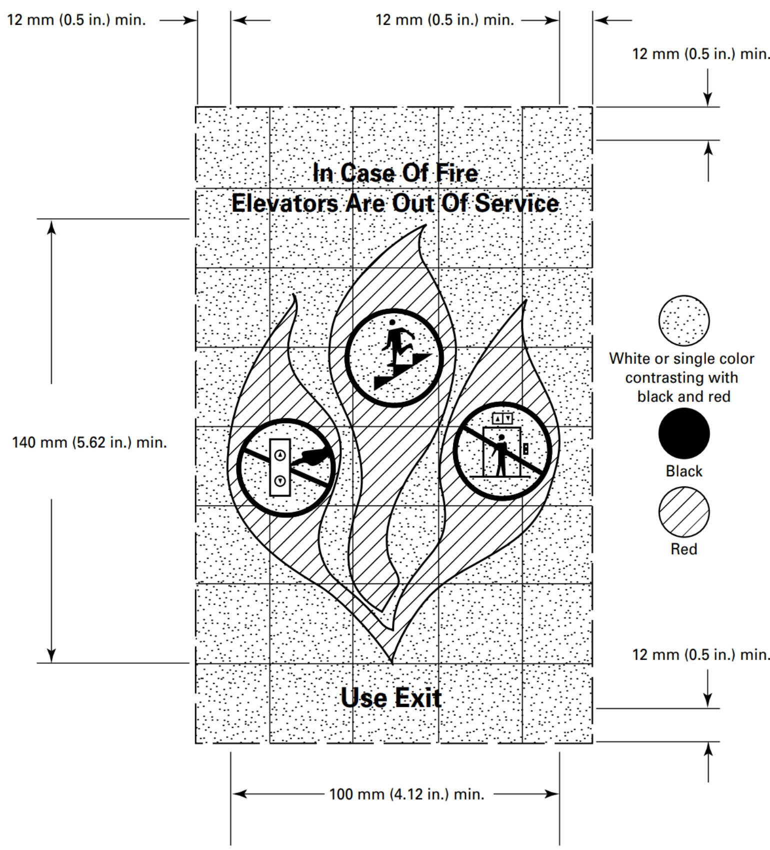

IN CASE OF FIRE
USE STAIRWAY
FOR EXIT
DO NOT USE ELEVATOR


ELEVATOR
TRAVELS TO:
B2, 1ST & 4TH
FLOORS ONLY
IN CASE OF FIRE
USE STAIRWAY
FOR EXIT
DO NOT USE
ELEVATOR
B2
B2



ASME A17.1-2022/CSA B44:22

Figure 2.27.9
Elevator Corridor Call Station Pictograph



Lettering: 6 mm (0.25 in.) high min., black filled

GENERAL NOTES:
(a) Grid lines shown for scaling purposes only.
(b) Aspect ratio shall be maintained as shown.
(c) The color of the circle interior is permitted to be a different color than the background.

Bibliography: none.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impact. Changing sign verbiage only.

G156-25

G157-25

IBC: 3002.4

Proponents: Daniel Nichols, representing MTA Construction and Development (dnichols@mnr.org)

2024 International Building Code

Revise as follows:

3002.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in *buildings* four or more *stories* above grade plane, ~~or~~ four or more *stories* below~~,~~ *grade plane*, or more than 60 feet above or below grade plane, not fewer than one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall be not less than 3 inches (76 mm) in height and shall be placed inside on both sides of the hoistway door frame.

Reason: The need for the increased elevator size is to accommodate first responders carrying patients up or down stairways. In buildings with high-bay areas or stories that are above the typical 10-15 feet story height, the code allows for increased heights for carrying without the intended baseline of stretcher accommodation for first responders. This code change aligns the intent of the requirement of four stories with an absolute measurement criteria to assure the same level of accomodation is provided.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change reflects the intent of the original proposal and is not an increase to the cost of an elevator, but generally just a change to the door orientation in spaces with limited footprints.

G157-25

G158-25

IBC: 3002.4

Proponents: Stephen Smith, representing Center for Building in North America (stephen@centerforbuilding.org)

2024 International Building Code

Revise as follows:

3002.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in *buildings* four or more *stories* above, or four or more *stories* below, *grade plane*, not fewer than one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall be not less than 3 inches (76 mm) in height and shall be placed inside on both sides of the hoistway door frame.

Exception: Elevator cars are not required to accommodate ambulance stretchers in buildings complying with the following:

1. Only Group R-2 occupancies located above the level of exit discharge.
2. Not more than six stories in hieght above grade plane.
3. Each story above the level of exit discharge is not more than 4,000 net square feet (371.6 m^2).
4. Not a high-rise building.

Reason: The IBC currently contains a perverse incentive around elevators: there is no requirement in any part of the code to install an elevator in an R-2 building, but if one is voluntarily provided, requirements become increasingly stringent as buildings get taller, acting as a disincentive to install an elevator. This is a particular problem in the United States, as elevators cost around three times as much to install as they do in peer high-income countries, and can cost even more to maintain, even after adjusting for cost-of-living differences. There are also significantly higher opportunity costs of the floor area used, due to the significantly larger cabins that we require.The result is that the United States has fewer elevators per capita than any high-income country that I could find. The lack of elevators in America is unbecoming of our aging population and our self-conception as a country that is inclusive towards people with disabilities, whether temporary or permanent.Rules requiring two remote exits in multifamily buildings over three stories result in relatively large floor plates, making the very high cost of elevators more affordable. As a result, new four-story walk-ups in the United States are rare, but they are likely to become more common. Reforms to Chapter 1006 considered for the 2027 IBC and approved by the Egress Committee in 2024 would make single-exit four-story buildings with small floor plates more common. Evidence from New York City and Seattle, where locally adopted versions of Chapter 1006 have long allowed single-exit buildings of four to six stories, suggests that many of these buildings would be built as walk-ups. New York City is one of the few jurisdictions in America to contain a building code requirement to install an elevator starting at five stories, and developers bend over backwards to seek loopholes to it – whether it's creating bilevel apartments on the top two stories to skirt the requirement, or filing for vertical alterations of older structures under an older code that does not contain an elevator requirement. My own building in Brooklyn is five stories tall with two apartments per story, and does not have an elevator despite being built in 2015, thanks to the latter loophole. None of the above is true in America's peer high-income countries. Elevators are a standard feature of small three-story buildings in Western Europe, and are often provided even when not required, because the costs are low enough and cabin sizes are small enough that the benefits outweigh the costs.Code requirements come with costs and benefits that must be weighed against each other. A cabin that can accommodate a fully flat 84-in. stretcher has life safety benefits in certain emergency situations, but also costs. These costs come in dollars and square feet, but also in life safety and accessibility. If an elevator becomes too onerous to install, then there are much more severe life safety costs, both to occupants whose evacuation will be delayed by having to take the stairs, and to emergency responders who will have to carry them down the stairs. The building also becomes inaccessible to the 12 percent of the U.S. adult population that struggles with stairs. Occupants of walk-ups are more likely to become one of the 1 million Americans treated in emergency rooms every year for stair-related injuries. There is no data on the number of Americans who die using stairs every year, but data from the UK extrapolated to our population suggests that it is in the thousands, exceeding the number of American who die in fires.

There are countless situations where an elevator that can accommodate a wheelchair and a few people standing is useful, and many fewer situations where a patient must be evacuated in a fully flat stretcher. Cardiac arrest is the most commonly cited situation in which evacuation in a fully flat stretcher is helpful, but the survival rate for out-of-hospital cardiac arrest is already exceedingly low (and likely even lower when it occurs in a non-public space like an apartment) – and even lower in the U.S. than in countries which do not require stretcher accommodation for mid-rise multifamily elevators. The increased availability of automated external defibrillators since this provision was put into the code has also lessened its need.

Developers can avoid installing elevators of any size by building walk-up apartment buildings, but they can also – and often do – avoid building elevators by opting out of apartment buildings entirely and instead building townhouses, which never have elevators that can accommodate stretchers (and rarely have any elevator at all).

My analysis of buildings constructed in New York City since 2000 shows that the likelihood of installing an elevator in an apartment building exceeds 50 percent only when the building exceeds 24,000 sq. ft. of floor area. In order words, buildings below this size are at high risk of not having an elevator at all, and reasonable costs (both in dollars and square feet consumed) are especially important to ensuring that one is provided. This number forms the basis of this code proposal: 24,000 sq. ft. of total floor area in a six-story building equates to roughly 20,000 sq. ft. above the ground floor. Conveniently, this assumed floor plate also aligns with the maximum floor area of a story in a single-stair building according to the modification of E24-24 that was approved in Long Beach in 2024, allowing taller single-exit apartment buildings in Chapter 1006. It also roughly aligns with limits found in other high-income countries.

Beyond the accessibility benefits of elevators themselves, the installation of an elevator in a building that would otherwise be a walk-up or a series of townhouses also triggers further accessibility within units themselves, given how the Fair Housing Amendments Act guidelines treat elevatored buildings as compared to walk-ups.

My exception applies only to multifamily buildings up to six stories (above that I have never seen a walk-up built in modern times). It also excludes high-rise buildings, to avoid applying to buildings with very tall ceilings or mezzanines.

Lawmakers are growing concerned about the large cost premium for elevators in the United States, and legislators in Washington State have introduced bills to remove the stretcher requirement for multifamily buildings of roughly the size covered by my exception, supported by the state AARP chapter. This proposal is a chance for the ICC to get ahead of legislation, and show lawmakers that it is addressing the issue without legislative intervention.

Bibliography: The support for my reason statement comes from my 122-page comparative report on elevators in North America and high-income peer countries, found here: https://bit.ly/3XRH4Ij

The issues discussed in the reason statement are addressed on the following pages:

- 15: Per-capita elevator stock by country
- 16-18: Rarity of new walk-up apartment buildings in Western Europe
- 19-23: Ubiquity of new walk-up buildings in the United States
- 35-36: Installation costs for elevators in new buildings in the U.S. vs. Western Europe
- 42: Life safety considerations in buildings without elevators
- 43-55: In-depth discussion of cabin sizes (history, U.S. and foreign practices, cost implications)

Bills introduced in Washington State and Connecticut

- 1183.pdf
- 5156.pdf
- C G A - Connecticut General Assembly

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Uncertain, but substantial in instances where developers opt for a smaller elevator (at least $10,000). In other cases, an elevator will be provided where it was not previously, which will raise costs, but at the developer's discretion.

Estimated Immediate Cost Impact Justification (methodology and variables):

Interviews with those in the elevator industry and review of dozens of proposals for installation.

Estimated Life Cycle Cost Impact:

Decrease, with an uncertain magnitude (larger equipment costs more to maintain).

G158-25

G159-25

IBC: 3003.4 (New), 3003.4.1 (New), 3003.4.2 (New), 3003.4.3 (New), 3003.4.4 (New)

Proponents: Sagiv Weiss-Ishai, San Francisco Fire Department, representing SFFD (sagiv.weiss-ishai@sfgov.org)

2024 International Building Code

SECTION 3003 EMERGENCY OPERATIONS

Add new text as follows:

3003.4 Emergency hoistway venting. Elevator hoistways containing the driving machine shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.

3003.4.1 Location of vents. Vents shall be located at the top of the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air.

3003.4.2 Area of vents. Except as provided for in Section 3003.4.4, the area of the vents shall be not less than 3 $^{1}/_{2}$ percent of the area of the hoistway nor less than 3 square feet (0.28 m^2) for each elevator car.

3003.4.3 Operation of vents. Vent openings shall automatically open upon detection of smoke in the elevator hoistway and upon activation of a manual override control. The manual override control shall be capable of opening and closing the vents and shall be located in an approved location. Smoke detectors provided in elevator hoistways to activate the hoistway ventilation system, shall also be required to activate the elevator Phase I emergency recall operation function in accordance with ASME A17.1/CSA B44

3003.4.4 Reduced vent area. Where mechanical ventilation conforming to the *International Mechanical Code* is provided, a reduction in the required vent area is allowed provided that all of the following conditions are met:

1. The vent required by Section 3003.4.1 does not have outside exposure.
2. The hoistway does not extend to the top of the building.
3. The hoistway exhaust fan is automatically reactivated by thermostatic means.
4. Equivalent venting of the hoistway is accomplished.

Reason: The reason for this proposal is to make the IBC consistent with the CA Building Code Section 3003.4 regarding safety for Machine-Room-Less elevators (MRL)

1. The IBC past editions such as the 2012 and previous editions had a hoistway venting requirement (Section 3004) which was based on occupancy types (Elevators inside residential occupancies) but it was not based on the Elevator type. This section was removed from IBC in the recent editions and it did not address the specific risk associated with MRL Elevators having the driving machine located inside the hoistway.

2. Passenger MRL Elevators became very common throughout the US in the last years and there are known cases and actual data where sometimes, the driving machine within the hoistway got overheated or malfunctioned and generated large quantities of smoke within the hoistway.

3. If there is no hoistway vent allowing to vent the smoke to the exterior of the building, the smoke within the hoistway may spread within the hoistway and harm potential passengers whom may be entrapped inside the stopped elevator car/s within the hoistway (Since when typically the driving machine overheats or malfunctions, the elevator car is stopped inside the hoistway and cannot move until the driving machine in repaired)

4. Since this is an actual risk (known actual cases) and it is not just a hypothetical risk - The CA state Fire Marshal had form an Elevator Task- Force after the 2018-IBC was published to make amendments to the 2019 CA Building and Fire Codes. The CSFM Elevator-Task-Force had included all stake holders and the MRL Hoistway potential smoke risk was discussed. Based on the discussion between all stake holders, there was a consensus recommendation to amend the CA Building Code by adding Section 3003.4 to increase safety for passengers using ALL MRL Elevators containing the driving machine within the hoistway, regardless the type of building occupancy. Passenger MRL Elevators are located in all types of occupancies and are frequently used by passengers while the driving machine is located within the hoistway and potentially could be the source for the risk.5. NFPA 72 has also recognized the use of MRL elevators in un sprinklered hoistways where the driving machine is located inside the hoistway: Section 21.3.6.2 indicates that if the smoke relief equipment is activated by a smoke detector located within the hoistway - The smoke detector shall also generate Phase I Emergency Recall Operation.

21.3.6.2

Smoke detectors or other automatic fire detection as permitted in **21.3.10** shall be permitted to be installed in unsprinklered elevator hoistways if required by other governing codes or standards for the actuation of the elevator hoistway smoke relief equipment.

5. Since the hoistway venting was previously required by IBC Section 3004, based on occupancy type, this proposal is only based on equipment type (MRL Elevators with driving machine within the hoistway) - which will increase life-safety for potential entrapped passengers while the hoistway is filled with smoke that could not be vented to the exterior. If this proposal is accepted, as was done in CA, the potential smoke will be vented to the exterior of the building and will not harm the entrapped passengers.

6. Many MRL elevators have their top of hoistway located above the roof level and in that case, the vent could be done by a simple louver open to the exterior of the buildings. In some other cases where the MRL Hoistway is located within the building, a mechanical ventilation for smoke relief may be provided.

SECTION 3003
EMERGENCY OPERATIONS

[F] 3003.1 Standby power. In buildings and structures where standby power is required or furnished to operate an elevator, the operation shall be in accordance with *Section 1203 of the California Fire Code and* Sections 3003.1.1 through 3003.1.*5 of this code.*

[F] 3003.1.1 Manual transfer. Standby power shall be manually transferable to all elevators in each bank.

[F] 3003.1.2 One elevator. Where only one elevator is installed, the elevator shall automatically transfer to standby power within 60 seconds after failure of normal power.

[F] 3003.1.3 Two or more elevators. Where two or more elevators are controlled by a common operating system, all elevators shall automatically transfer to standby power within 60 seconds after failure of normal power where the standby power source is of sufficient capacity to operate all elevators at the same time. Where the standby power source is not of sufficient capacity to operate all elevators at the same time, all elevators shall transfer to standby power in sequence, return to the designated landing and disconnect from the standby power source. After all elevators have been returned to the designated level, not less

[F] 3003.3 Standardized fire service elevator keys. All elevators shall be equipped to operate with a standardized fire service elevator key in accordance with the *California Fire Code.*

3003.4 Emergency hoistway venting. *Elevator hoistways containing the driving machine shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.*

3003.4.1 Location of vents. *Vents shall be located at the top of the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air.*

3003.4.2 Area of vents. *Except as provided for in Section 3003.1.4.4, the area of the vents shall be not less than $3^1/_2$ percent of the area of the hoistway nor less than 3 square feet (0.28 m^2) for each elevator car.*

3003.4.3 Operation of vents. *Vent openings shall automatically open upon detection of smoke in the elevator hoistway and upon activation of a manual override control. The manual override control shall be capable of opening and closing the vents and shall be located in an approved location. Smoke detectors provided in elevator hoistways to activate the hoistway ventilation system, shall also be required to activate the elevator Phase I emergency recall operation function in accordance with Cali-*

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Cost Impact: Increase

Estimated Immediate Cost Impact:

Minimal cost where the MRL top-of-hoistway is located above the roof level - This could be done with a simple louver open to the outer air. (up to$3000 for a simple louver).

Estimated Immediate Cost Impact Justification (methodology and variables):

Only for MRL elevators having the top of the hoistway located within the building - This will require an emergency vent which could relief the smoke to the exterior of the building (estimated up to $10,000 if it is required to provide an emergency vent and duct to relief the smoke to the exterior of the building.

Estimated Life Cycle Cost Impact:

This is a one-time provision - Once the vent is provided - this will serve for the life of the MRL elevator.

G159-25

G160-25

IBC: 3004.2.3 (New), FIGURE 3004.2.3 (New)

Proponents: Kevin Brinkman, representing NEII (klbrinkman@neii.org)

2024 International Building Code

SECTION 3004
CONVEYING SYSTEMS

3004.2 Escalators and moving walks. Escalators and moving walks shall be constructed of *approved* noncombustible and fire-retardant materials. This requirement shall not apply to electrical equipment, wiring, wheels, handrails and the use of $^{1}/_{28}$-inch (0.9 mm) wood *veneers* on balustrades backed up with noncombustible materials.

3004.2.1 Enclosure. Escalator floor openings shall be enclosed with *shaft enclosures* complying with Section 713.

3004.2.2 Escalators. Where provided in below-grade transportation stations, escalators shall have a clear width of not less than 32 inches (815 mm).

Add new text as follows:

3004.2.3 Balustrades required. Where escalators or moving walks are installed with one or both sides open and the escalator step or moving walk treadway is more than 30 inches above the adjacent floor, the balustrades shall be not less than 42 inches (1067 mm) in height or the side or sides shall be guarded to comply with ASME 17.1/CSA B44, Appendix ZZ. See Figure 3004.2.3.

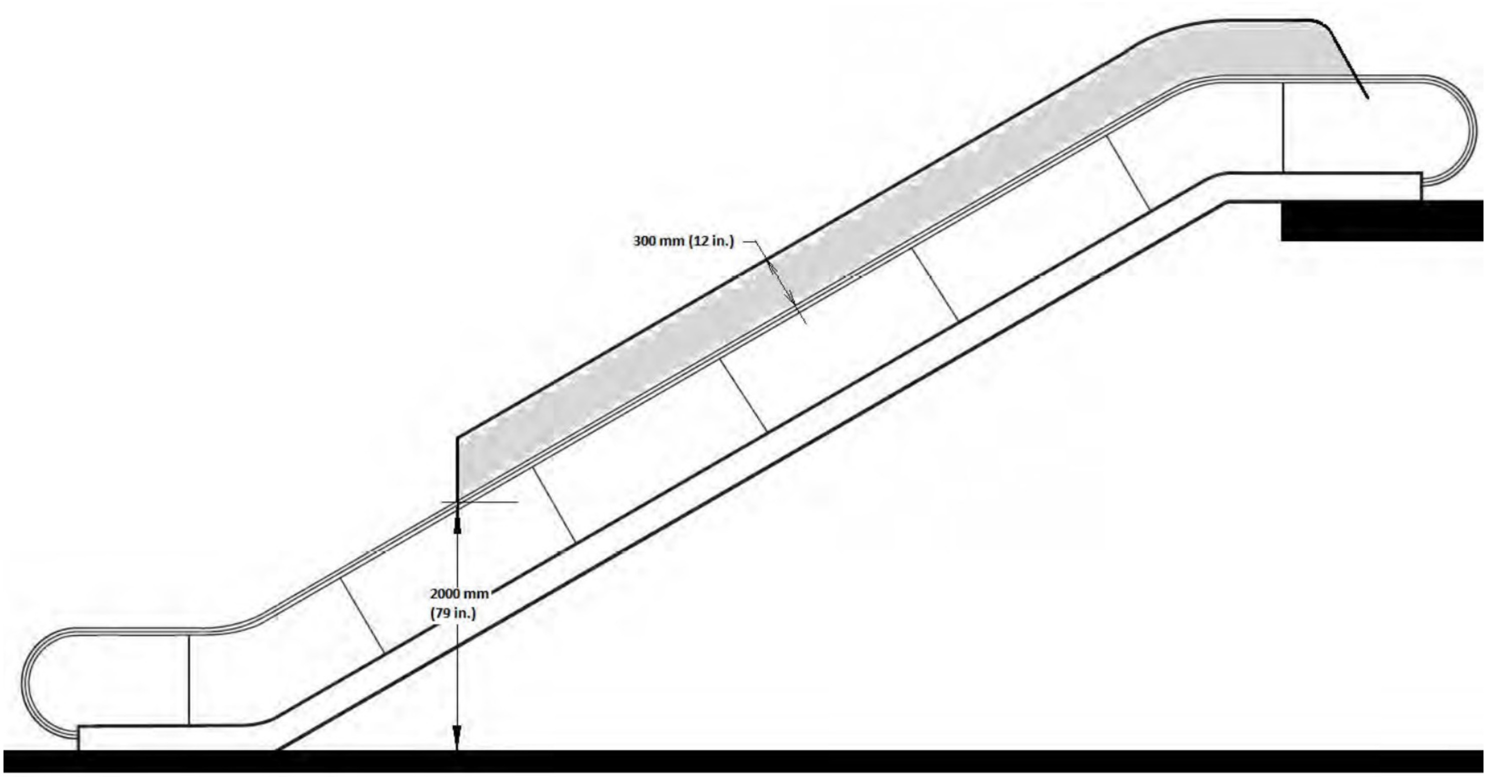


FIGURE 3004.2.3 ESCALATOR GUARD

Reason: Provide height requirements for balustrades or additional guarding for open-sided escalators and moving walks to align with guard height requirements in section 1015.3. This addresses a potential fall hazard for installations without full enclosures that are open on either side in Atrium or Mezzanine applications. ASME A17.1/CSA B44 provides two methods to address compliance with guard height requirements in section 1015.3. The escalator or moving walk balustrade height can be not more than 1100mm (43 in) or additional guards as described within ASME A17.1/CSA B44, Appendix ZZ can be provided.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Cost will vary depending on which method is chosen, length of escalator or moving walk, number of escalators or moving walks, and number of open sides. The estimated cost increase for taller balustrades would be between $500 and $750 per escalator depending on the travel length.

Estimated Immediate Cost Impact Justification (methodology and variables):

This estimate includes potential material and installation costs.

G160-25

G161-25

IBC: 3005.2

Proponents: Kevin Brinkman, representing NEII (klbrinkman@neii.org)

2024 International Building Code

Revise as follows:

3005.2 Temperature control. Elevator machine rooms, machinery spaces that contain the driving machine, and control rooms or spaces that contain the operation or motion controller for elevator operation shall be provided with an independent ~~*ventilation* or air-conditioning~~ system to maintain the ambient temperature and humidity in the range established for the elevator equipment ~~protect against the overheating of the electrical equipment. The system shall be capable of maintaining temperatures within the range established for the elevator equipment.~~

Reason: The current language does not include heating of the hoistway in cold applications. The purpose is to maintain the temperature and humidity in the appropriate range (10 to 40 deg C/50 to 104 deg F as specified in CSA B44.1/ASME A17.5 Elevator and escalator electrical equipment to ensure proper operation of the elevator. If the temperature and humidity in the equipment rooms and spaces are allowed to exceed or to drop below acceptable levels, the elevator may not function properly. Therefore, the temperature control means needs to be capable of heating, cooling, and humidity control depending on the application.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact because this change is intended to clarify the requirements for the temperature control system.

G161-25

G162-25

IBC: 3006.2

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com)

2024 International Building Code

Revise as follows:

3006.2 Elevator hoistway door protection required. ~~Elevator hoistway doors shall be protected in accordance with Section 3006.3 where~~ Where an elevator hoistway connects more than three *stories* or~~,~~ is required to be enclosed within a *shaft enclosure* in accordance with Section 712.1.1, the hoistway door openings shall be protected in accordance with Section 3006.3 where ~~and~~ any of the following conditions apply:

1. The *building* is not protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
2. The *building* contains a Group I-1, Condition 2 occupancy.
3. The *building* contains a Group I-2 occupancy.
4. The *building* contains a Group I-3 occupancy.
5. The *building* is a high rise and the elevator hoistway is more than 75 feet (22 860 mm) in height. The height of the hoistway shall be measured from the *lowest floor* to the highest floor of the floors served by the hoistway.
6. The elevator hoistway door is located in the wall of a *corridor* required to be fire-resistance rated in accordance with Section 1020.1.

Exceptions:

1. Protection of elevator hoistway doors is not required where the elevator serves only *open parking garages* in accordance with Section 406.5.
2. Protection of elevator hoistway doors is not required at the levels of exit discharge, provided that the levels of exit discharge is equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. Protection of elevator hoistway doors is not required on levels where the elevator hoistway doors open to the exterior.

Reason: The proposed language is intended to be editorial in nature. It is intended to provide clarity for the requirement of the hoistway door protection by starting with the connecting more than three stories, then adding in the pointer to 712.1.1, then noting the six required applications. The current language can create confusion where this may provide more clarity.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is rearranging current language to read easier for better understanding of the code requirement.

G162-25

G163-25

IBC: SECTION 3006, 3006.2, 3006.2.1, 3006.3, 3006.4, 1020.2.1

Proponents: Steve Thomas, Shums Coda Associates, representing Colorado Chapter Code Development Committee (sthomas@coloradocode.net)

2024 International Building Code

SECTION 3006
ELEVATOR LOBBIES AND HOISTWAY OPENING PROTECTION

Revise as follows:

3006.2 Elevator hoistway door protection required. Elevator hoistway doors shall be protected in accordance with Section 3006.3 where an elevator hoistway connects more than three *stories*, is required to be enclosed within a *shaft enclosure* in accordance with Section 712.1.1 and any of the following conditions apply:

1. The *building* is not protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
2. The *building* contains a Group I-1, Condition 2 occupancy.
3. The *building* contains a Group I-2 occupancy.
4. The *building* contains a Group I-3 occupancy.
5. The *building* is a high rise and the elevator hoistway is more than 75 feet (22 860 mm) in height. The height of the hoistway shall be measured from the *lowest floor* to the highest floor of the floors served by the hoistway.
6. ~~The elevator hoistway door is located in the wall of a *corridor* required to be fire-resistance rated in accordance with Section 1020.1.~~

Exceptions:

1. Protection of elevator hoistway doors is not required where the elevator serves only *open parking garages* in accordance with Section 406.5.
2. Protection of elevator hoistway doors is not required at the levels of exit discharge, provided that the levels of exit discharge is equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. Protection of elevator hoistway doors is not required on levels where the elevator hoistway doors open to the exterior.

~~**3006.2.1**~~ **3006.3 Rated corridors.** Where *corridors* are required to be fire-resistance rated in accordance with Section 1020.2, elevator hoistway openings that open into such corridors shall be protected in accordance with Section ~~3006.3~~ 3006.4.

~~**3006.3**~~ **3006.4 Elevator hoistway door protection.** Where Section 3006.2 requires protection of the elevator hoistway doors, the protection shall be provided by one of the following:

1. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway doors from each floor with *fire partitions* in accordance with Section 708. In addition, doors protecting openings in the fire partitions shall comply with Section 716.2.2.1. Penetrations of the fire partitions by ducts and air transfer openings shall be protected as required for *corridors* in accordance with Section 717.5.4.1.
2. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway doors from each floor by *smoke partitions* in accordance with Section 710. In addition, doors protecting openings in the *smoke partitions* shall comply with Sections 710.5.2.2, 710.5.2.3 and 716.2.6.1. Penetrations of the *smoke partitions* by ducts and air transfer openings shall be protected as required for *corridors* in accordance with Section 717.5.4.1.

3. Additional doors or other devices shall be provided at each elevator hoistway door in accordance with Section 3002.6. Such doors or other devices shall comply with the smoke and draft control door assembly requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. The elevator hoistway shall be pressurized in accordance with Section 909.21.
5. A *smoke-protective curtain assembly for hoistways* shall be provided at each elevator hoistway door opening in accordance with Section 3002.6. Such curtain assemblies shall comply with the smoke and draft control requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal. Such curtain assemblies shall be equipped with a control unit *listed* to UL 864. Such curtain assemblies shall comply with Section 2.11.6.3 of ASME A17.1/CSA B44. Installation and maintenance shall be in accordance with NFPA 105.

~~3006.4~~ <u>3006.5</u> **Means of egress.** Elevator lobbies shall be provided with not less than one *means of egress* complying with Chapter 10 and other provisions in this code. Egress through an enclosed elevator lobby shall be permitted in accordance with Item 1 of Section 1016.2. Electrically locked exit access doors providing egress from elevator lobbies shall be permitted in accordance with Section 1010.2.14.

1020.2.1 Hoistway protection. Elevator hoistway doors in elevators hoistway enclosures required to be fire-resistance rated shall be protected in accordance with Section 716. Elevator hoistway doors shall also be protected in accordance with Section ~~3006.2~~ <u>3006.3</u>.

Reason: The original proposal G182-21 deleted Section 3006.2.1 and relocated the requirement into Section 3006.2 as item 6. However, the committee modified the proposal by retaining the language in Section 3006.2.1. The committe reason stated, "This modification was presented as needed because the provisions in the FS proposals related to elevator hoistway doors have not been decided yet". However, the fire safety committee did not go back and fix the issue afterwards. So, this is an attempt to remove any conflicts between the two sections. We are proposing that Item 6 be removed from Section 3006.2. The charging language requires that the hoistway doors be protected when the hoistway connects more than three stories. Therefore, elevator hoistway openings in residential buildings that are three stories or less, for example, would not require the hoistway protection. Therefore, we are deleting that out of Section 3006.2 to eliminate the conflict. We are also renumbering Section 3006.2.1 to 3006.3 to clarify that this is a stand alone section and not a subsiderary section to Section 3006.2. We also cleaned up the language to provide better clarity. Subsequent Sections numbers have also been revised.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal is intended to remove a conflict so the cost of constructions should not change.

G163-25

G164-25

IBC: 3006.3

Proponents: Dave Bauer, Smoke Guard, Inc., representing Smoke Guard (dave.bauer@smokeguard.com)

2024 International Building Code

Revise as follows:

3006.3 Elevator hoistway door protection. Where Section 3006.2 requires protection of the elevator hoistway doors, the protection shall be provided by one of the following:

1. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway doors from each floor with *fire partitions* in accordance with Section 708. In addition, doors protecting openings in the fire partitions shall comply with Section 716.2.2.1. Penetrations of the fire partitions by ducts and air transfer openings shall be protected as required for *corridors* in accordance with Section 717.5.4.1.
2. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway doors from each floor by *smoke partitions* in accordance with Section 710. In addition, doors protecting openings in the *smoke partitions* shall comply with Sections 710.5.2.2, 710.5.2.3 and 716.2.6.1. Penetrations of the *smoke partitions* by ducts and air transfer openings shall be protected as required for *corridors* in accordance with Section 717.5.4.1.
3. Additional doors or other devices shall be provided at each elevator hoistway door in accordance with Section 3002.6. Such doors or other devices shall comply with the smoke and draft control door assembly requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. ~~The~~ <u>For occupancies other than Group I-1 Condition 2 or Group I-2, the</u> elevator hoistway shall be pressurized in accordance with Section 909.21.
5. A *smoke-protective curtain assembly for hoistways* shall be provided at each elevator hoistway door opening in accordance with Section 3002.6. Such curtain assemblies shall comply with the smoke and draft control requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal. Such curtain assemblies shall be equipped with a control unit *listed* to UL 864. Such curtain assemblies shall comply with Section 2.11.6.3 of ASME A17.1/CSA B44. Installation and maintenance shall be in accordance with NFPA 105.

Reason: There is concern regarding the safety of the use of shaft pressurization system in hospitals and assisted living facilities amongst hospital risk management specialists and infection control clinicians, when those health care professionals are educated regarding the means that construction professionals may use for smoke protection at the elevator hoistway. Hospitals are designed with spaces that include both positive and negative pressure rooms, both for the safety of occupants and patients. Negative pressure rooms are those with airflow designed to flow into the room, such that infectious agents and pathogens cannot leave that designated space (example: a tuberculosis patient. Positive pressure rooms are designed such that airflow is out of a room such that it rejects infectious agents such as staff and virus' causing the common cold (example: a burn patient or other immunocompromised patient). In these instances, the balance between air pressure in those rooms and the corridor is critical. The surcharge of pressure into an elevator shaft upon activation of an elevator shaft pressurization system is inherently designed such that air flows out through the elevator doors into the corridor, which unavoidably will increase air pressure in the corridor, altering the balance of pressures between that corridor and any positive pressure rooms to some degree. The degree of severity would be dependent on the particular layout of that hospital.

Secondly, pathogens such as legionella are present in normally inaccessible spaces such as elevator shafts. The activation of an elevator shaft pressurization system will agitate any pathogens and combined with the outward flow of air from the shaft through the elevator doors, introduce those pathogens into the general population of the hospital.

Senior Living facilities in the International Building Code are divided into to subcategories, Condition 1 and Condition 2. I-1 Condition 1 occupancies are constructed much like residential occupancies and are not considered relevant to this proposed change. However, I-1 Condition 2 facilities are constructed much like I-2 occupancies. The vulnerable nature of I-1 Condition 2 building occupants is nearly analogous to those of I-2 facilities.

Last, it's important to consider that this condition would not only occur during a fire event, since testing would occur perhaps monthly, and false alarms can happen at any time. Pressurization of an elevator shaft, arguably the dirtiest space in any building, would promote the movement of particles from the elevator shaft into the occupied building volume, greatly increasing the chance of infection. Simultaneously, the resultant increase in corridor air pressure will inherently diminish the effectiveness of positive pressure room.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change proposal only affects one of several long established options, and the proposed restriction affects only two occupancy types: I-2 and I-1 Condition 2. It is not anticipated that this would have any cost impact.

G164-25

G165-25

IBC: 3006.3

Proponents: Jeffrey Blain, representing Edgett Williams Consulting Group (jeffrey.w.blain@gmail.com)

2024 International Building Code

Revise as follows:

3006.3 Elevator hoistway door protection. Where Section 3006.2 requires protection of the elevator hoistway doors, the protection shall be provided by one of the following:

1. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway doors from each floor with *fire partitions* in accordance with Section 708. In addition, doors protecting openings in the fire partitions shall comply with Section 716.2.2.1. Penetrations of the fire partitions by ducts and air transfer openings shall be protected as required for *corridors* in accordance with Section 717.5.4.1.
2. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway doors from each floor by *smoke partitions* in accordance with Section 710. In addition, doors protecting openings in the *smoke partitions* shall comply with Sections 710.5.2.2, 710.5.2.3 and 716.2.6.1. Penetrations of the *smoke partitions* by ducts and air transfer openings shall be protected as required for *corridors* in accordance with Section 717.5.4.1.
3. Additional doors or other devices shall be provided at each elevator hoistway door in accordance with Section 3002.6. Such doors or other devices shall comply with the smoke and draft control door assembly requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. The elevator hoistway shall be pressurized in accordance with Section 909.21.
5. A *smoke-protective curtain assembly for hoistways* shall be provided at each elevator hoistway door opening in accordance with Section 3002.6. Such curtain assemblies shall comply with the smoke and draft control requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal. Such curtain assemblies shall be equipped with a control unit *listed* to UL 864. Such curtain assemblies shall comply with Section 2.11.6.3 of ASME A17.1/CSA B44. Installation and maintenance shall be in accordance with NFPA 105.

6 Each elevator entrance assembly shall comply with the smoke and draft control door assembly requirements in Section 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal.

Reason: Provides an additional option to meet the smoke and draft control requirements which will also provide the following advantages:

1. We feel this proposal enhances safety as compared with zero-clearance doors provided at the hoistway openings by eliminating any gap between the zero clearance door and the elevator hoistway door.
2. We feel this proposal enhances reliability by having each elevator entrance assembly be UL 1784 compliant rather than one or two door assemblies at the entrance(s) to the elevator lobby. In addition, these elevator entrances are not dependent on a signal from the fire alarm system to initiate door closing.
3. Relevant safety requirements for gasketing of hoistway entrances are included in A17.1 (see requirement 2.11.19).
4. Long term reliability would be enhanced because the entrances would be regularly checked and maintained as part of the elevator maintenance program and would also be subject to the code required periodic inspections.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change proposal provide another option for compliance and therefore does not increase nor decrease the cost of construction.

G165-25

G167-25

IBC: 3007.8, 3008.8

Proponents: Kevin Brinkman, representing NEII (klbrinkman@neii.org)

2024 International Building Code

SECTION 3007
FIRE SERVICE ACCESS ELEVATOR

Revise as follows:

3007.8 Electrical power. The following features serving each fire service access elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator hoistway lighting.
3. ~~*Ventilation* and cooling~~ Temperature control equipment for elevator machine rooms, control rooms, machine spaces and control spaces.
4. Elevator car lighting.
5. Pit sump pump

SECTION 3008
OCCUPANT EVACUATION ELEVATORS

3008.8 Electrical power. The following features serving each occupant evacuation elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. ~~*Ventilation* and cooling~~ Temperature control equipment for elevator machine rooms, control rooms, machinery spaces and control spaces.
3. Elevator car lighting.
4. Pit sump pump

Reason: The sump pump should be included on standby power because elevators are required to continue to run on standby power and accumulation of water in the pit could shut down the elevator prematurely. The standby power should also include all temperature control equipment, including heat, to maintain temperatures in the established range to protect the equipment and ensure proper operation. This also aligns with the title of 3005.2.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change does not impact the cost of construction because it is a clarification to align with what is already in place.

G167-25

G168-25

IBC: 3008.1

Proponents: Kevin Brinkman, representing NEII (klbrinkman@neii.org)

2024 International Building Code

SECTION 3008
OCCUPANT EVACUATION ELEVATORS

Revise as follows:

3008.1 General. ~~Elevators~~ Where elevators are to be used for occupant self-evacuation during ~~fires~~ emergencies, all electric passenger elevators, including Fire Service Access Elevators in accordance with section 3007, shall comply with Sections 3008.1 through 3008.10.

Exceptions:

1. All freight and hydraulic elevators shall be prohibited from being used for occupant self-evacuation.
2. Elevators that serve three contiguous floors or less shall not be required to be used for occupant self-evacuation when approved by the authority having jurisdiction.

Reason: Adding “including FSAEs in accordance with 3007” to prevent confusion regarding whether FSAEs should or shouldn’t be used as OEEs. This language ensures that FSAEs should be used as OEEs and should comply with Section 3008 since they can help evacuate occupants during emergencies before the firefighters arrive at the building and even after firefighters arrive. The firefighters could override the OEO for the FSAEs if they choose to use them for firefighter’s emergency operation at any time. Changing the language from “during fire” to “during emergencies” will allow for non-Fire emergencies as well. Delete the term “for general public use” because it is unnecessary and confusing since even if we have a service passenger elevator that typically is not used by the general public, it should be used as OEE during emergencies since it can contribute to evacuate occupants out of the building. Delete the last sentence: “where other elevators are used for occupant self-evacuation, those elevators shall comply with these sections” because this is unnecessary and confusing language (it is unclear which potential “other elevators” could be used as OEEs)*To be consistent with the A17.1 code language section 2.27.10 for FSAEs which prohibits all freight and hydraulic elevators for use as OEEs. This is due to the construction of freight elevators and conflicts between the NFPA 13 (Sprinkler code) and the building and elevator codes regarding sprinkler protection and shunt trip for freight and hydraulic elevators. NFPA 13 requires sprinklers in hydraulic elevators machine rooms and top of freight elevators hoistways, the elevator code requires shunt trip when sprinklers are located in machine rooms and top of hoistways, however, IBC Section 3008.2.1 prohibits sprinklers in all OEEs associated locations and section 3008.4 prohibits shunt trip for all OEEs.*

To clarify that 2-3 stops passenger elevators, typically used as parking or shuttle elevators, are not required to be OEEs if they do not contribute to evacuation of occupants out of the building. This language is permissive and will need specific AHJ approval after evaluation of each specific elevator.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change will not impact the cost of construction because use of elevators for self-evacuation is permissible but not required.

G168-25

G169-25

IBC: 3008.1, 3008.1.1

Proponents: Sagiv Weiss-Ishai, San Francisco Fire Department, representing SFFD (sagiv.weiss-ishai@sfgov.org)

2024 International Building Code

Revise as follows:

3008.1 General. ~~Elevators used for occupant self-evacuation during fires~~ Where elevators are to be used for occupant self-evacuation during emergencies, all passenger elevators, including fire service access elevators in accordance with Section 3007, shall comply with Sections 3008.1 through 3008.10.

3008.1.1 ~~**Number of occupant evacuation elevators**~~ **Elevator restrictions for occupant self-evacuation.** ~~The number of elevators available for occupant evacuation shall be determined based on an egress analysis that addresses one of the following scenarios:~~ Elevators that are prohibited or not required to be used for occupant self-evacuation shall be as follows:

1. ~~Full *building* evacuation where the analysis demonstrates that the number of elevators provided for evacuation results in an evacuation time less than 1 hour.~~ Elevators with 2 or 3 stops only, shall not be required to be used for occupant self-evacuation when approved by the authority having jurisdiction.
2. ~~Evacuation of the five consecutive floors with the highest cumulative *occupant load* where the analysis demonstrates that the number of elevators provided for evacuation results in an evacuation time less than 15 minutes.~~ All freight elevators shall be prohibited to be used for occupant self-evacuation.
3. All hydraulic elevators shall be prohibited to be used for occupant self-evacuation.

~~Not less than one elevator in each bank shall be designated for occupant evacuation. Not less than two shall be provided in each occupant evacuation elevator lobby where more than one elevator opens into the lobby. Signage shall be provided to denote which elevators are available for occupant evacuation.~~

Reason: 1. The standards for the evaluation of the evacuation of building occupants are not robust enough for states and areas which are prone to earthquakes (such as California). Having all passenger elevators used as OEE provides the maximum opportunity for building occupants – especially those persons with disabilities or mobility impairment - to use elevators for evacuation during emergencies.

2.Following 9/11, the Building Code adopted provisions to allow elevators to serve as an additional form of egress and to assist emergency personnel during emergencies. It was never intended for Occupant Evacuation Elevators (OEE) to be installed in lieu of a required additional stairwell. In states and areas prone to earthquakes, which could shut down an elevator's operation, there is a concern that removing the additional stairwell and reducing the number of OEEs could increase risk to a building's occupants - especially persons with disabilities or mobility impairments – and hinder rescue personnel's efforts during emergencies. Therefore, the state of CA has modified the CA Building code section 3008 to require all passenger elevators to serve as OEEs. (See attached 2022 CA Building Code image)

Also, the egress analysis described in section 3008.1.1 is not feasible. Elevators companies refuse to provide such egress/traffic analysis due to liability issues. Other professionals such as Architects and Civil/Electrical/Fire-Protection, etc. Engineers do not have the required tools/means to provide such an analysis. Fire and Building AHJs are not qualified to review and approve egress analysis which is outside of their expertise and therefore they refuse to accept OEE/OEO design base on egress analysis not requiring all passenger elevators to serve as OEEs. Also, elevator companies refuse to provide this egress/traffic analysis since they cannot predict the behavior and occupancy changes of the building and its occupants after the construction is completed. For example: If a group A-2 occupancy (large restaurant with large occupant load) will be added to an office building (B occupancy) or a hotel (R-1) Occupancy after the building construction was completed with a specific egress analysis - the new occupancy and additional potential occupant load will change the egress analysis and may require additional OEE elevators to be provided - but at this point it will not be feasible to change the entire design of the OEE/OEO system. The potential changes of the building behavior could also be caused due to change of building use/occupancy.

In states/areas prone to earthquakes (such as CA) - elevators AHJs and inspectors refuse to allow the reduction of exit stairways if not all passenger elevators are used as OEE since an earthquake can compromise many elevators during one event. Therefore, the state of CA did not adopt the IBC Section 3008.1.1 and does not allow for egress analysis.

OEEs (Section 3008) were first included in IBC 2009 edition - the following editions 2012 and 2015 they all required all passenger elevators to serve as OEEs when the number of stairs is reduced per Section 403.5.2. The change for number of OEEs based on egress analysis was first included in the 2018 edition of IBC due to potential large generator size that is required to supply backup power to all OEEs in case the building normal power is lost and since all OEEs are required to run simultanesouly on backup generator power. However, this change in the IBC did not clarify how the OEE/OEO design will be implemented and it created major design issues and conflicts in addition to all the other issues mentioned before.

Therefore, this proposal is intended to revert the IBC language to what it was in the 2009, 2012 and 2015 editions and also be consistent with the state of CA building code. This change will increase safety for the building occupants and first responders especially in states/areas prone to earthquakes and for all other buildings where reduction in interior egress stairwell is desired.

3. Adding the language: “including FSAEs in accordance with 3007” is intended to prevent confusion regarding if FSAEs should or shouldn’t be used as OEEs. This language ensures that FSAEs (which must be passenger elevators) should be used as OEEs and should comply with Section 3008 since they can help evacuate occupants during emergencies before the firefighters arrive to the building and even after firefighters arrive. The firefighters could override the OEO for the FSAEs if they choose to use them (one or both FSAEs) for fire operation at any time. Typically, in a fire emergency operation in a high-rise building with two FSAEs - the firefighters are using only one FSAE for the emergency operation while the other FSAE could serve as an OEE to help evacuate occupants in the most efficient way.

4. Changing the language from “during fire” to “during emergencies” will allow the use of the OEEs for all types of emergencies (fire and non-fire).

5.Delete the last sentence: “where other elevators are used for occupant self-evacuation, those elevators shall comply with these sections” – this is unnecessary and confusing language (it is unclear which potential “other elevators” could be used as OEEs)

6. Rationale for the proposed change for Section 3008.1.1 (1)

3008.1.1 Elevators with 2 or 3 stops only, shall not be required to be used for occupant self-evacuation when approved by the authority having jurisdiction.

Rationale: To clarify that 2-3 stops passenger elevators, typically used as parking or shuttle elevators, are not required to be OEEs if they do not contribute to evacuate occupants out of the building – This language is permissive and will need specific AHJ approval after evaluation of each specific elevator. All other passenger elevators with 4 or more stops will contribute to the evacuation of occupants nd should serve as OEEs without the need for specific AHJ approval

7. Rationale for the proposed change for Section 3008.1.1 (2) and (3)

Rationale: To be consistent with the A17.1 code language section 2.27.10 for FSAEs which prohibits all freight and hydraulic elevators to be used as OEEs. This is due to the construction of freight elevators and conflicts between the NFPA 13 (Sprinkler code) and the building and elevator codes regarding sprinkler protection and shunt trip for freight and hydraulic elevators. NFPA 13 requires sprinklers in hydraulic elevators machine rooms, the elevator code requires shunt trip when sprinklers are located in machine rooms and top of hoistways, however, IBC Section 3008.2.1 prohibits sprinklers in all OEEs associated locations and section 3008.4 prohibits shunt trip for all OEEs. Also Section 3008.1 specifically require "Passenger" elevators to be used as OEEs and this prohibits "Freight" elevators to be used as OEEs and this proposal clarify the specific difference between passenger and freight elevators regardless if the freight elevator is hydraulic or traction (electric) type.

Bibliography: IBC 2009, 2012, 2015 Section 3008

CBC -2022 Section 3008

Cost Impact: Increase

Estimated Immediate Cost Impact:

It is not clear how to calculate the potential cost increase since it is based on an egress analysis and other design factors of the OEE/OEO system. A rough estimate might be $100,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost for the potential larger generator will be increased in order to run all OEEs on backup power at the same time when the building normal power is lost

However - the increase in cost is not clear due to the complexity of the OEE/OEO design if not all the passenger elevator are used based on an egress analysis

G169-25

G170-25

IBC: 3008.6.3.1

Proponents: Kevin Brinkman, representing NEII (klbrinkman@neii.org)

2024 International Building Code

Revise as follows:

3008.6.3.1 ~~Vision panel~~ Visibility Means. ~~A vision panel~~ Visibility means shall be installed in each *fire door assembly* in the *smoke barrier*. The ~~vision panel~~ visibility means shall consist of fire-protection-rated glazing, shall comply with the requirements of Section 716 and shall be located to furnish clear vision of the occupant evacuation elevator lobby.

Reason: To assure the intent of the requirement is clear while not using a common elevator term to avoid confusion. A vision panel is defined in A17.1/B44 as part of the manually operatedor self-closing hoistway doors, using the term here in a different context creates confusion.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change is a clarification for seeing though rated doors serving elevator lobbies therefore there is no cost impact

G170-25

G171-25

IBC: 3102.1, 3103.1; IFC: 105.5.51

Proponents: Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Gregory Benton, NYS, representing Department of State, Division of Building Standards and Codes (gregory.benton@dos.ny.gov)

2024 International Building Code

SECTION 3102
MEMBRANE STRUCTURES

Revise as follows:

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to *air-supported*, *air-inflated*, *membrane-covered cable*, *membrane-covered frame* and *tensile membrane structures*, collectively known as *membrane structures*, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with the *International Fire Code*. Membrane *structures* covering water storage *facilities*, water clarifiers, water treatment plants, sewage treatment plants, *greenhouses* and similar *facilities* not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane *structures* erected on a *building*, balcony, deck or other *structure* for any period of time shall comply with this section.

<u>**Exception:** A temporary membrane structure exclusively used for recreational camping purposes which is erected on a detached deck that is not more than 30-inches above grade at any point shall comply with the *International Fire Code*.</u>

3103.1 General. The provisions of Sections 3103.1 through 3103.8 shall apply to *structures* erected for a period of less than 180 days. Temporary *special event structures*, *tents*, umbrella *structures* and other membrane *structures* erected for a period of less than 180 days shall also comply with the *International Fire Code*. *Temporary structures* erected for a longer period of time and *public-occupancy temporary structures* shall comply with applicable sections of this code.

Exceptions:

1. *Public-occupancy temporary structures* complying with Section 3103.1.1 shall be permitted to remain in service for 180 days or more but not more than 1 year where *approved* by the *building official*.
2. *Public-occupancy temporary structures* within the confines of an *existing structure* are not required to comply with Section 3103.6.
3. <u>Temporary tents used exclusively for camping purposes on the ground or on a detached platform that is not more than 30-inches above grade at any point shall comply with the *International Fire Code*.</u>

2024 International Fire Code

SECTION 105
PERMITS

105.5.51 Temporary membrane structures, special event structures and tents. An operational permit is required to operate an air-supported temporary membrane structure, a temporary *special event structure* or a tent having an area in excess of 400 square feet (37 m^2).

Exceptions:

1. Tents used exclusively for recreational camping purposes and that are placed either on the ground or on detached platforms that are not more than 30-inches above grade at any point.
2. Tents, curtains and extensions attached thereto, when used for funeral services.
3. Tents open on all sides, which comply with all of the following:
   - 3.1. Individual tents having a maximum size of 700 square feet (65 m^2).
   - 3.2. The aggregate area of multiple tents placed side by side without a fire break clearance of not less than 12 feet (3658 mm) shall not exceed 700 square feet (65 m^2) total.
   - 3.3. A minimum clearance of 12 feet (3658 mm) to structures and other tents shall be provided.

Reason: Camping tents usually qualify for Exception #1 in Section 105.5.51 of the 2024 IFC, which provides relief from permitting requirements. Yet that exception doesn't apply to any camping tent that is on any structure for any length of time according to last sentence in Section 3102.1 of the 2024 IBC and Section 3103.7.4 of the 2024 IFC. They cause any camping tent on any deck to comply with Sections 105 and 3102 of the IBC. That is good when they are either inside of or on top of buildings. But that isn't necessary for camping tents that are placed on low detached decks.

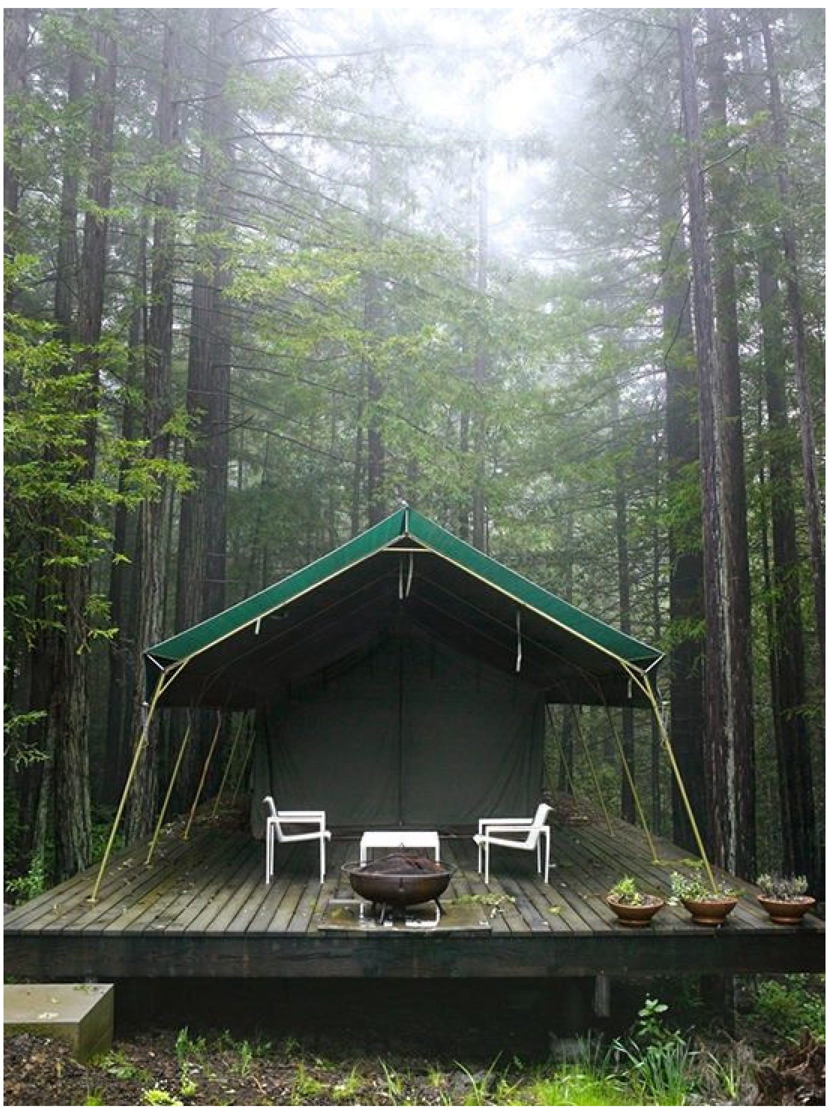
Elevated camping platforms provide a convenient way for campgrounds to eliminate a camper's need to cut roots and disturb soil as they try to find a flat dry surface within their campsite on which to pitch their tent. Those platforms are often slightly raised detached wooden decks especially at more remote camping locations where dumping loads of imported fill isn't practical. For compliance with the 2024 International Codes, a new building permit is required each time a camping tent is set up on one of those elevated detached camping platforms and they must comply with the 2024 IBC's provisions for permanent structures. That's regardless of their size, so even 1-person puptents need to be permitted and comply with Section 3102 of the 2024 IBC.

This proposal provides a safe way to for temporary camping tents on small, slightly elevated, detached decks to access Exception #1 of Section 105.5.51 of the 2024 IFC. It limits the height of elevated camping platforms for tents to avoid the need for guards and to minimize the consequences of deck failure.

The elevated camping platforms, like other free-standing decks, are not affected by this proposal. Their compliance with the International Code's construction and other applicable provisions would continue to be required including the permitting requirements.

Note: This proposal for the IBC needs to be coordinated with Section 3103.7.4 of the IFC, perhaps as follows:

3103.7.4 Membrane structures on buildings. *Membrane structures* that are erected on buildings, balconies, decks or other structures shall be regulated as permanent *membrane structures* in accordance with Section 3102 of the *International Building Code*.
Exception: A temporary *membrane structure* exclusively used for recreational camping purposes which is erected on a detached deck that is not more than 30-inches above grade at any point shall comply with the provisions in this code for recreational camping tents.
Here are photographs representing the camping tents on elevated platforms for which this proposal intends to provide relief:



Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0. This does not affect construction cost. Relief is provided from the costs that are associated with the permitting process without affecting the safety and sustainability that the permitting process offers for more significant construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

The removal of the administrative requirement includes the costs associated with that requirement. The benefit of the permitting process is negligible for camping tents being erected temporarily on detached camping platforms that are not more than 30-inches above grade at any point. The costs that are associated with the permitting process are comparatively much greater than the benefit of that process for this particular situation.

Estimated Life Cycle Cost Impact:

The life cycle cost impact, which is for the period of time that a temporary camping tent would be erected on a detached low deck, is permanent in regards to the costs of the permitting process and negligible for the costs to safety and sustainiblitiy.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

The costs savings from the permitting process is permanent while any costs that may be associated with the lack of oversight that happens without the permitting process are temporary.

G171-25

G172-25

IBC: 3102.1, 3102.7

Proponents: Jonathan Siu, Jon Siu Consulting, LLC, representing Washington Association of Building Officials Technical Code Development Committee; Julius Carreon, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (jcarreon@bellevuewa.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov)

2024 International Building Code

Revise as follows:

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to *air-supported*, *air-inflated*, *membrane-covered cable*, *membrane-covered frame* and *tensile membrane structures*, collectively known as *membrane structures*, erected for a period of longer than 180 days~~ or longer~~. Those erected for a shorter period of time shall comply with the *International Fire Code*. Membrane *structures* covering water storage *facilities*, water clarifiers, water treatment plants, sewage treatment plants, *greenhouses* and similar *facilities* not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane *structures* erected on a *building*, balcony, deck or other *structure* for any period of time shall comply with this section.

3102.7 Engineering design. The *structure* shall be designed and constructed to sustain~~*dead loads*;~~ *loads* due to tension or inflation~~; *live loads* including wind, snow or *flood* and seismic loads~~ and *loads* in accordance with Chapter 16.

Reason: This proposal is intended to align the timeframe and design loads for membrane structures with other parts of the code. Section 3102 is intended to apply to permanent membrane structures, since it points to the IFC for temporary membrane structures. However, in the IFC and in most parts of the IBC (including the definitions), a temporary structure is a structure that is in place for 180 days or less. The current language in 3102.1 says membrane structures must comply with provisions for permanent structures when the timeframe is exactly 180 days, which conflicts with the rest of the code. This proposal eliminates the overlap at 180 days, consistent with the definitions and other provisions. (Note that there is a separate proposal to align timeframes for temporary structures in IBC 108 and 3103.)

Regarding design loads, the current language in Section 3102.7 requires membrane structures to be designed for dead loads, tension/inflation loads, and "*live loads* **including** wind, snow, flood, and seismic loads [emphasis added]." Aside from erroneously identifying wind, snow, flood, and seismic loads as live loads, Chapter 16 contains loading criteria for soil/hydrostatic, rain, ice, and tsunami conditions that should be considered in the design of these structures, similar to all other permanent structures. Rather than naming all the load cases, this proposal reduces the list to a pointer to Chapter 16. Note that the requirement to design for membrane tension/inflation loads is retained here, as that loading condition is not explicitly covered in Chapter 16.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clarification that eliminates a conflict and aligns the provisions for permanent membrane structures with other sections in the code pertinent to permanent structures.

G172-25

G173-25

IFC: SECTION 107, [A] 107.1; IBC: SECTION 108, [A] 108.1, SECTION 202, SECTION 3103, 3103.1, 3103.1.1, 3103.6, 3103.6.1, 3103.6.1.1, TABLE 3103.6.1.1, 3103.6.1.2, TABLE 3103.6.1.2, 3103.6.1.3, 3103.6.1.4, 3103.6.1.5, 3103.6.1.6, 3103.6.2, 3103.6.4, 3103.7

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Fire Code

SECTION 107 TEMPORARY STRUCTURES, USES, EQUIPMENT AND SYSTEMS

Revise as follows:

[A] 107.1 General. The *fire code official* is authorized to issue a permit for temporary structures, uses, equipment or systems as required in Sections 105.5 and 105.6. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. *Public-occupancy temporary structures* shall be permitted for a period not to exceed one year. The *fire code official* is authorized to grant extensions for demonstrated cause.

2024 International Building Code

SECTION 108 TEMPORARY STRUCTURES, EQUIPMENT AND SYSTEMS

Revise as follows:

[A] 108.1 General. The *building official* is authorized to issue a *permit* for temporary *structures* , equipment or systems. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. *Public-occupancy temporary structures* shall be permitted for a period not to exceed one year. The *building official* is authorized to grant extensions for demonstrated cause or in accordance with Section 3103. ~~Structures designed to comply with Section 3103.6 shall not be in service for a period of more than 1 year unless an extension of time is granted.~~
Detached *tents* and other *membrane structures* erected for a period of 180 days or less shall comply with the International Fire Code.

SERVICE LIFE. The period of time that a *structure* serves its intended purpose. For *temporary structures*, this shall be the cumulative time of service for sequential *temporary events* that may occur in multiple locations. ~~For *public occupancy temporary structures* , this is assumed to be a minimum of 10 years.~~
TEMPORARY EVENT. A single use during the *service life* of a ~~*public occupancy*~~ *temporary structure* at a given location that includes its installation, inspection, use and occupancy, and dismantling.

SECTION 3103 TEMPORARY STRUCTURES

3103.1 General. The provisions of ~~Sections 3103.1 through 3103.8~~ this section shall apply to *structures* erected for a period of ~~less than~~ 180 days or less. Temporary *special event structures*, *tents*, umbrella *structures* and other membrane *structures* erected for a period of ~~less than~~ 180 days or less shall also comply with the *International Fire Code*. *Temporary structures* erected for a longer period of time ~~and *public occupancy temporary structures*~~ shall comply with applicable sections of this code for permanent structures.

Exceptions~~.~~:

~~1.~~ ~~*Public-occupancy temporary structures* complying with Section 3103.1.1 shall be permitted to remain in service for 180 days or more but not more than 1 year where *approved* by the *building official*.~~

~~2.~~ *Public-occupancy temporary structures* within the confines of an enclosed *existing structure* are not required to comply with Section 3103.6.

3103.1.1 Extended period of service time. ~~Public-occupancy temporary~~ *Temporary structures* shall be permitted to remain in service for 180 days or more without complying with requirements in this code for new *building* or structures where extensions for up to 1 year are granted by the *Building* Official in accordance with Section 108.1 and where the following conditions are satisfied:

1. Additional inspections as determined by the building official shall be performed by a qualified *person* to verify that site conditions and the *approved* installation comply with the conditions of approval at the time of final inspection.
2. A qualified *person* shall perform follow-up inspections after initial occupancy at intervals not exceeding 180 days to verify the site conditions and the installation conform to the *approved* site conditions and installation requirements. Inspection records shall be kept and shall be made available for verification by the *building official*.
3. An examination shall be performed by a *registered design professional* to determine the adequacy of the temporary structure to resist the structural loads required in Section 3103.6.
4. Relocation of the ~~*public-occupancy*~~*temporary structure* shall require a new *permit* application.
5. The use or occupancy *approved* at the time of final inspection shall remain unchanged.
6. A request for an extension is submitted to the *building official*. The request shall include records of the inspections and examination in Items 1 and 3.

3103.6 Structural requirements. *Temporary structures* ~~shall comply with the structural requirements of this code.~~ ~~*Public-occupancy temporary structures*~~ shall be designed and erected to comply with the structural requirements of this code and Sections 3103.6.1 through 3103.6.4. For the purposes of this section, the *service life* of *public-occupancy temporary structures* shall be assumed to be 10 years.

Exception: Where *approved*, *live loads* less than those prescribed by Table 1607.1 shall be permitted provided that a *registered design professional* demonstrates that a rational approach has been used and that such reductions are warranted.

Temporary non-*building structures* ancillary to public assemblies or temporary *special event structures* whose structural failure or collapse would endanger assembled public shall be assigned a *risk category* corresponding to the ~~*risk category* of the~~ public assembly occupant load in accordance with Section 1604.5. For the purposes of establishing an *occupant load* for the assembled public endangered by structural failure or collapse, the applicable *occupant load* determination in Section 1004.5 or 1004.6 shall be applied over the assembly area within a radius equal to 1.5 times the height of the temporary non-*building structure*

3103.6.1 Structural loads. ~~*Public-occupancy temporary*~~ *Temporary structures* shall be designed in accordance with Chapter 16, except as modified by Sections 3103.6.1.1 through 3103.6.1.6.

3103.6.1.1 Snow loads. Snow loads on ~~public-occupancy~~ *temporary structures* shall be determined in accordance with Section 1608. The ground snow loads, p_g, in Section 1608 shall be permitted to be modified according to Table 3103.6.1.1.

Exception: Ground snow loads, p_g, for *public-occupancy temporary structures* that employ controlled-occupancy procedures per Section 3103.8 shall be permitted to be modified using a ground snow load reduction factor of 0.65 instead of the ground snow load reduction factors in Table 3103.6.1.1.

Where the ~~*public-occupancy*~~ *temporary structure* is not subject to snow loads or not constructed and occupied during times when snow is to be expected, snow loads need not be considered, provided that where the period of time when the ~~*public-occupancy*~~ *temporary structure* is in service shifts to include times when snow is to be expected, one of the following conditions is met:

1. The design is reviewed and modified, as appropriate, to account for snow loads.
2. ~~Controlled~~ For a *public-occupancy temporary structure*, controlled occupancy procedures in accordance with Section 3103.8 are implemented.

TABLE 3103.6.1.1 REDUCTION FACTORS FOR GROUND SNOW LOADS FOR ~~PUBLIC-OCCUPANCY~~ TEMPORARY STRUCTURES

RISK CATEGORY	SERVICE LIFE	
	≤ 10 yr	>10 yr
II	0.7	1.0
III	0.8	1.0
IV	1.0	1.0

3103.6.1.2 Wind loads. The design wind load on ~~*public-occupancy*~~ *temporary structures* shall be permitted to be modified in accordance with the wind load reduction factors in Table 3103.6.1.2.

Exceptions:

1. Design wind loads for *public-occupancy temporary structures* that implement controlled occupancy procedures per Section 3103.8 shall be permitted to be modified using a wind load reduction factor of 0.65.
2. For ~~*public-occupancy*~~ *temporary structures* erected in a *hurricane-prone region* outside of hurricane season, the *basic wind speed*, *V*, shall be permitted to be set as follows, depending on *risk category*:

   2.1. *Risk Category* II: 115 mph.

   2.2. Risk Category III: 120 mph.

   2.3. Risk Category IV: 125 mph.

TABLE 3103.6.1.2 REDUCTION FACTORS FOR WIND LOADS FOR ~~PUBLIC-OCCUPANCY~~ TEMPORARY STRUCTURES

RISK CATEGORY	SERVICE LIFE	
	≤ 10 yr	>10 yr
II	0.8	1.0
III	0.9	1.0
IV	1.0	1.0

3103.6.1.3 Flood loads. ~~*Public-occupancy temporary*~~ *Temporary* *structures* need not be designed for flood loads specified in Section 1612. Controlled occupancy procedures in accordance with Section 3103.8 shall be implemented for *public-occupancy temporary structures* located in areas prone to flooding as defined on a flood hazard map.

3103.6.1.4 Seismic loads. Seismic loads on ~~*public-occupancy*~~ *temporary structures* assigned to *Seismic Design Categories* C through F shall be permitted to be taken as 75 percent of those determined by Section 1613. ~~*Public-occupancy temporary*~~ *Temporary* *structures* assigned to *Seismic Design Categories* A and B are not required to be designed for seismic loads.

3103.6.1.5 Ice loads. Ice loads on ~~public-occupancy~~ *temporary structures* shall be permitted to be determined with a maximum nominal thickness of 0.5 inch (13 mm), for all risk categories. Where the ~~*public-occupancy*~~ *temporary structure* is not subject to ice loads or not constructed and occupied during times when ice is to be expected, ice loads need not be considered, provided that where the period of time when the ~~*public-occupancy*~~ *temporary structure* is in service shifts to include times when ice is to be expected, one of the following conditions is met:

1. The design is reviewed and modified, as appropriate, to account for ice loads.
2. ~~Controlled~~ For a *public-occupancy temporary structure*, controlled occupancy procedures in accordance with Section 3103.8 are implemented.

3103.6.1.6 Tsunami loads. *Public-occupancy temporary structures* in a *tsunami design zone* are not required to be designed for tsunami loads specified in Section 1615. Controlled occupancy procedures in accordance with Section 3103.8 shall be implemented for *public-occupancy temporary structures* located in a tsunami design zone.

3103.6.2 Foundations. ~~Public-occupancy temporary~~ *Temporary* *structures* shall be permitted to be supported on the ground with temporary foundations where *approved* by the *building official*. Consideration shall be given for the impacts of differential settlement where foundations do not extend below the ground or where foundations are supported on compressible materials. The presumptive load-bearing value for ~~*public-occupancy*~~ *temporary structures* supported on a pavement, slab on grade or on other collapsible or controlled low-strength substrate soils such as beach sand or grass shall be assumed not to exceed 1,000 pounds per square foot (47.88 kPa) unless determined through testing and evaluation by a *registered design professional*. The presumptive load-bearing values listed in Table 1806.2 shall be permitted to be used for other supporting soil conditions.

3103.6.4 Durability. Reusable components used in the erection and the installation of ~~*public-occupancy*~~ *temporary structures* shall be manufactured of durable materials necessary to withstand environmental conditions at the service location. Components damaged during transportation or installation or due to the effects of weathering shall be replaced or repaired.

3103.7 Serviceability. The effects of structural loads or conditions shall not adversely affect the serviceability or performance of the ~~*public-occupancy*~~ *temporary structure*.

Reason: This proposal is being submitted to correct errors in the code, correlate the IBC and the IFC, make other clarifications, and addresses what appears to be a logical inconsistency in the 2024 IBC provisions for loads on temporary structures versus public-occupancy temporary structures, as described below. The change to IFC 107.1 is to coordinate the permit timeframe for public-occupancy temporary structures with the change to IBC 108.1. Although "public-occupancy temporary structures" is not used anywhere in the IFC, the IBC definition would govern (see IFC 201.3) and this would prevent any conflicts with what is allowed in the IBC.

BACKGROUND:

Prior to the 2024 IBC, there was confusion in the design and enforcement communities regarding the structural design of temporary structures--what loads should be required? Technically, the IBC required temporary structures to be designed for the same loads as permanent structures, but this seemed unreasonable. Lacking guidance in the IBC and ASCE 7, many design professionals and jurisdictions turned to ASCE 37, which contains load provisions for buildings under construction. Past attempts to codify ASCE 37 for temporary structures were defeated because ASCE 37 is not appropriate for buildings that are occupied by the public. In the last cycle, ASCE/SEI organized an ad-hoc committee of experts to develop code change proposal S116-22, which defined loads and special procedures, mostly focused on public-occupancy temporary structures. Ultimately, S116-22 was revised in the Public Comment Hearing and approved through the Online Governmental Consensus Vote process, and its provisions are in Section 3103 of the 2024 IBC.

As part of the effort to develop the next version of ASCE 7 (ASCE 7-28), a new chapter dealing with loads on temporary structures is currently under development. The subcommittee responsible for developing the new chapter used 2024 IBC Section 3103 as a starting point and is making improvements to the provisions. Also, recognizing that the changes to the 2024 IBC necessitated correlating changes to the IFC, the ASCE/SEI ad hoc committee was tasked with developing code change proposals for Group A. In the process of all this development, some errors and inconsistencies in the current 2024 IBC and 2024 IFC were identified. In Group A last year, the IFC Committee approved code change proposals F198-24 and F199-24 which correct some of the errors and aligns the IFC with the new IBC requirements. (Note that with the new ICC code development process, we will not know if public comments have been submitted on these Group A proposals until March, 2026.)

ERRORS AND INCONSISTENCIES:

- Section 108.1 (temporary structures).
  - S116-22 inserted an allowance for public-occupancy temporary structures to be permitted for up to 1 year and allows other extensions in Section 3103. However, Section 108.1 limits permits for temporary structures to 180 days. This proposal inserts the 1-year allowance for public-occupancy temporary structures and adds a pointer to Section 3103 for consistency.
  - As currently written, the IBC regulates temporary detached tents and other membrane structures, since they are not exempted from compliance. However, IFC Section 3103.1 also clearly regulates them. In Group A, F199-24 attempted to change the IFC to require these tents and membrane structures to comply with both the IFC and IBC. However, the IFC Committee and other testifiers clearly indicated that they wanted <u>only</u> the IFC to govern, and that requirement was removed for CAH 2. This proposal adds a pointer to the IFC for consistency.
- Temporary Event (definition). S116-22 inserted new definitions for Temporary Structure, Temporary Event, and Public-Occupancy Temporary Structure (hereinafter referred to as a POTS). A Temporary Structure is there to support a Temporary Event. POTSs are a subset of temporary structures that are there to serve assembly occupancies or other public uses. However, the current definition of Temporary Event is a "single use...of a <u>public-occupancy</u> temporary structure at a given location..." [emphasis added]. Putting everything together, by these definitions, only POTSs meet the definition of Temporary Structure. This is clearly a mistake made in

the drafting of S116-22, since it would exclude all temporary structures that are not POTSs, such as a temporary air-supported membrane structure used as an aircraft hangar. This proposal addresses the issue by revising the definition of Temporary Event such that it applies to all temporary structures.

- Section 3103.1 (general/scoping).
  - By definition, a Temporary Structure is one that is erected for 180 days or less. However, Section 3103.1 conflicts with that definition, stating that this section applies to structures erected for a "period of less than 180 days," and that certain structures erected for "less than 180 days" must comply with the IFC. Comparing this to other references to the 180 days in the IBC and IFC Section 3103, temporary structures are allowed up to and including the 180 days, so this proposal changes IBC 3103.1 to match.
  - The last sentence requires temporary structures that are erected for more than 180 days and POTSs to comply with "this code." The intent is that structures that are not temporary should comply with the code for new construction (see also "Clarifications" below). However, as written, all POTSs would need to comply with new construction code. This proposal removes POTSs to deal with this inconsistency, as well as to deal with the substantive change described below.
- Section 3103.6.1.1 (snow loads). As currently written, snow loads must be reduced using the factors in Table 3103.6.1.1. This was an error in the drafting of S116-22, in that there should be no issue if the design professional wants to design for full snow loads, without the reductions. This proposal modifies the second sentence of Section 3103.6.1.1 to make the reduction factors an option.
- Sections 3103.6.3 (flood) and 3103.6.1.6 (tsunami). As currently written, controlled occupancy procedures per Section 3103.8 are required to address both flood and tsunami hazards, whether or not the structure is located in a flood or tsunami hazard areas. This was an oversight in the drafting of S116-22, and this proposal addresses the issue by triggering the controlled occupancy procedures only if the structure is located in the associated hazard area.

CLARIFICATIONS:

- Service Life (definition) and Section 3103.6 (structural requirements). The definition of Service Life states that 10 years is to be assumed for the service life of a POTS. This was felt to be a requirement contained in the definition, so this proposal moves that requirement to 3103.6.
- Section 3103.1 (general/scoping). This proposal clarifies that the intent is that compliance with "this code" is intended to mean that structures that are erected for periods longer than the temporary structure limits are required to be designed as permanent structures, which would include full structural loads.
- Section 3103.1, exceptions.
  - Exception 1 is deleted because it is covered in Section 108.1.
  - Exception 2 has been revised to apply only where the POTS is erected within an enclosed structure. The original thinking behind this exception was that if the temporary structure is inside a building, it is not subject to environmental loading (snow, wind, etc.) However, there was concern that a temporary structure located underneath a roof structure with open sides could interpreted as being "within the confines of an existing structure," which would then expose these structures to those loads.
- Section 3103.6 (structural requirements--risk category). Concerns have been raised that the risk category language regarding ancillary non-building structures (etc.) is unclear when it refers to the "risk category of the public assembly." The requirement has been modified to refer to the "public assembly occupant load" instead, as a clarification.

LOADS ON TEMPORARY STRUCTURES vs POTSs:

The remaining changes in this proposal address what is seen as a logical inconsistency in the current 2024 IBC Section 3103.6. That is, why are POTSs allowed to be designed for lower structural loads than other temporary structures, such as a temporary shelter for cement bags? If a POTS (which involves a public assembly) is allowed to have reduced loading, it seems logical that the same load reductions should also be allowed for other temporary structures. This is the approach that is being taken with this proposal and is consistent with the approach being taken by the subcommittee that is developing the new chapter for ASCE 7-28.

S116-22 focused on reducing loads for POTSs. This proposal extends the load reductions to all temporary structures, with some exceptions. Because controlled occupancy procedures are not enforceable on temporary structures that are not POTSs, additional load reductions that are dependent on those controlled occupancy procedures are only allowed for POTSs (see the exceptions for snow and wind loads). In addition, for load conditions where the structure is erected outside of the season for those loads (hurricane, ice, snow), only POTSs are allowed to use controlled occupancy procedures in lieu of redesigning/strengthening the structure for those loads if the structure remains during the hazard season.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed code change will reduce the loads for temporary structures other than public-occupancy temporary structures, since it proposes to extend the load reductions now only applicable to POTSs to all temporary structures. There will be no change in the cost of construction for POTSs.

Staff Analysis: F199-24 added references to IBC for tempoaray structures.

G173-25

G174-25

IBC: 3103.8, 3103.6.1.3, 3103.6.1.6, 3103.6.1.1, 3103.6.1.2, 3103.6.1.5, ANSI Chapter 35

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

3103.8 ~~Controlled occupancy procedures~~ Operations management plan. ~~Where controlled occupancy procedures are required to be implemented for~~ For *public-occupancy temporary structures* ~~in Section 3103.6.1, the procedures shall comply with this section and ANSI ES1.7. An~~ an operations management plan ~~in accordance with ANSI E1.21~~ shall be submitted to the *building official* for approval as a part of the *permit* documents. ~~In addition, the operations management plan shall include an emergency action plan that documents the following information, where applicable:~~

1. ~~Surfaces on which snow or ice accumulates shall be monitored before and during occupancy of the *public-occupancy temporary structure*. Any loads in excess of the design snow or ice load shall be removed prior to its occupancy, or the *public-occupancy temporary structure* shall be vacated in the event that either the design snow or ice load is exceeded during its occupancy.~~
2. ~~Wind speeds associated with the design wind loads shall be monitored before and during occupancy of the *public-occupancy temporary structure*. The *public-occupancy temporary structure* shall be vacated in the event that the design wind speed is expected to be exceeded during its occupancy.~~
3. ~~Criteria for initiating occupant evacuation procedures for *flood* and tsunami events.~~
4. ~~Occupant evacuation procedures shall be specified for each environmental hazard where the occupant management plan specifies the *public-occupancy temporary structure* is to be evacuated.~~
5. ~~Procedures for anchoring or removal of the *public-occupancy temporary structure*, or other additional measures or procedures to be implemented to mitigate hazards in snow, wind, *flood*, ice or tsunami events.~~

3103.6.1.3 Flood loads. *Public-occupancy temporary structures* need not be designed for flood loads specified in Section 1612. ~~Controlled occupancy procedures~~ Operation management plans in accordance with Section 3103.8 shall be implemented.

3103.6.1.6 Tsunami loads. *Public-occupancy temporary structures* in a *tsunami design zone* are not required to be designed for tsunami loads specified in Section 1615. ~~Controlled occupancy procedures~~ Operation management plans in accordance with Section 3103.8 shall be implemented.

3103.6.1.1 Snow loads. Snow loads on public-occupancy temporary structures shall be determined in accordance with Section 1608. The ground snow loads, p_g, in Section 1608 shall be modified according to Table 3103.6.1.1.

Exception: Ground snow loads, p_g, for *public-occupancy temporary structures* that employ ~~controlled-occupancy procedures~~ operation management plans per Section 3103.8 shall be permitted to be modified using a ground snow load reduction factor of 0.65 instead of the ground snow load reduction factors in Table 3103.6.1.1.

Where the *public-occupancy temporary structure* is not subject to snow loads or not constructed and occupied during times when snow is to be expected, snow loads need not be considered, provided that where the period of time when the *public-occupancy temporary structure* is in service shifts to include times when snow is to be expected, one of the following conditions is met:

1. The design is reviewed and modified, as appropriate, to account for snow loads.
2. ~~Controlled occupancy procedures~~ Operation management plans in accordance with Section 3103.8 are implemented.

3103.6.1.2 Wind loads. The design wind load on *public-occupancy temporary structures* shall be permitted to be modified in accordance with the wind load reduction factors in Table 3103.6.1.2.

Exceptions:

1. Design wind loads for *public-occupancy temporary structures* that implement ~~controlled occupancy procedures~~ operation management plans per Section 3103.8 shall be permitted to be modified using a wind load reduction factor of 0.65.
2. For *public-occupancy temporary structures* erected in a *hurricane-prone region* outside of hurricane season, the *basic wind speed*, *V*, shall be permitted to be set as follows, depending on *risk category*:
   - 2.1. *Risk Category* II: 115 mph.
   - 2.2. Risk Category III: 120 mph.
   - 2.3. Risk Category IV: 125 mph.

3103.6.1.5 Ice loads. Ice loads on public-occupancy temporary structures shall be permitted to be determined with a maximum nominal thickness of 0.5 inch (13 mm), for all risk categories. Where the *public-occupancy temporary structure* is not subject to ice loads or not constructed and occupied during times when ice is to be expected, ice loads need not be considered, provided that where the period of time when the *public-occupancy temporary structure* is in service shifts to include times when ice is to be expected, one of the following conditions is met:

1. The design is reviewed and modified, as appropriate, to account for ice loads.
2. ~~Controlled occupancy procedures~~ Operation management plans in accordance with Section 3103.8 are implemented.

Delete without substitution:

ANSI

American National Standards Institute
25 West 43rd Street, Fourth Floor
New York, NY 10036

~~ES1.7 - 2021~~ ~~Event Safety Requirements - Weather Preparedness~~

Reason: This removes reference to a standard that is not appropriate scope and allows for the operational plan to be developed where it is appropriate in the IFC, then the code official can approve what is shown.
"Operations maintenance plan" will be used in this section and ANSI E1.21. While this is not the applicable standard (it is for special event structures') the commonly recognized term should be used rather than introducing a new term and potentially different regulatory action. Fire and safety evacuation plans and lock down plans are addressed in the IFC and worked out with the emergency responders and should be the same for this operations plan. Items 1 and 2 require weather monitoring by someone at the temporary structure, that is not described or addressed. Many times a temporary structure is erected and left empty between performances. Is this monitoring required to be continuous? Item 3 is redundant with Item 4. Item 5 - is a regulatory challenge based on climate conditions and the ability to respond in a timely manner. The occurrence of any weather related events may not happen allowing enough time to secure or dismantle a structure. The criteria for permitting is subject to performance standards in accordance with the environment.

ANSI ES1.7 purpose is to provide guidance on identifying weather-related hazards, monitoring technologies, and the basic requirements necessary to develop and implement risk mitigation actions associated with weather. This should be referenced in the IFC and not here.

The changes to the other sections are just to change the name of the plan to match what is in 3103.8.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an operational requirement, not a construction requirement.

G174-25

G175-25

IBC: 3103.6.4, 3103.7

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

3103.6.4 ~~Durability~~ Maintenance and repair. ~~Reusable components used in the erection and the installation of *public-occupancy temporary structures* shall be manufactured of durable materials necessary to withstand environmental conditions at the service location. Components damaged during transportation or installation or due to the effects of weathering~~ Damaged components shall be replaced or repaired.

Delete without substitution:

~~**3103.7 Serviceability.** The effects of structural loads or conditions shall not adversely affect the serviceability or performance of the *public-occupancy temporary structure*.~~

Reason: 3103.6.4 Durability
The public occupancy structure is designed and permitted based on the loads expected. Durable materials are not defined or described resulting in an individual judgement call on acceptable or unacceptable components that may not be called to question until injury or loss of life. Determination of acceptable material durability is not further defined to meet a minimum consistent standard. The expectation of performance necessary to withstand environmental conditions at the service location is directly tied to the structural criteria. Where components are damaged they should be replaced and not only dependent on weather, installation or transportation. S166-22 did not explain this in their reason. The revised text provides direct language regarding maintenance and repair.

3103.7 - Serviceability
Public-occupancy temporary structures are expected to meet all performance criteria at the time of permitting through the duration of use. The statement regarding structural loads not adversely affecting the serviceability or performance is unnecessary. Any potential failure or defect in a public-occupancy temporary structure is not compliant with the applicable regulatory sections. This section is redundant This section needs to be deleted.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a repair requirement. There are not changes for construction.

G175-25

G176-25

IBC: 3103.1

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

3103.1 General. The provisions of Sections 3103.1 through 3103.8 shall apply to *structures* erected for a period of less than 180 days. Temporary *special event structures*, *tents*, umbrella *structures* and other membrane *structures* erected for a period of less than 180 days shall also comply with the *International Fire Code*. *Temporary structures* erected for a longer period of time and *public-occupancy temporary structures* shall comply with applicable sections of this code.

Exceptions:

1. *Public-occupancy temporary structures* complying with Section 3103.1.1 shall be permitted to remain in service for 180 days or more but not more than 1 year where *approved* by the *building official*.
2. *Public-occupancy temporary structures* within the confines of an *existing structure* are not required to comply with Section 3103.6.
3. Temporary structures associated with health care providers or declared emergencies shall be permitted to remain in service for 180 days or more where approved by the building official.

Reason: The exception specific to temporary structures associated with health care providers or declared emergencies recognizes the unique and regulated conditions associated with specific emergency related conditions and response. Unlike public-occupancy temporary structures and special event structures, temporary structures associated with response to health or physical emergency operations are coupled with inherent health, safety and performance expectations. Temporary structures associated with response to health or physical emergency operations may exceed the 180 day or even a 1 year timeline. This was realized during the recent pandemic. In contract to public-occupancy temporary structures or special event structures, temporary structures associated with response to health or physical emergency operations are used and scrutinized daily based on health, safety and performance expectations.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The temporary structure would have the same requirements regardless of how long it needs to be erected to address the needs of the emergency.

G176-25

G177-25

IBC: SECTION 108, [A] 108.1, SECTION 3103, 3103.1, 3103.1.1; IFC: SECTION 107, [A] 107.1

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

SECTION 108
TEMPORARY STRUCTURES, EQUIPMENT AND SYSTEMS

Revise as follows:

[A] 108.1 General. The *building official* is authorized to issue a *permit* for temporary *structures* , equipment or systems. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause.

Exception: Permits for structures ~~Structures~~ designed to comply with Section 3103.6 shall ~~not~~ be limited to a time of ~~in~~ service, but shall not be permitted for a ~~period of~~ more than 1 year ~~unless an extension of time is granted~~.

SECTION 3103
TEMPORARY STRUCTURES

3103.1 General. The provisions of Sections 3103.1 through ~~3103.8~~ 3103.5 shall apply to *structures* erected for a period of less than 180 days. Temporary *special event structures*, *tents*, umbrella *structures* and other membrane *structures* erected for a period of less than 180 days shall also comply with the *International Fire Code*. *Temporary structures* erected for ~~a longer period of time~~ longer than 180 days and *public-occupancy temporary structures* erected for any period of time shall also comply with ~~applicable sections of this code~~ Section 3103.6 through 3103.8.

Exceptions:

1. *Public-occupancy temporary structures* complying with Section 3103.1.1 shall be permitted to be erected for a period of ~~remain in service for 180 days or more but not more~~ less than 1 year ~~where *approved* by the *building official*~~.
2. *Public-occupancy temporary structures* within the confines of an *existing structure* are not required to comply with Section 3103.6.

3103.1.1 Extended period of service time. Public-occupancy temporary structures in service ~~shall be permitted to remain in service for~~ 180 days or more ~~without complying with requirements in this code for new *building* or structures where extensions for up to 1 year are granted by the *Building* Official in accordance with Section 108.1 and where the following conditions are satisfied~~ shall comply with the following:

1. Additional inspections as determined by the building official shall be performed by a qualified *person* to verify that site conditions and the *approved* installation comply with the conditions of approval at the time of final inspection.
2. A qualified *person* shall perform follow-up inspections after initial occupancy at intervals not exceeding 180 days to verify the site conditions and the installation conform to the *approved* site conditions and installation requirements. Inspection records shall be kept and shall be made available for verification by the *building official*.
3. An examination shall be performed by a *registered design professional* to determine the adequacy of the temporary structure to resist the structural loads required in Section 3103.6.
4. Relocation of the public-occupancy *temporary structure* shall require a new *permit* application.
5. The use or occupancy *approved* at the time of final inspection shall remain unchanged.

6. A request for an extension is submitted to the *building official*. The request shall include records of the inspections and examination in Items 1 and 3.

2024 International Fire Code

SECTION 107
TEMPORARY STRUCTURES, USES, EQUIPMENT AND SYSTEMS

Revise as follows:

[A] 107.1 General. The *fire code official*is authorized to issue a permit for temporary structures, uses, equipment or systems as required in Sections 105.5 and 105.6. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The *fire code official*is authorized to grant extensions for demonstrated cause.

Exception: Permits for structures designed to comply with Section 3103.6 of the *International Building Code* shall be limited to a time of service, but shall not be permitted for more than 1 year.

Reason: The intent of this proposal is for clarification, consistency and removal of redudant language.

The languge for the period of time of less than 180 days and less than 1 year is inconsistent and confusing. The rewording just makes them consistent and match.

108.1 - This section is only about permits. The revision to the text limits this the permit,. By putting this in an exception, 108.1 is consistent with 3103.1.

3103.1 - Sections added last cycle by S116-22 - 3103.6 through 3103.8 - deal with the new requirements for temporary structures staying up more than 180 days and public-occupancy temporary structures all the time. Therefore, 3103.6 through 3103.8 should not be applied to temporary structures that are up for very short periods of time. This revision makes that clear.

3103.1.1 - The deleted language is a repeat of the language in 3103.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification only. There are no changes to construction.

G177-25

G178-25

IBC: 3103.1.1

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

3103.1.1 Extended period of service time. Public-occupancy temporary structures shall be permitted to remain in service for 180 days or more ~~without complying with requirements in this code for new *building* or structures where extensions for~~ and up to 1 year where the extension is *approved* and ~~are granted by the *Building* Official in accordance with Section 108.1 and~~ where the following conditions are satisfied:

1. ~~6.~~ A request for an extension is submitted to the *building official*. ~~The request shall include records of the inspections and examination in Items 1 and 3.~~
~~1.~~ 2. ~~Additional inspections as determined by the building official~~ At the time of the request of the permit extension, an inspection shall be performed by a qualified *person* to verify that site conditions and the *approved* installation comply with the conditions of approval at the time of ~~final inspection~~ the first permit.
~~2.~~ 3. ~~A qualified *person* shall perform follow-up inspections after initial occupancy at intervals not exceeding 180 days to verify the site conditions and the installation conform to the *approved* site conditions and installation requirements.~~ Inspection records shall be kept and shall be made available for verification by the *building official*.
~~3.~~ ~~An examination shall be performed by a *registered design professional* to determine the adequacy of the temporary structure to resist the structural loads required in Section 3103.6.~~
~~4.~~ ~~Relocation of the public-occupancy *temporary structure* shall require a new *permit* application.~~
~~5.~~ 4. The use or occupancy ~~*approved* at the time of final inspection~~ shall remain unchanged.

Reason: The intent of this proposal is to remove redundant language and requirements.

Main paragraph - Section 108.1 addresses permiting. This section is specific to the approval of the extension, so this revision simplifies this without going back to Chapter 1. Section 3103 and all the exceptions in the load sections (1608.1, 1609.1.1, 1612.2, 1613.1, 1615.1) already state that the loads can be reduced below new construction. The request for the extension should come first. The extension should include an inspection to make sure the structure is currently complaint. There would be no "Additional inspections" if the temporary structure is only allowed for 1 year, there would only be one additional inspection.

The public-occupancy structures have to be designed for the additional loading, so this information was provided before the structure was erected.

Relocation of a temporary strucuture is required to have a new permit in accordance with 108.

Which inspection is the final inspection? This implies that the use and occupancy can change, if that happens, a change of occupancy would require another permit.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of requirements in a request for an extension. This does not change construction requirements.

G178-25

G179-25

IBC: SECTION 202, TABLE 3103.6.1.1, TABLE 3103.6.1.2

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

~~**SERVICE LIFE.** The period of time that a *structure* serves its intended purpose. For *temporary structures*, this shall be the cumulative time of service for sequential *temporary events* that may occur in multiple locations. For *public-occupancy temporary structures* , this is assumed to be a minimum of 10 years.~~

TEMPORARY EVENT. A single use ~~during the *service life*~~ of a *public-occupancy temporary structure* at a given location that includes ~~its~~ the amount of time for the installation, inspection, use and occupancy, and dismantling.

SECTION 3103
TEMPORARY STRUCTURES

3103.6.1.1 Snow loads. Snow loads on public-occupancy temporary structures shall be determined in accordance with Section 1608. The ground snow loads, p_g, in Section 1608 shall be modified according to Table 3103.6.1.1.

Exception: Ground snow loads, p_g, for *public-occupancy temporary structures* that employ controlled-occupancy procedures per Section 3103.8 shall be permitted to be modified using a ground snow load reduction factor of 0.65 instead of the ground snow load reduction factors in Table 3103.6.1.1.

Where the *public-occupancy temporary structure* is not subject to snow loads or not constructed and occupied during times when snow is to be expected, snow loads need not be considered, provided that where the period of time when the *public-occupancy temporary structure* is in service shifts to include times when snow is to be expected, one of the following conditions is met:

1. The design is reviewed and modified, as appropriate, to account for snow loads.
2. Controlled occupancy procedures in accordance with Section 3103.8 are implemented.

TABLE 3103.6.1.1 REDUCTION FACTORS FOR GROUND SNOW LOADS FOR PUBLIC-OCCUPANCY TEMPORARY STRUCTURES

RISK CATEGORY	~~SERVICE LIFE~~ REDUCTION FACTOR	
	~~≤ 10 yr~~	~~> 10 yr~~
II	0.7	~~1.0~~
III	0.8	~~1.0~~
IV	1.0	~~1.0~~

3103.6.1.2 Wind loads. The design wind load on *public-occupancy temporary structures* shall be permitted to be modified in accordance with the wind load reduction factors in Table 3103.6.1.2.

Exceptions:

1. Design wind loads for *public-occupancy temporary structures* that implement controlled occupancy procedures per Section 3103.8 shall be permitted to be modified using a wind load reduction factor of 0.65.
2. For *public-occupancy temporary structures* erected in a *hurricane-prone region* outside of hurricane season, the *basic wind speed*, *V*, shall be permitted to be set as follows, depending on *risk category*:
   - 2.1. *Risk Category* II: 115 mph.
   - 2.2. Risk Category III: 120 mph.
   - 2.3. Risk Category IV: 125 mph.

TABLE 3103.6.1.2 REDUCTION FACTORS FOR WIND LOADS FOR PUBLIC-OCCUPANCY TEMPORARY STRUCTURES

RISK CATEGORY	~~SERVICE LIFE~~ REDUCTION FACTOR	
	~~≤ 10 yr~~	~~> 10 yr~~
II	0.8	~~1.0~~
III	0.9	~~1.0~~
IV	1.0	~~1.0~~

Reason: The proposed language specific to "service life" creates a regulatory challenge where a code official is not able to verify or determine service life. Service life as currently proposed is based on a running clock with regards to time in use. Failure of any temporary structure or component is based on any number of factors more significant than service life. Manufactured flaws, environmental conditions will in use, erection methods and storage are all factors that can contribute to any collapse. Investigations associated with any injury or loss of life associated with a temporary structure failure will address all associated factors. This section would incorrectly place the burden of performance on the permitting authority without full understanding of the temporary structure condition. Even if the permitting authority knew when it was manufactured, the process would not be definitive in determining how many times and under what conditions the temporary structure was used. A temporary shelter for emergency operations may have only been deployed at practice drills for a couple of day a year. The charging language does not address how to record or document the use of the structure? Assuming the public-occupancy temporary structure service life is a minimum of 10 years and those days are cumulative; a tent used for temporary events in the summer could by 40 years old.

The concept of service life should be removed from these options as unenforceable.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This will allow for the reduced loads related to the time the structure will be erected.

G179-25

G180-25

IBC: 3103.6.1.1, 3103.6.1.2, 3103.6.1.5

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

3103.6.1.1 Snow loads. Snow loads on public-occupancy temporary structures shall be determined in accordance with Section 1608. The ground snow loads, p_g, in Section 1608 shall be modified according to Table 3103.6.1.1.

Exception: Ground snow loads, p_g, for *public-occupancy temporary structures* that employ controlled-occupancy procedures per Section 3103.8 shall be permitted to be modified using a ground snow load reduction factor of 0.65 instead of the ground snow load reduction factors in Table 3103.6.1.1.

Where the *public-occupancy temporary structure* is not subject to snow loads ~~or not constructed and occupied during times when snow is to be expected~~, snow loads need not be considered, ~~provided that where the period of time when the *public-occupancy temporary structure* is in service shifts to include times when snow is to be expected, one of the following conditions is met:~~

1. ~~The design is reviewed and modified, as appropriate, to account for snow loads.~~
2. ~~Controlled occupancy procedures in accordance with Section 3103.8 are implemented.~~

3103.6.1.2 Wind loads. The design wind load on *public-occupancy temporary structures* shall be permitted to be modified in accordance with the wind load reduction factors in Table 3103.6.1.2.

Exceptions:

1. Design wind loads for *public-occupancy temporary structures* that implement controlled occupancy procedures per Section 3103.8 shall be permitted to be modified using a wind load reduction factor of 0.65.
2. For *public-occupancy temporary structures* erected in a *hurricane-prone region* ~~outside of hurricane season,~~ the *basic wind speed*, *V*, shall be permitted to be set as follows, depending on *risk category*:
   2.1. *Risk Category* II: 115 mph.
   2.2. Risk Category III: 120 mph.
   2.3. Risk Category IV: 125 mph.

3103.6.1.5 Ice loads. Ice loads on public-occupancy temporary structures shall be permitted to be determined with a maximum nominal thickness of 0.5 inch (13 mm), for all risk categories. Where the *public-occupancy temporary structure* is not subject to ice loads ~~or not constructed and occupied during times when ice is to be expected~~, ice loads need not be considered. ~~, provided that where the period of time when the *public-occupancy temporary structure* is in service shifts to include times when ice is to be expected, one of the following conditions is met:~~

1. ~~The design is reviewed and modified, as appropriate, to account for ice loads.~~
2. ~~Controlled occupancy procedures in accordance with Section 3103.8 are implemented.~~

Reason: We are well aware that the climate is changing in many ways from timeline to types of weather events. To allow a temporary structure in Florida to not consider snow and ice is one thing, but there is no way for someone to predict a early or late snow or ice storm. Early or late snowstorms can happen at any time, a code official or designer can not predict the weather over the time. Therefore, the 2nd paragraph is not universally enforceable.

The hurricane season is extending, so not designing for hurricanes should only be for locations not subject to hurricanes. We can not base temporary structure performance expectations on calendar dates. An owner or designer will not know ahead of time when the structure is installed to design for an unknown weather event.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is removing unenforaceable language. There are no changes to construction requirements.

G180-25

G181-25

IBC: 3103.6.3

Proponents: Henry Kosarzycki, representing Self (hkosarzycki@flad.com)

2024 International Building Code

Revise as follows:

3103.6.3 ~~Installation and maintenance inspections~~ <u>Temporary special event structures</u>. ~~A qualified *person* shall inspect *public-occupancy temporary structures* that are assembled using transportable and reusable materials. Components shall be inspected when purchased or acquired and at least once per year. The inspection shall evaluate individual components, and the fully assembled *structure*, to determine suitability for use based on the requirements in~~ <u>Temporary *special event structures* associated with *public-occupancy temporary structures* shall comply with the *International Fire Code* and</u> ESTA ANSI E1.21. ~~Inspection records shall be kept and shall be made available for verification by the *building official*. Additionally, *public-occupancy temporary structures* shall be inspected at regular intervals when in service to ensure that the structure continues to perform as designed and initially erected.~~

Reason: This section is applying a standard for temporary special event structures to a temporary public-occupancy structure. ANSI E1.21 standard is limited to technical production structures. Those structures are addressed in the IFC and limited to 6 weeks erection time. This section creates a regulatory administrative and legal challenge for an adopting and enforcing agency. This section will be central to any legal action following a event resulting in injury or loss of life. The first challenge is the definitive understanding of a qualified person. What credential, certification or professional background will determine an acceptable qualified person. The requirment for inspection at the time of purchase and subsequently once per year may result in shifting liability from the manufacturer to the owner. The requirement for the inspection to evaluate individual components without further direction results in significant materials analysis. Beyond the visual recognition of potentially worn or damaged components the charging language may include a higher level of fatigue, stress and strain testing that is tied to specific ASTM standards. Only the owner would know when a piece was 'purchased or acquired'; how would a code official enforce this? Verification of inspection records by the regulatory agency would be an action preceding permitting. Regarding inspection at regular intervals the charging language does not address who is responsible to conduct the inspection, what is the acceptable interval and the subsequent enforcement action. Inspections is addressed under the IFC. Maintenance should be addressed under the IEBC and not under the IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an operational requirement. There is no change in construction.

G181-25

G182-25

IBC: 3105.1, 3105.1.1 (New), 3105.1.2 (New), 3105.1.3 (New), 3105.2, 3105.4 (New), 3105.4.1 (New), 3105.4.2 (New), 3105.4.3 (New), 3105.5 (New), 3105.6 (New), 3102.1

Proponents: Ronald Geren, RLGA Technical Services, LLC, representing Self (ron@specsandcodes.com)

2024 International Building Code

Revise as follows:

3105.1 General. *Awnings* and *canopies* shall comply with the requirements of Sections 3105.2 through 3105.6. *Canopies* constructed as *tensile membrane structures* shall comply with Section 3102. *Awnings* and *canopies* with membrane coverings that do not comply with the requirements of this Section shall comply with the requirements of *membrane-covered frame structures* in accordance with Section 3102.~~and 3105.3 and other applicable sections of this code.~~

Add new text as follows:

3105.1.1 Carports. Canopies used for covered parking shall also comply with the requirements for carports in Section 406.2.

3105.1.2 Motor fuel dispensing canopies. Canopies under which fuels are dispensed shall also comply with Section 406.7.2.

3105.1.3 Pedestrian walkways. Canopies used for *pedestrian walkways* shall also comply with the requirements in Section 3104.

Revise as follows:

3105.2 Design and construction. *Awnings* and *canopies* shall be designed and constructed to withstand wind or other lateral *loads* and *live loads* as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings* shall have frames of noncombustible material, *fire-retardant-treated wood*, heavy timber complying with Section 2304.11 or 1-hour construction, and shall be fixed, retractable, folding or collapsible. *Canopies* shall have frame materials consistent with the required type of construction of the *building*.

Add new text as follows:

3105.4 Allowable area. *Awnings* and *canopies* shall not contribute to *building area*. The aggregate area of canopies shall comply with Section 3105.4.1 through 3105.4.3.

3105.4.1 Canopies above the level of exit discharge. The aggregate allowable area of *canopies* located above *the level of exit discharge* shall be limited to 10 percent of the floor area of the *story* and occupied roof area on which they are located and shall not exceed 25 percent of the tabular values for nonsprinklered buildings in Table 506.2 for each occupancy covered by *canopies*.

3105.4.2 Canopies at the level of exit discharge or at grade. The aggregate allowable area of *canopies* at the *level of exit discharge* or at grade, attached to or less than 30 feet (9144 mm) from the *building*, shall not exceed the tabular values for nonsprinklered buildings in Table 506.2 for each occupancy covered by the *canopies*, and the allowable area of any single canopy shall not exceed 10 percent of the aggregate allowable area.

3105.4.3 Canopies away from the building. The aggregate area of *canopies* located 30 feet (9144 mm) or more from the *building* shall not be limited, and the area of a single *canopy* shall not exceed the tabular values for nonsprinklered buildings in Table 506.2 for each occupancy covered by the *canopies*.

3105.5 Allowable height in stories. *Canopies* shall be permitted on stories and occupied roofs as specified for the type of construction and occupancy of the *building* in accordance with Sections 503 and 504.

3105.6 Separation distance. Individual *canopies* or groups of *canopies* not exceeding 10 percent of the allowable aggregate area shall be separated by a minimum distance of 10 feet (3048 mm). Canopies shall have a *fire separation distance* of 10 feet (3048 mm) measured at right angles from the canopy to adjacent lot lines.

Revise as follows:

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to *air-supported*, *air-inflated*, *membrane-covered cable*, *membrane-covered frame* and *tensile membrane structures*, collectively known as *membrane structures*, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with the *International Fire Code* . Membrane *structures* covering water storage *facilities*, water clarifiers, water treatment plants, sewage treatment plants, *greenhouses* and similar *facilities* not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane *structures* erected on a *building*, balcony, deck or other *structure* for any period of time shall comply with this section.

Exception: Membrane *structures* complying with the requirements for *awnings* or *canopies* in accordance with Section 3105.

Reason: Schools, hotels, motels, businesses, restaurants, fuel stations, and many other building types provide awnings and canopies to protect occupants, equipment, vehicles, and materials from the sun or inclement weather. Awnings are attached to a building by definition. Canopies, on the other hand, can be attached or structurally independent. Many times, plans examiners try to include canopies within the allowable area of the building or as a separate structure (when structurally independent), forcing the designer to conform to fire-separation distances and opening protection for both the building and canopy. The proposed changes presented here are intended to minimize the gray area inherent in the current provisions.

The final statement of Section 3105.1 is very open-ended with no indication as to which sections are applicable. Thus, any section that is remotely applicable to awnings or canopies could be enforced. Thus, this proposal intends to eliminate the open-ended aspect and provide some prescriptive requirements specifically targeted for these types of building features.

In Section 3105.1, the open-ended statement is deleted and replaced with references to subsequent sections. Further, a distinction is made between some membrane structures, covered in Section 3102, and awnings and canopies covered in this section. First, this proposal requires all tensile membrane structures to comply with Section 3102, mainly because tensile structures do not meet the definitions for awnings and canopies. Second, awnings and canopies could be considered "membrane-covered frame structures" by definition; thus, enforcement of either requirements set could be applied. Thus, this proposal places a threshold by requiring compliance with the requirements of Section 3102 if an awning or canopy cannot conform to the requirements of Section 3105. To address this from the other direction, an exception is proposed for Section 3102.1 that allows membrane structures complying with Section 3105 to be exempted from the requirements for membrane structures.

The two subparagraphs of Section 3105.1 identify additional requirements applicable to canopies used for specific applications.

Section 3105.2 has limitations on the frame construction for awnings, but nothing for canopies. The proposed change for this section adds the requirement that frame materials for canopies be consistent with the type of construction for the building.

According to the definition of building area, the area of awnings and canopies should not be included in determining building area since they are not "within the horizontal projection of the roof or floor above." However, awnings and canopies are mistakenly added to building area either because designers do not know the definition or consider the canopy or awning covering a "roof" extension. Thus, the first sentence of Section 3105.4 clearly states that awnings and canopies do not contribute to building area, similar to that stipulated for mezzanines in Section 505.2.1.

Section 3105.4 further intends to place limitations on the size of canopies. This requirement is divided into two types of canopy applications: those on stories above the level of exit discharge and those at the level of exit discharge or at grade within 30 feet of the building. If the canopies exceed the allowable limits, the requirements for membrane structures come into play per the proposed text of 3105.1, and the membrane structure must be included in the building area per Section 3102.6.1.

For canopies located above the level of exist discharge, such as patios, terraces, decks, or occupied roofs, Section 3105.4.1 limits the aggregate area to 10% of the story and occupied roof area on which the canopy is located. For example, if a story has 3,000 square feet and an occupied roof area of 2,000 square feet on that same level, then the canopy can have an area of 500 square feet (0.10 x 5,000 sq. ft.). As another example, if a 5,000 square foot roof only has 3,000 square feet of occupied area, then a canopy of 300 square feet is permitted (0.10 x 3,000 sq. ft.). More than one canopy can be provided as long as the aggregate area of all canopies do not exceed the area limitations. Although the aggregate area of all canopies is limited to the stipulated 10%, if the 10% exceeds 25% of the nonsprinklered allowable area permitted by Table 506.2 for the building's type of construction and occupancy under the canopy, then the area of the canopies is limited by Table 506.2. For example, if a restaurant located on the second story of a Type VB building has a floor area of 12,000 square feet and an outdoor terrace area of 5,000 square feet, 10% of the area would be 1,700 square feet (0.10 x 17,000 sq. ft.). However, 25% of the allowable area for a nonsprinklered Group A-2 in a Type VB building is 1,500 square feet (0.25 x 6,000 sq. ft.). Thus, the canopy would be limited to the smaller area.

For canopies located at the level of exit discharge or at grade within 30 feet of the building, Section 3105.4.2 limits the aggregate area to the nonsprinklered values in Table 506.2 for the construction type of the building, but no single canopy can exceed 10% of the aggregate area. For example, a 20,000 square foot office building of Type IIB construction is permitted up to 23,000 square feet of canopies; however, no single canopy can exceed 10% of the aggregate allowable area, or 2,300 square feet (this would allow a parking canopy for up to 12 cars). This minimizes the potential fire risk from large areas of canopies that attached to, or within close proximity of, the building.

The exception to Section 3105.4.2 recognizes that canopies located a distance away from the building would pose little threat of exposure to the building. Since most canopies would likely be considered Type IIB or VB construction, a fire-separation distance of 10 feet is permitted. However, buildings could be constructed of a type that would require at least a 30-foot fire separation distance, or a minimum 40-foot distance between the building and canopy. Since canopies have limited fire loads, this distance is reduced to 30 feet.

Per Section 3105.5, canopies would be permitted on any story provided the construction type of the building and occupancy for the canopy is permitted at that story height. For example, a three-story Type VA office building (Group B) has a restaurant on the second story (Group A-2) and is separated from the third-story Group B. The restaurant would not be permitted to have a rooftop dining area with a canopy since a Group A-2 occupancy is limited to two stories and the A-2 occupancy on the roof would not comply with Section 503.1.4.

Section 3105.6 is added to minimize the large continuous canopies even if they are constructed as a series of independent canopies, which would defeat the purpose of regulating the size of an individual canopy.

The exception to Section 3102.1 is added to show that an alternate path of compliance is available for membrane-covered awnings and canopies that is not as restrictive as the requirements for membrane structures.

Fire sprinkler requirements are intentionally not provided in this section for a couple of reasons:

1. Section 3102 for membrane structures does not include any sprinkler provisions.
2. NFPA 13 and the IFC address sprinkler requirements for canopies.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Due to the many variables involved (size, design, complexity, and materials), the cost increase would likely be based on the materials. For buildings of noncombustible construction, designers would be required to construct canopy frames of noncombustible materials, which may increase the cost. For custom-constructed canopies, a typical wood-framed canopy may cost between $20 and $40 per square foot. Similar canopies constructed of steel framing may cost between $30 and $50 per square foot. The cost of a premium grade 4x4 wood post is approximately $21 per 12-foot length. A 4x4x0.125 steel tube is approximately $120 per 12-foot length; however, one benefit of steel is longer spans requiring fewer supports. The cost of roof coverings would remain the same since roof covering materials are not restricted by this section.

Estimated Immediate Cost Impact Justification (methodology and variables):

There are too many variables involved to provide explicit cost information. Variables include the size, number, and materials used. Almost all awnings and most canopies are of a limited size to begin with, so exceeding the areas stipulated would require an extensive number of individual canopies.

G182-25

G183-25 Part I

IBC: SECTION 105, [A] 105.2, SECTION 3110, 3110.1, 3110.2 (New), 3110.3 (New), 3110.2, 3110.3, ASTM Chapter 35 (New)

Proponents: Catherine Mills-Reynolds, American Fence Association, representing AFA (catherine@americanfenceassociation.com); Dave Monsour, THOMAS ASSOCIATES, INC. (DASMA), representing DASMA (Door & Access Systems Manufacturers Assoc.) (dmonsour@thomasamc.com); Ben Shirley, Ameristar Perimeter Security, representing ASTM F14 (ben.shirley@assaabloy.com); Don Jeppson, representing City of San Rafael (don.jeppson@cityofsanrafael.org); Richard Sedivy, DoorKing, Inc., representing DASMA (rsedivy@doorking.com); Kevin Ward, Miller Edge Inc, representing American Fence Association (kward@milleredge.com); Scott Kinney, D&D Technologies, representing ASTM F14.15 Gates (skinney@ddtechusa.com); Eric Quanbeck, representing The Hummingbird Alliance (eric.m.quanbeck@gmail.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

THIS IS A 3 PART CODE CHANGE.

PART I WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE.

PART II WILL BE HEARD BY THE RESIDENTIAL BUILDING CODE COMMITTEE.

PART III WILL BE HEARD BY THE EXISTING BUILDING CODE COMMITTEE.

SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 105
PERMITS

Revise as follows:

[A] 105.2 Work exempt from permit. Exemptions from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction*. *Permits* shall not be required for the following:

Building:

1. One-story detached accessory *structures* used as tool and storage sheds, playhouses and similar uses, provided that the floor area is not greater than 120 square feet (11 m^2).
2. Fences, other than swimming pool barriers, ~~not over~~ less than ~~7 feet~~ 84 inches (2134 mm) high.
3. Gates, other than swimming pool barriers or components in the *means of egress*, installed in a n opening 48 inches (1219 mm) or less measured horizontally or less than 84 inches (2134 mm) measured vertically.

~~3~~ 4. Oil derricks.

~~4~~ 5. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.

~~5~~ 6. Water tanks supported directly on grade if the capacity is not greater than 5,000 gallons (18 925 L) and the ratio of height to diameter or width is not greater than 2:1.

~~6~~ 7. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any *basement* or *story* below and are not part of an *accessible route*.

~~7~~ 8. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.

~~8~~ 9. Temporary motion picture, television and theater stage sets and scenery.

~~9~~ 10. Prefabricated *swimming pools* accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground.

~~10~~ 11. Shade cloth *structures* constructed for nursery or agricultural purposes, not including service systems.

~~11~~ 12. Swings and other playground equipment accessory to detached one- and two-family *dwellings*.

~~12~~ 13. Window *awnings* in Group R-3 and U occupancies, supported by an *exterior wall* that do not project more than 54 inches (1372 mm) from the *exterior wall* and do not require additional support.

~~13~~ 14. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

1. ***Repairs* and maintenance:** Minor *repair* work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.
2. **Radio and television transmitting stations:** The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and antennas.
3. **Temporary testing systems:** A *permit* shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part that does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (4.54 kg) or less of refrigerant and actuated by motors of 1 horsepower (0.75 kW) or less.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided that such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

SECTION 3110
HORIZONTAL SLIDE, SWING AND ~~AUTOMATIC~~ VEHICULAR GATES

3110.1 General. A horizontal slide gate or a swing gate installed in an opening more than 48 inches (1219 mm) measured horizontally or 84 inches (2134 mm) or greater measured vertically shall comply with this section and other applicable sections of this code. ~~*Automatic*~~ Vehicular gates of any size shall also comply with the requirements of Sections ~~3110.2 and 3110.3~~ 3110.4 and 3110.5 and other applicable sections of this code.

Add new text as follows:

3110.2 Slide gates. A gate that slides in the plane of the gate shall be designed, constructed, and installed in accordance with ASTM F1184.

3110.3 Swing gates. A hinged or swing gate shall be designed, constructed, and installed in accordance with ASTM F900.

Revise as follows:

3110.4 ~~3110.2~~ Vehicular gates intended for automation. *Vehicular gates* intended for automation shall be designed, constructed and installed to comply with the requirements of ASTM F2200.

3110.5 ~~3110.3~~ Vehicular gate openers. *Vehicular gate* openers, where provided, shall be *listed* in accordance with UL 325.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

F900-24	Standard Specification for Industrial and Commercial Swing Gates
F1184-23	Standard Specification for Industrial and Commerical Horizontal Slide Gates

Reason: Gates are used, and depended on for our safety and security, throughout our society. Be it for residential use, at a sports arena, on schoolgrounds, a public park, in a parking garage, at a factory, in a multi-family dwelling or countless other applications, people are potentially in contact with a gate every day. Gates are so commonplace that most people don’t think twice about their ability to operate safely until something goes wrong. This is why it is of paramount importance that gates are designed and installed to the highest safety standard.

The need for safe, functioning gates has been underscored in recent years with stories like that of, Alex Quanbeck, the 7-year-old child who was killed by a poorly maintained gate in his school yard at recess in San Rafael, California. Under deeper review, it has been discovered that numerous fatalities and life-altering injuries have occurred in the United States because of these gate issues. A map of known gate fatalities and serious injuries from gates is provided from the Hummingbird Alliance (www.thehummingbirdalliance.com).

Having knowledge of the scope of this problem, ASTM International’s F14 Committee on Fences, (which also holds jurisdiction for gate standards) updated their manual gate standards to reflect new safety requirements on slide gates (ASTM F1184) and swing gates (ASTM F900). ASTM had already updated its electric gate standard (ASTM F2200) to meet new requirements in 2002.

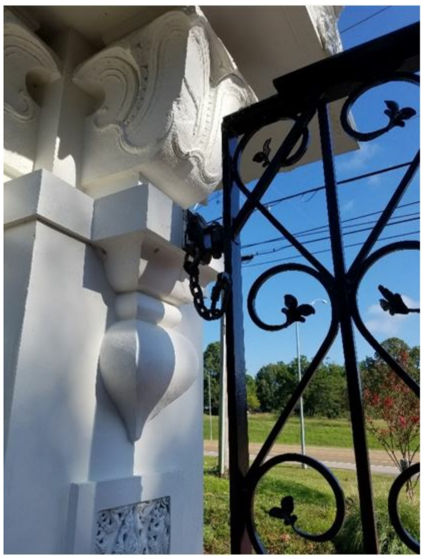
Cal/OSHA is currently reviewing these standards as well, to potentially include them in their own rules. While they do have a rule on gates, (Title 8 section 3324) it does not currently contain the provisions laid out in our proposal. In assessing these potential new standards, they reviewed some of their own accident data and found that their data from 1990 through 2005, showed that 15 out of 31 incidents (48%) involved failed or missing end stops/positive stops of gates. They then compared this data from data collected from 2014 through 2024 and found that 13 out of 16 incidents (81%) involved failed or missing end-stops/positive-stops of gates.

Because of these factors, they determined that, “The relatively low decrease in serious injuries and fatalities per year of only 8.2 percent after the promulgation of section 3324 in 2007 illustrates the need to amend and improve section 3324 to better protect California workers” (DOSH Evaluation, 2024).

The standards we are requesting be adopted would in no way impede first responders in accessing a property, in fact ensuring a gate is functioning properly would only provide them with safer and easier ingress and/or egress. It is when these gates go without the proper safety requirements, they are likely to fail to operate as intended or run the risk of injuring those who use them.

The ICC/AFA Gate Safety Code Development Work Group consists of a wide range of gate and security experts, consumers and code enforcement officials, who have diligently reviewed ASTM standards, current safety standards and the I-Codes to confirm that this addition to the I-Codes is needed and non-duplicative. The work group decided to alter the existing section 3110 to include all gates as well as maintaining the provision currently in place for automatic vehicular gates. The new provision would only apply to gates that are 7’ (84 inches) in height or greater OR 4’ (48”) in length or greater. The code change references industry approved national standards for gate design and construction ASTM F900 for Swing Gates and ASTM F1184 for Slide Gates. The code also includes two new standards to be referenced in Chapter 35 that are necessary for the code change. The group also looked at where gates are required for permitting and inspection and discovered that gates are not specifically referenced in the permit exemption list in Section 105. The group decided to clarify that fences and gates are unique in their own application and as such both need specific permit exceptions.

The general requirements for Swing Gates require a keeper in accordance with ASTM F900. The gate keeper is a mechanical device for securing the free end of the gate when in the fully open position. The compliance for swing gates could be a chain connected to both the gate frame and the end post (or column/structure to which the gate is attached), see the pictures below.



The general requirements for slide gates in accordance with ASTM F1184 include:

A performance statement that gates that are installed shall not fall over more than 45 degrees from the vertical plane;

Positive stops to limit travel;

Weight bearing rollers are covered;

Gap no greater then 2-1/4”;

Gates designed for lateral stability; and

Gates design that will not move under the force of gravity.

Please see pictures below of ASTM 1184 compatible gates. Two options for fall post are shown. The first is the standard post cemented in the ground; it is the post with the yellow cap. The second is of an upside-down J bracket that has been welded on.

(Receiver Guide/ Gate Stop Below)

These standards and the code change proposal only address swing and slide gates. Overhead roll down (or up) doors, roll down security type doors (like those at the tenant space and the mall circulation areas), and parking garage entry, exit or point of sale barrier arms are not within the scope of the proposed code change or within the scope of the two reference standards. In addition, we believe that these requirements in no way negatively impact building egress required by Chapter 10 of this code. Any swing or slide gate installed within the means of egress should be in compliance with chapter 10, as well as any other technical provision of the code and compliance with any other code application is referenced in 3110.1, as proposed. Compliance with the ASTM standards will greatly improve safety in and around the built environment by incorporating these simple changes, (like adding fall over protection and gate stops) lives like Alex's, can be saved. Alex's father, Eric Quanbeck was an active participant in this work group, as well as the local building official from the city where the tragedy occurred, along with representatives from the American Fence Association, ASTM International, DASMA and UL. After thorough review, we see a need to incorporate these standards through adoption into the I-Codes.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

- **Reason Statement_Final_PDF.pdf**
  https://www.cdpaccess.com/proposal/11332/35401/documentation/183044/attachments/download/9024/

Cost Impact: Increase

Estimated Immediate Cost Impact:

Compared to the overall cost of these large gates, which can run anywhere from a couple thousand dollars to tens of thousands of dollars, depending on the size, material used, and whether they have an electric operator, the safety requirement costs are negligible. The material costs for the safety parts mentioned average $50.00, with many being less than that amount. For instance, a metal gate stop can be just a few dollars. Items like a Gate Keeper and the safety chain for swing gates can be found at several retailers, including on

Amazon, both for under $50.00. Labor would depend on geographical area, but overall, it would average somewhere between $150.00 to $250.00.

Estimated Immediate Cost Impact Justification (methodology and variables):

Posts for this type of application typically run $50.00 a piece or less.

Example of some product costs on Amazon.

Amazon.com: OKG Heavy Duty Security Chain, 3.9ft x 5/16" Thick Outdoor Gate Chain, Cut Proof Chain Made of Hardened Alloy Steel Chain, Ideal for Fence Gates, Bicycles, Moped, Trailers, Generator, etc : Sports & Outdoors

Amazon.com: Chain Link Fence GATE HOLD BACK: Duck Bill Gate Holdback (1-5/8" to 2-3/8"). Holds The gate open for You while You work! : Tools & Home Improvement

G183-25 Part I

G183-25 Part II

IRC: R105.2, SECTION 202 (New), SECTION R329 (New), R329.1 (New), R329.2 (New), R329.3 (New), R329.4 (New), R329.5 (New), ASTM Chapter 44 (New), APPENDIX BH, SECTION BH101, BH101.1, SECTION 202, SECTION BH102, BH102.1, SECTION BH103, BH103.1, BH103.2, SECTION BH104, BH104.1, TABLE BH104.1

Proponents: Catherine Mills-Reynolds, American Fence Association, representing AFA (catherine@americanfenceassociation.com); Ben Shirley, Ameristar Perimeter Security, representing ASTM F14 (ben.shirley@assaabloy.com); Dave Monsour, Thomas Associates, representing DASMA (dmonsour@thomasamc.com); Richard Sedivy, DoorKing, Inc., representing DASMA (rsedivy@doorking.com); Kevin Ward, Miller Edge Inc, representing American Fence Association (kward@milleredge.com); Don Jeppson, representing City of San Rafael (don.jeppson@cityofsanrafael.org); Scott Kinney, D&D Technologies, representing ASTM F14.15 Gates (skinney@ddtechusa.com); Eric Quanbeck, representing The Hummingbird Alliance (eric.m.quanbeck@gmail.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

R105.2 Work exempt from permit. Exemption from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction.Permits* shall not be required for the following:

Building:

1. Other than *storm shelters*, one-*story* detached *accessory structures,* provided that the floor area does not exceed 200 square feet (18.58 m^2).
2. Fences<u>, other than swimming pool barriers,</u> ~~not over~~ <u>less than 84 inches</u> ~~7 feet~~ (2134 mm) high.
3. <u>Gates, other than swimming pool barriers, installed in an opening less than 48 inches (1219 mm) measured horizontally, or less than 84 inches (2134 mm) measured vertically.</u>
3. *Retaining walls* that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge
4. Water tanks supported directly upon *grade* if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment.
9. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks not exceeding 200 square feet (18.58 m^2) in area, that are not more than 30 inches (762 mm) above *grade* at any point, are not attached to a *dwelling* or *townhouse* and do not serve the exit door required by Section R318.4.

Electrical:

1. *Listed* cord-and-plug connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles but not the outlets therefor.
3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Electrical wiring, devices, *appliances,* apparatus or *equipment* operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
5. Minor *repair* work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.

Gas:

1. Portable heating, cooking or clothes drying *appliances*.
2. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
3. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

Mechanical:

1. Portable heating *appliances*.
2. Portable ventilation *appliances*.
3. Portable cooling units.
4. Steam, hot- or chilled-water piping within any heating or cooling *equipment* regulated by this code.
5. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Add new definition as follows:

VEHICULAR GATE. A gate that is intended for use at a vehicular entrance or exit to the *lot* of a one- or two-family dwelling, and that is not intended for use by pedestrian traffic.

Add new text as follows:

SECTION R329
GATES

R329.1 General. The design, installation, and construction of horizontal slide and swing gates, and automatic vehicular gates installed on the lot of a one- or two-family dwelling or a *townhouse* shall comply with this section. Gates installed on community property associated with one- or two-family dwellings or *townhouses* shall comply with the *International Building Code*. A horizontal slide or a swing gate installed in an opening more than 48 inches (1219 mm) measured horizontally or 84 inches (2134 mm) or greater measured vertically shall comply with this section and other applicable sections of this code. *Vehicular gates* of any size shall also comply with the requirements of this section.

R329.2 Slide Gates. A gate that slides in the plane of the gate shall be designed, constructed, and installed in accordance with ASTM F1184.

R329.3 Swing gates. A hinged or swing gate shall be designed, constructed, and installed in accordance with ASTM F900.

R329.4 Vehicular gates intended for automation. *Vehicular gates* intended for automation shall be designed, constructed and installed to comply with the requirements of ASTM F2200.

R329.5 Vehicular gate openers. *Vehicular gate* openers, where provided, shall be *listed* in accordance with UL 325.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

F900-24	Standard Specification for Industrial and Commercial Swing Gates
F1184-23	Standard Specification for Industrial and Commercial Horizontal Slide Gates
F2200-20	Standard Specification for Automated Vehicular Gate Construction

Delete without substitution:

~~APPENDIX BH~~
~~AUTOMATIC VEHICULAR GATES~~

~~SECTION BH101~~
~~GENERAL~~

~~**BH101.1 General.** The provisions of this appendix shall control the design and construction of automatic *vehicular gates* installed on the *lot* of a one- or two-family dwelling.~~

~~**VEHICULAR GATE.** A gate that is intended for use at a vehicular entrance or exit to the *lot* of a one- or two-family dwelling, and that is not intended for use by pedestrian traffic.~~

~~SECTION BH102~~
~~DEFINITION~~

~~**BH102.1 General.** The following term shall, for the purposes of this appendix, have the meaning shown herein.~~

~~SECTION BH103~~
~~AUTOMATIC VEHICULAR GATES~~

~~**BH103.1 Vehicular gates intended for automation.** *Vehicular gates* intended for automation shall be designed, constructed and installed to comply with the requirements of ASTM F2200.~~

~~**BH103.2 Vehicular gate openers.** *Vehicular gate* openers, where provided, shall be *listed* in accordance with UL 325.~~

~~SECTION BH104~~
~~REFERENCED STANDARDS~~

~~**BH104.1 General.** See Table BH104.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, the standard title, and the section or sections of this appendix that reference the standard.~~

~~TABLE BH104.1 REFERENCED STANDARDS~~

~~STANDARD ACRONYM~~	~~STANDARD NAME~~	~~SECTIONS HEREIN REFERENCED~~
~~ASTM F2200—20~~	~~*Standard Specification for Automated Vehicular Gate Construction*~~	~~BH103.1~~
~~UL 325—2017~~	~~*Door, Drapery, Gate, Louver and Window Operations and Systems—with Revisions through February 2020*~~	~~BH103.2~~

Reason: Gates are used, and depended on for our safety and security, throughout our society. Be it for residential use, at a sports arena, on schoolgrounds, a public park, in a parking garage, at a factory, in a multi-family dwelling or countless other applications, people are potentially in contact with a gate every day. Gates are so commonplace that most people don't think twice about their ability to operate safely until something goes wrong. This is why it is of paramount importance that gates are designed and installed to the highest safety standard.

The need for safe, functioning gates has been underscored in recent years with stories like that of, Alex Quanbeck, the 7-year-old child who was killed by a poorly maintained gate in his school yard at recess in San Rafael, California. Under deeper review, it has been discovered that numerous fatalities and life-altering injuries have occurred in the United States because of these gate issues. A map of known gate fatalities and serious injuries from gates is provided from the Hummingbird Alliance (www.thehummingbirdalliance.com).

Having knowledge of the scope of this problem, ASTM International's F14 Committee on Fences, (which also holds jurisdiction for gate standards) updated their manual gate standards to reflect new safety requirements on slide gates (ASTM F1184) and swing gates (ASTM F900). ASTM had already updated its electric gate standard (ASTM F2200) to meet new requirements in 2002.

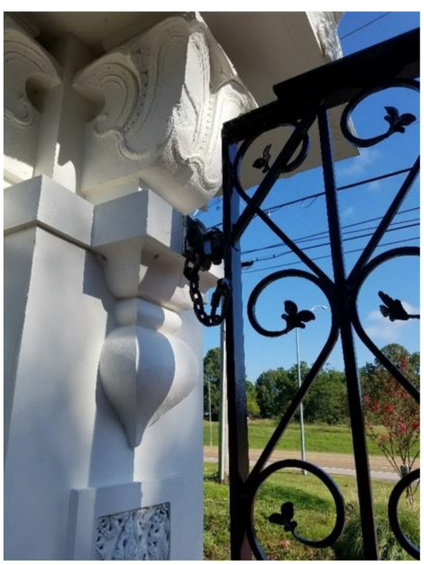
Cal/OSHA is currently reviewing these standards as well, to potentially include them in their own rules. While they do have a rule on gates, (Title 8 section 3324) it does not currently contain the provisions laid out in our proposal. In assessing these potential new standards, they reviewed some of their own accident data and found that their data from 1990 through 2005, showed that 15 out of 31 incidents (48%) involved failed or missing end stops/positive stops of gates. They then compared this data from data collected from 2014 through 2024 and found that 13 out of 16 incidents (81%) involved failed or missing end-stops/positive-stops of gates.

Because of these factors, they determined that, "The relatively low decrease in serious injuries and fatalities per year of only 8.2 percent after the promulgation of section 3324 in 2007 illustrates the need to amend and improve section 3324 to better protect California workers" (DOSH Evaluation, 2024).

The standards we are requesting be adopted would in no way impede first responders in accessing a property, in fact ensuring a gate is functioning properly would only provide them with safer and easier ingress and/or egress. It is when these gates go without the proper safety requirements, they are likely to fail to operate as intended or run the risk of injuring those who use them.

The ICC/AFA Gate Safety Code Development Work Group consists of a wide range of gate and security experts, consumers and code enforcement officials, who have diligently reviewed ASTM standards, current safety standards and the I-Codes to confirm that this addition to the I-Codes is needed and non-duplicative. The work group decided to alter the existing section 3110 to include all gates as well as maintaining the provision currently in place for automatic vehicular gates. The new provision would only apply to gates that are 7' (84 inches) in height or greater OR 4' (48") in length or greater. The code change references industry approved national standards for gate design and construction ASTM F900 for Swing Gates and ASTM F1184 for Slide Gates. The code also includes two new standards to be referenced in Chapter 35 that are necessary for the code change. The group also looked at where gates are required for permitting and inspection and discovered that gates are not specifically referenced in the permit exemption list in Section 105. The group decided to clarify that fences and gates are unique in their own application and as such both need specific permit exceptions. This proposal moves the exiting vehicular gate requirements from the appendix to the body of the code, without substantive modification.

The general requirements for Swing Gates require a keeper in accordance with ASTM F900. The gate keeper is a mechanical device for securing the free end of the gate when in the fully open position. The compliance for swing gates could be a chain connected to both the gate frame and the end post (or column/structure to which the gate is attached), see the pictures below.



The general requirements for slide gates in accordance with ASTM F1184 include:

A performance statement that gates that are installed shall not fall over more than 45 degrees from the vertical plane;

Positive stops to limit travel;

Weight bearing rollers are covered;

Gap no greater then 2-1/4”;

Gates designed for lateral stability; and

Gates design that will not move under the force of gravity.

Please see pictures below of ASTM 1184 compatible gates. Two options for fall post are shown. The first is the standard post cemented in the ground; it is the post with the yellow cap. The second is of an upside-down J bracket that has been welded on.

(Receiver Guide/ Gate Stop Below)

These standards and the code change proposal only address swing and slide gates. Overhead roll down (or up) doors, roll down security type doors (like those at the tenant space and the mall circulation areas), and parking garage entry, exit or point of sale barrier arms are not within the scope of the proposed code change or within the scope of the two reference standards. In addition, we believe that these requirements in no way negatively impact building egress required by Chapter 10 of this code. Any swing or slide gate installed within the means of egress should be in compliance with chapter 10, as well as any other technical provision of the code and compliance with any other code application is referenced in 3110.1, as proposed. Compliance with the ASTM standards will greatly improve safety in and around the built environment by incorporating these simple changes, (like adding fall over protection and gate stops) lives like Alex's, can be saved. Alex's father, Eric Quanbeck was an active participant in this work group, as well as the local building official from the city where the tragedy occurred, along with representatives from the American Fence Association, ASTM International, DASMA and UL. After thorough review, we see a need to incorporate these standards through adoption into the I-Codes.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Compared to the overall cost of these large gates, which can run anywhere from a couple thousand dollars to tens of thousands of dollars, depending on the size, material used, and whether they have an electric operator, the safety requirement costs are negligible. The material costs for the safety parts mentioned average $50.00, with many being less than that amount. For instance, a metal gate stop can be just a few dollars. Items like a Gate Keeper and the safety chain for swing gates can be found at several retailers, including on Amazon, both for under $50.00. Labor would depend on geographical area, but overall, it would average somewhere between $150.00 to $250.00.

Estimated Immediate Cost Impact Justification (methodology and variables):

Posts for this type of application typically run $50.00 a piece or less.

Example of some product costs on Amazon:

Amazon.com: OKG Heavy Duty Security Chain, 3.9ft x 5/16" Thick Outdoor Gate Chain, Cut Proof Chain Made of Hardened Alloy Steel Chain, Ideal for Fence Gates, Bicycles, Moped, Trailers, Generator, etc : Sports & Outdoors

Amazon.com: Chain Link Fence GATE HOLD BACK: Duck Bill Gate Holdback (1-5/8" to 2-3/8"). Holds The gate open for You while You work! : Tools & Home Improvement

G183-25 Part II

G183-25 Part III

IEBC: SECTION 310 (New), 310.1 (New)

Proponents: Catherine Mills-Reynolds, American Fence Association, representing AFA (catherine@americanfenceassociation.com); Ben Shirley, Ameristar Perimeter Security, representing ASTM F14 (ben.shirley@assaabloy.com); Dave Monsour, THOMAS ASSOCIATES, INC. (DASMA), representing DASMA (Door & Access Systems Manufacturers Assoc.) (dmonsour@thomasamc.com); Richard Sedivy, DoorKing, Inc., representing DASMA (rsedivy@doorking.com); Kevin Ward, Miller Edge Inc, representing American Fence Association (kward@milleredge.com); Don Jeppson, representing City of San Rafael (don.jeppson@cityofsanrafael.org); Scott Kinney, D&D Technologies, representing ASTM F14.15 Gates (skinney@ddtechusa.com); Eric Quanbeck, representing The Hummingbird Alliance (eric.m.quanbeck@gmail.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Add new text as follows:

SECTION 310
ALTERATION, REPAIR, AND REPLACEMENT OF GATES

310.1 General. Gates installed in an opening more than 48 inches (1219 mm) measured horizontally or 84 inches (2134 mm) or greater measured vertically,shall be in accordance with *International Building Code* or the *International Residential Code*, as applicable, where an *alteration*, *repair*, or replacement of the gate, gate operator, or gate hardware occurs.

Reason: This is a complimentary proposal to the ones we are proposing in the IRC and IBC, to require gates to comply with industry standards ASTM F1184-23, ASTM F900-24, and ASTM F2200-20 and UL325, where gate operators or gate hardware are being modified, altered, repaired or replaced.

The need for safe, functioning gates has been underscored in recent years with stories like that of, Alex Quanbeck, the 7-year-old child who was killed by a poorly maintained gate in his school yard at recess in San Rafael, California. Under deeper review, it has been discovered that numerous fatalities and life-altering injuries have occurred in the United States because of these gate issues. These updates will alleviate those life threatening issues.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Compared to the overall cost of these large gates, which can run anywhere from a couple thousand dollars to tens of thousands of dollars, depending on the size, material used, and whether they have an electric operator, the safety requirement costs are negligible. The material costs for the safety parts mentioned average $50.00, with many being less than that amount. For instance, a metal gate stop can be just a few dollars. Items like a Gate Keeper and the safety chain for swing gates can be found at several retailers, including on Amazon, both for under $50.00. Labor would depend on geographical area, but overall, it would average somewhere between $150.00 to $250.00.

Estimated Immediate Cost Impact Justification (methodology and variables):

Posts for this type of application typically run $50.00 a piece or less.

Example of some product costs on Amazon.

Amazon.com: OKG Heavy Duty Security Chain, 3.9ft x 5/16" Thick Outdoor Gate Chain, Cut Proof Chain Made of Hardened Alloy Steel Chain, Ideal for Fence Gates, Bicycles, Moped, Trailers, Generator, etc : Sports & Outdoors

Amazon.com: Chain Link Fence GATE HOLD BACK: Duck Bill Gate Holdback (1-5/8" to 2-3/8"). Holds The gate open for You while You work! : Tools & Home Improvement

Staff Analysis: Part I: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ASTM F900-24 Standard Specification for Industrial and Commercial Swing Gates
ASTM F1184-23 Standard Specification for Industrial and Commerical Horizontal Slide Gates

Part II: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ASTM F900-24 Standard Specification for Industrial and Commercial Swing Gates
ASTM F1184-23 Standard Specification for Industrial and Commercial Horizontal Slide Gates
ASTM F2200-20 Standard Specification for Automated Vehicular Gate Construction

G183-25 Part III

G184-25

IBC: 3111.1.1

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing NASFM (phil@browning.red)

2024 International Building Code

Revise as follows:

3111.1.1 Wind resistance. ~~Rooftop-mounted photovoltaic~~ Photovoltaic (PV) panel systems, elevated PV support structures, and solar thermal collectors shall be designed in accordance with Section 1609.

Reason: Any PV system, including elevated PV support structures, rooftop mounted PV panel systems, and ground-mounted PV should also be designed in accordance with Section 1609, because they will also be subject to wind loads. By removing “rooftop-mounted”, these requirements will apply to any installation of PV systems, wherever they are installed.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply includes the defined term "elevated PV support structure" that was newly defined in the 2024 IBC last cycle. It does not change the requirement for wind design in IBC Chapter 16 or ASCE 7.

G184-25

G185-25

IBC: 3111.1.1, 3111.1.2, 3111.3.6

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com)

2024 International Building Code

SECTION 3111
SOLAR ENERGY SYSTEMS

Revise as follows:

3111.1.1 ~~Wind resistance~~ Structural design. ~~Rooftop-mounted photovoltaic~~ Photovoltaic (PV) panel systems and solar thermal collectors shall be designed and installed in accordance with ~~Section 1609~~ Chapter 16.

3111.1.2 ~~Roof live load~~Support structures. ~~Roof structures~~ Structures that provide support for solar energy systems shall be designed in accordance with Chapter 16~~Section 1607.15~~.

3111.3.6 Ground-mounted photovoltaic (PV) panel systems. *Ground-mounted photovoltaic panel systems* shall be designed and installed in accordance with ~~Chapter 16 and~~ the *International Fire Code*.

Reason: The provisions in Section 3111 are inconsistent with respect to solar systems and the applicability of Chapter 16 as follows:

- Section 3111.1.1 talks only about wind resistance of rooftop-mounted photovoltaic panel systems and solar thermal collectors. But dead load, snow load, and seismic loads are not mentioned. Similarly, this provision only covers "rooftop-mounted" systems, but Section 3111.3.5, which covers elevated photovoltaic (PV) support structures (which are presumably different than "rooftop-mounted systems", does not mention any structural loads, so there appears to be a hole in Section 3111.3.5.
- Section 3111.1.2 only talks about roof live load that must be applied to "roof structures" that support solar energy systems. Dead load, snow load, and seismic load are not mentioned, and this provision also does not appear to apply to elevated photovoltaic support structures because elevated PV support structures are arguably not roof structures. In addition, the specific reference to Section 1607.15 does not make sense, because that section covers crane loads not roof live loads.
- Section 3111.3.6 is the only provision that currently mentions Chapter 16 (i.e., "*designed and installed in accordance with Chapter 16*"), but if we require compliance with Chapter 16 in 3111.1.1 (which is just under Section 3111.1, General), we no longer need the reference here.

If all of these changes are made, Section 3111 will be more coordinated with Chapter 16 and several weaknesses in the current wording will be eliminated.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

I have not seen evidence that designers are relying on various provisions in Section 3111 to avoid designing for dead load, snow load, or seismic loads. Consequently, this change is editorial and only intended to clarify that the provisions in Chapter 16 apply to all PV panel systems and solar thermal collectors as well as the structures that support these systems. In the unlikely event that designers have been relying on various provisions in Section 3111 to avoid designing for dead load, snow load, or seismic loads, then that was never the intent of these provisions, and the provisions need to be modified, even if the changes result in an increase in cost.

G185-25

G186-25

IBC: 3111.3.3

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Philip Oakes, representing NASFM; Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Building Code

3111.3.3 Building-integrated photovoltaic (BIPV) systems. BIPV systems installed as *roof coverings* shall be designed and installed in accordance with Section 1507. <u>BIPV systems installed as *exterior wall coverings* or fenestration shall be designed and installed in accordance with Section 1411.</u>

Reason: Requirements for BIPV systems used as exterior wall coverings or fenestration were added into the IBC last cycle. Because IBC Section 3111 provides a road map for all the requirements that apply to a solar energy system, this proposal simply adds a pointer to those new requirements.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is providing a pointer to assist the code user in finding all the applicable requirements for solar energy installations.

G186-25

G187-25

IBC: 3111.3.5

Proponents: Jenifer Gilliland, Seattle Department of Construction and Inspections, representing Washington Association of Building Officials Technical Code Development Committee (jenifer.gilliland@seattle.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov); C Ray Allshouse, City of Shoreline, representing Washington Association of Building Officials Technical Code Development Committee (rallshouse@shorelinewa.gov)

2024 International Building Code

SECTION 3111
SOLAR ENERGY SYSTEMS

Revise as follows:

3111.3.5 Elevated photovoltaic (PV) support structures. *Elevated PV support structures* shall comply with either Section 3111.3.5.1 or 3111.3.5.2. _*Elevated PV support structures* shall be considered a roof for the purposes of establishing the number of stories and *fire separation distances*._

Exception: *Elevated PV support structures* that are installed over agricultural uses.

Reason: This proposed change addresses two issues: an elevated PV structure on top of a building that creates another story and the condition created by PV structures that are close to the lot line, similar to roof eaves that extend close to the lot line. This proposal aligns with similar changes made by RB150-22 in Section R329.7 of the 2024 IRC.

Since an accessory structure is not necessarily detached from a building, Section 3111.3.5 can be read to allow an elevated PV to be mounted on the roof of a building. This begs the question of once it is there, does it or does it not create a story? WABO members have encountered projects submitted for permit with large, elevated PV systems "shading" occupied roofs on mid-rise residential buildings. Some designers contend that these aren't a roof, and therefore, don't create an additional story or fire separation distance issues. No technical justification has been presented to demonstrate these should be treated differently than a roof, from a fire spread standpoint. Adoption of this proposed code change to the definition of elevated PV-support structures would settle the issue.

An *elevated PV support structure*, with a minimum of 7' 6 clearance below, creates a roof-like structure, as far as fire is concerned. It will contain heat and smoke just as much as a roof eave or a roof providing shade over an occupied roof. This is especially true given there are no requirements or criteria for openness of an elevated PV structure.

Once you have a usable space with a roof-like structure overhead, you clearly have created a story. If this does not create a story, then why would any other roof structure such as a 500 square foot hard roof over an occupiable roof create a story?

Where there is occupiable space below the elevated PV, and where the PV extends close to the lot line, you should be considering spread of fire to and from the adjacent property, which is the purpose of establishing fire separation distances. Because of the difficulty in trying to address all the variables of where this would be allowed, this proposal says if you put elevated PV on a roof, treat it as you would any other roof structure.

We want to emphasize that this proposal states the elevated PV gets treated as a roof for story count and fire separation distance purposes. It does not say the PV is a roof--it's just treated as such for those two issues, and those two issues only. For example, elevated PV would not be allowed by Table 504.4 on top of a Type V-A, R-2 4-story building, because that would create a 5th story. The building official can then apply their normal policies regarding roofs near the lot line, for fire separation/adjacent property protection purposes.

Elevated PV was the subject of two ICC proposals, RB150-22 and G123-21, in the 2024 code cycle. WABO submitted a public comment to disapprove G193 because it contained a definition that implies the space below the elevated PV can be used for any occupancy, which could create confusion regarding story count and fire separation distances. However, under heavy pressure from several proponents of G193 (some of whom recognized the issues we were raising), we decided to support the proposal as submitted rather than oppose the whole proposal because it dealt with some other important fire safety issues.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There has been a disagreement between building officials about whether the addition of elevated PV to a roof constitutes another story. This code proposal is meant to settle the issue and provide uniformity in enforcement across the country. It could be an increase in some parts of the country, but not in others.

G187-25

G188-25

IBC: SECTION 3113, 3113.1

Proponents: Andrew Klein, A S Klein Engineering, PLLC, representing Self Storage Association (andrew@asklein.com)

2024 International Building Code

SECTION 3113
RELOCATABLE BUILDINGS

Revise as follows:

3113.1 General. The provisions of this section shall apply to *relocatable buildings*. *Relocatable buildings* manufactured after the effective date of this code shall comply with the applicable provisions of this code.

~~**Exception**~~ **Exceptions:** This section shall not apply to:

1. ~~manufactured~~ Manufactured housing used as *dwellings.*
2. Pre-fabricated buildings that otherwise meet the provisions of this code.

Reason: Storage and utility/misc. buildings often make use of pre-fabricated buildings. It does not seem to be the intent of this section to apply to pre-fabricated buildings, but this additional exception ensures it will not be applied to such pre-fabricated buildings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

It is not the intent of this section to apply to pre-fabricated buildings, which are being explicitly exempted in this code change proposal.

G188-25

G189-25

IBC: 3114.1

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Robert Bachman, RE Bachman Consulting Structural Engineer, representing Myself (rebachmanse@aol.com); Chris Kimball, Building Code Solutions, representing Self (chris@bcscodegroup.com)

2024 International Building Code

Revise as follows:

3114.1 General. The provisions of Section 3114and other applicable sections of this code shall apply to *intermodal shipping containers* that are repurposed for use as *buildings* or *structures*, or as a part of *buildings* or *structures*.

Exceptions:

1. *Intermodal shipping containers* previously *approved* as existing *relocatable buildings* complying with Chapter 14 of the *International Existing Building Code*.
2. Stationary storage battery arrays located in *intermodal shipping containers* complying with Chapter 12 of the *International Fire Code*<u>and not assigned to Risk Category IV for reasons unrelated to hazardous materials</u>.
3. *Intermodal shipping containers* that are *listed* as equipment complying with the standard for equipment, such as air chillers, engine generators, modular *data centers*, and other similar equipment<u>, considering the risk category and occupancy-specific requirements</u>.
4. *Intermodal shipping containers* housing or supporting experimental equipment are exempt from the requirements of Section 3114, provided that they comply with all of the following:
   - 4.1. Such units shall be single stand-alone units supported at grade level and used only for occupancies as specified under *Risk Category* I in Table 1604.5.
   - 4.2. Such units are located a minimum of 8 feet (2438 mm) from adjacent *structures*, and are not connected to a fuel gas system or fuel gas utility.
   - 4.3. In *hurricane-prone regions* and *flood hazard areas*, such units are designed in accordance with the applicable provisions of Chapter 16.

Reason: This proposal corrects two overly permissive exceptions regarding the design of repurposed shipping containers.

IBC Section 3114.8, new since the 2021 edition, generally requires repurposed shipping containers to be designed as non-building structures in accordance with Chapter 16. However, Exceptions 2 and 3 to Section 3114.1 acknowledge that some repurposed shipping containers already meet the requirements of standards associated with the contents they contain, so they should not need to be specially designed.

This allowance is reasonable for most uses, but it should not apply where the contents of the container represent an essential use and are therefore assigned to Risk Category IV. Exception 2 relies on provisions in the IFC, which are great for fire safety and hazmat containment but do not address post-event functionality expected of RC IV uses. Similarly, Exception 3 relies on existing standards for the contained equipment, but those standards might or might not have considered project-specific conditions such as environmental loads, which vary by site, or occupancy-specific requirements in IBC Chapter 4.

California's Division of the State Architect makes a similar distinction. There, shipping containers are sometimes converted to school classrooms, but because of the special design expectations for schools, DSA does not adopt the exceptions in Sec 3114.1. (Ref: 2022 California Building Code Section 3115.1 and DSA IR 31-2, "Intermodal shipping container conversion to school building: 2022 CBC," available at https://www.dgs.ca.gov/dsa/publications#special_construction)

Where the use is assigned to RC IV, the container's foundation and anchorage must be designed for higher wind, seismic, and even tornado forces, and in areas of moderate or high seismicity, the contents must be anchored to the container with higher design forces and must also be certified as designated seismic systems. **If the equipment inside the container has to be designed for RC IV, and the**

container's anchorage and foundation have to be designed for RC IV, it makes no sense that the container itself should be exempt from design. The container is an obvious and essential piece of the seismic load path and is largely responsible for protecting the RC IV equipment from other environmental loads. Surely, the container's adequacy should be confirmed as part of the design.

This proposal was motivated by thinking about battery energy storage systems (BESS), which often involve battery racks and associated equipment installed within metal containers similar to standard intermodal shipping containers. Most BESS installations involve customized containers, so it's not clear that Section 3114, which applies to "repurposed" intermodal containers, is even appropriate for BESS components. Even so, the logic above – that the container itself merits design when its contents are assigned to RC IV – applies for BESS or any other use of the equipment otherwise covered by Exceptions 2 and 3.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Any cost increase should be small, probably at most a one-time manufacturer cost for pre-approval, but only a small, possibly zero, cost for construction. If the equipment standard referenced in Exception 3 already accounts for different risk categories and project-specific conditions, the proposal imposes no additional cost.

I defer to manufacturer's estimates. Note, however, that the cost increase, if any, will affect the container only. It **will not affect the cost of any contents or any foundation, anchorage, or interconnection to other structures**, which would already have to be designed as RC IV elements.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost of designing or modifying a container for RC IV is almost impossible to estimate, since containers vary in size, and each application can include the cutting and reinforcing of different openings in different locations. That said, we know that many containers used for battery installations are already designed/approved for RC III as stand-alone non-building structures, and unless substantial openings are cut during customization, they are already significantly over-designed just to work for shipping, so the increase in physical material cost should be small. Even when shipping containers are blown over in high winds or shift off foundations in earthquakes, the container itself is basically unharmed.

Further, some containers have already been designed and installed for RC IV applications, so we know the proposal is feasible. With respect to seismic certification per ASCE 7 Sec 13.2.3, containers are "nonactive" components eligible for certification by analysis, so there will be no testing costs. My expectation is that if the container is not already confirmed as RC IV-ready, manufacturers will do a one-time design to confirm that typical containers already work for RC IV, and perhaps to set limits on modifications for the rare cases where they might not. This will be a **one-time manufacturer cost**, with likely no impact on actual construction cost.

Finally, Section 3114 covers only "repurposed" containers, so it's unclear whether this section and its current exceptions apply to specialty uses like those containing batteries or other life safety system equipment that might be assigned to RC IV.

Therefore, I defer to container manufacturers' estimates. That said, the question raised by this proposal is: If a shipping container would need to be significantly redesigned or rebuilt in order to satisfy typical design calcs with RC IV loads, should we really be exempting them from any design for essential facilities or critical RC IV uses, based on a blanket waiver?

G189-25

G190-25

IBC: 3114.8.4.1

Proponents: Mark DePasquale, National Portable Storage Association, representing Portable Storage Industry (mark@npsa.org)

2024 International Building Code

Revise as follows:

3114.8.4.1 Material properties. Structural material properties for existing *intermodal shipping container* steel components shall be ~~established by Section 2202~~confirmed by factory specifications and classification society factory inspection reports applicable to the intermodal shipping container proposed for use in a building or as a building component. If such reports are not available, the shipping container steel components must be established through material testing in order to identify the steel grade and composition.

Reason: This is a relatively new area in the building code and our Association felt the need to be more specific with regard to what is acceptable. The change will bring clarity to what is actually necessary to establish acceptance of a shipping container proposed for use in a building or as a building component.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Just seeking more clarity in the statement

G190-25

G191-25

IBC: SECTION 202 (New), SECTION 3115 (New), 3115.1 (New), 3115.2 (New), 3115.3 (New), 3115.4 (New), 3115.5 (New), 3115.6 (New), 3115.7 (New), 3115.8 (New), ACP (New), AWEA (New), IEC (New); IEBC: FAA (New)

Proponents: Michael Bergey, Bergey Windpower Co. LLC, representing Distributed Wind Energy Association (mbergey@bergey.com)

2024 International Building Code

Add new definition as follows:

DISTRIBUTED WIND ENERGY SYSTEM. A distributed wind energy system is a wind energy system that is connected behind-the-meter to provide energy to a structure.

Add new text as follows:

SECTION 3115
DISTRIBUTED WIND ENERGY SYSTEMS

3115.1 General. Ground-mounted distributed wind energy systems connected to an electrical service providing power to a structure shall comply with the requirements of this section.

3115.2 Certification required. Distributed wind energy system turbines shall be certified to AWEA 9.1 or ACP-101-1 by an accredited certification body or be IECRE type certified. Alternatively, systems shall be certified to IEC 61400-1 or -2, in addition too IEC 61400-11 and IEC 61400-12 by an accredited certification body.

3115.3 Electrical code. Distributed wind energy systems shall meet the requirements of the NFPA 70.

3115.4 Tower structure and foundation. Distributed wind energy system towers and foundations shall meet the requirements of TIA-222, except Section 17.12 for fatigue evaluation. The manufacturers dry PE-stamped structural analyses for conditions equal to or exceeding those of the local site shall be sufficient when the wind turbine tower is set back more than its total height from inhabited structures.

3115.5 System height. The distributed wind energy system shall comply with applicable FAA requirements in 14 CFR Part 77.

3115.6 Setback from property line. No part of the distributed wind energy system structure, including guy wire anchors, shall extend within ten (10) feet of the property boundaries of the installation site.

3115.7 Setback from inhabited structures. Distributed wind energy systems shall be set back at least a distance equal to the tower height of the wind turbine from existing inhabited structures and public roads.

3115.8 Inverters. Inverters shall be listed and labeled in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

Add new standard(s) as follows:

ACP

American Clean Power Association
1299 Pennsylvania Avenue NW, Suite 1300
Washington, DC 20004

ANSI/ACP 101-1-2021	The Small Wind Turbine Standard

AWEA

American Wind Energy Association
1501 M Street NW, Suite 1000
Washington, DC 20005

AWEA 9.1 - 2009	Small Wind Turbine Performance and Safety Standard

IEC

International Electrotechnical Commission
3 rue de Varembé
PO Box 131
CH-1211 Geneva 20,
Switzerland

IEC 61400-1:2019	Wind Energy Generation Systems - Part 1: Design Requirements
IEC 61400-2:2013	Wind Turbines - Part 2: Small Wind Turbines
IEC 61400-11:2012	Wind Turbines - Part 11: Acoustic Noise Measurement Techniques
IEC 61400-12:2022	Wind Energy Generation Systems - Part 12-1: Power Performance Measurements of Electricity Producing Wind Turbines

2024 International Existing Building Code

Add new standard(s) as follows:

FAA

Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

14 CFR Part 77	SAFE, EFFICIENT USE, AND PRESERVATION OF THE NAVIGABLE AIRSPACE

Reason: The current IBC code includes specific sections on Solar Energy Systems (Section 3111) and Telecommunication and Broadcast Towers (Section 3108), but it does not have a specific section on wind energy systems. In fact, there is no mention of wind energy in the current code.

Distributed wind energy systems are typically installed adjacent to existing structures and connected electrically such that their energy production supplies the structure and a complement to the electrical supply from the serving electrical utility. Distributed wind energy systems are not windfarms, they primarily serve to reduce the owners consumption of utility electricity. The National Renewable Energy Laboratory (NREL) has determined that distributed wind energy systems could be installed at over 49 million locations in the U.S., and they have a technical potential, at greater than 8 TW, exceeding that of offshore wind energy systems.

Distributed wind energy systems complement solar energy systems in that they supply power at night and have their best performance (Winter and during storms) when solar energy is at its weakest. They take up substantially less space than solar and the leading products are made in America. The cost of distributed wind energy systems is coming down with more advanced technology and higher manufacturing volumes. Federal clean energy incentives apply equally to wind and solar investments and domestic manufacturing.

DWEA believes that adding a specific Distributed Wind Energy Systems section to the IBC, in Chapter 31 Special Constructions, will assist Authorities Having Jurisdiction (AHJ's) in determining appropriate requirements for ensuring the safe and effective use of this nascent emerging clean energy technology. The proposed subsections cover the requirements typically considered or imposed. Wind energy system requirements are quite rare in local and state codes so the proposed new section of the IBC will help fill a gap and result in a uniform minimum level of safety.

Substantiation:

3115.1 - The scope of the section is limited to "behind-the-meter" wind energy systems. Windfarms and roof-mounted wind energy systems are excluded. Roof-mounted wind turbines are not recommended due to structural, vibration, noise and wind sheltering and turbulence, and are therefore excluded.

3115.2 - The scope of the section is limited to "behind-the-meter" wind energy systems. There is no size limitation.

3115.3 - Historically, many smaller distributed wind energy system products have been offered for sale that have not been properly engineered or tested. Many have been sold with highly exaggerated performance claims, sometimes at high multiples of the total kinetic energy in the wind. These immature products, some of which were outright scams, have cheated consumers and posed unacceptable safety risks. In response to this phenomenon, consensus, ANSI-recognized, turbine certification standards were developed in 2009 and have been updated several times. The primary certification body for small and medium wind turbines is the Small Wind Certification Council, which is a service of ICC-ES.

Wind turbine certification is required by the Internal Revenue Service (IRS) to qualify for Section 48 Investment Tax Credits and Section 45X Advanced Manufacturing Tax Credits. The U.S. national and international standards listed are those used for the IRS for qualification. IECRE is an emerging pan-national certification program that has the goal of reducing the need to obtain separate certification for each country. Given the three year latency of the IBC, DWEA believes that including a reference to IECRE in the 2027 edition is prudent.

3115.4 - The NEC Section 694 covers electrical safety of small wind systems and requires that the wind turbine be listed. The standard to which they can be listed is UL 6142.

3115.5 - In the absence of a national structural safety standard for wind turbine towers AHJ's typically request a structural analysis demonstrating compliance with structural standard for telecommunications towers, TIA-222. This is accepted practice in the distributed wind industry but there are two issues we would like to address in the IBC.

First, TIA-222 Section 17 requires an elaborate evaluation of the wind turbine tower structure for fatigue. But DWEA is unaware of any fatigue related failures of towers for certified wind turbines so this requirement in the standard, developed by the telecom industry, is an expense without a public benefit. It has limited the number of professional engineering firms offering evaluation services due to the learning curve of this section of the code and the fact that they will seldom use it. In addition, distributed wind energy systems are seldom placed close to inhabited structures so the risk of injury from a tower collapse is extremely remote. Therefore, DWEA recommends an exemption from Section 17 so long as the tower is beyond the fall zone of the distributed wind energy system.

Second, the towers for certified wind turbines are typically designed for the structural loads determined in the turbine safety standard used for certification, IEC 61400-1 or IEC 61400-2. For a IEC Class II certification (the most common) those loads are determined for a 60 m/s (132 mph) 3-second gust and then safety factors of 1.35 – 1.5 are applied. So, when a manufacturer creates a PE-stamped analysis with those loads and wind speed, and accounting for additional ice and seismic loads, for a standard tower DWEA believes that the resulting evaluation should be accepted for that or lesser site conditions. We understand that state or local regulations may require a unique evaluation bearing an in-state PE wet stamp and supersede this section.

3115.6 - Hazards to aviation are regulated by the Federal Aviation Administration and distributed wind energy systems are subject to those regulations.

3115.7 - This provides a buffer from neighboring properties.

3115.8 - This is a safety setback that provides near absolute assurance that the distributed wind energy structure provides no risk to people.
3115.9 - This parallels language provided for solar energy systems.

Bibliography:
1. NREL, "Assessing the Future of Distributed Wind: Opportunities for Behind-the-Meter Projects", Lantz, Sigrin, et al, NREL Technical Report NREL/TP-6A20-67337, November 2016

2. NREL, "Distributed Wind Energy Futures Study", McCabe, Prasanna, et al, NREL Technical Report NREL/TP-7A40-82519, May 2022

3. AWEA-9.1-2009, AWEA Small Wind Turbine Performance and Safety Standard, American Wind Energy Association (now ACP), 2009

4. ANSI/ACP-101-1-2021, The Small Wind Turbine Standard, American Clean Power Association, December 2021

5. IEC 61400-2, Wind Turbines – Part 2: Small Wind Turbines, International Electrotechnical Commission

6. IEC 61400-1, Wind Energy Generation Systems, Part 1: Design Requirements, International Electrotechnical Commission

7. IEC 61400-11, Wind turbines - Part 11: Acoustic Noise Measurement Techniques, International Electrotechnical Commission

8. IEC 61400-12, Wind energy generation systems - Part 12: Power performance measurements of electricity producing wind turbines, International Electrotechnical Commission

9. NFPA 70, National Electrical Code, National Fire Prevention Association

10. 14 CFR Part 77, Code of Federal Regulations

11. ANSI/TIA-222, Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures, Tower Industries Association

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Estimated to save $500-2,000 per installation. More if dry-stamp structural analyses are allowed.

Estimated Immediate Cost Impact Justification (methodology and variables):

The code change request will decrease the costs of construction for certified distributed wind energy systems and will increase the costs of construction for non-certified distributed wind energy systems. For certified distributed wind energy systems, the costs will be reduced through the exemption from Section 17 of TIA-222 and by more uniform and predictable requirements. For non-certified distributed wind energy systems, the cost will be increased by the costs of certification.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

AWEA 9.1 - 2009 Small Wind Turbine Performance and Safety Standard
ANSI/ACP 101-1-2021 The Small Wind Turbine Standard
IEC 61400-1:2019 Wind Energy Generation Systems - Part 1: Design Requirements
IEC 61400-2:2013 Wind Turbines - Part 2: Small Wind Turbines
IEC 61400-11:2012 Wind Turbines - Part 11: Acoustic Noise Measurement Techniques
IEC 61400-12:2022 Wind Energy Generation Systems - Part 12-1: Power Performance Measurements of Electricity Producing Wind Turbines
14 CFR Part 77 SAFE, EFFICIENT USE, AND PRESERVATION OF THE NAVIGABLE AIRSPACE

G191-25

G192-25

IBC: SECTION 202 (New), SECTION 3115 (New), 3115.1 (New)

Proponents: Jonathan Roberts, representing UL Solutions (jonathan.roberts@ul.com)

2024 International Building Code

Add new definition as follows:

MODULAR ROOM. A prefabricated structure intended for indoor use to provide privacy that has walls, a ceiling, with or without an integrated floor, and that can include integral electrical wiring, ventilation, and furniture.

Add new text as follows:

SECTION 3115 MODULAR ROOMS

3115.1 General. Where provided, m*odular rooms* shall comply with Section 323 of the *International Fire Code*.

Reason: Modular rooms are becoming increasingly popular and are showing up in a variety of different occupancies. During the Code Action Hearings held April 7-14th, 2024 The International Fire Code Committee voted 14-0 to approve F62-24 as modified. F62-24 creates a new Section 323 for Modular Rooms in Chapter 3 of the International Fire Code. The new Section 323 contains requirements for permitting, listing, locations, occupant notification and automatic fire sprinkler systems as well as requirements for modular rooms used for sleeping. This proposal will place a pointer to the applicable requirements for modular rooms where they are installed under the scope of the International Building Code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost increase as this proposal only points to the requirements in the 2027 IFC.

G192-25

G193-25

IBC: SECTION 202 (New), SECTION 312, 312.1, SECTION 3115 (New), 3115.1 (New), 3115.2 (New), 3115.3 (New), 3115.3.1 (New), 3115.4 (New), 3115.5 (New), 3115.6 (New), NFPA Chapter 35 (New); IFC: SECTION 202 (New), [BG] 203.11

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Brian Tollisen, representing NYS Department of State, Division of Building Standards and Codes (brian.tollisen@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov)

2024 International Building Code

Add new definition as follows:

LIVE FIRE TRAINING STRUCTURES. A structure utilized by the fire department for conducting live fire training on a repetitive basis.

SECTION 312
UTILITY AND MISCELLANEOUS GROUP U

Revise as follows:

312.1 General. *Buildings* and *structures* of an accessory character and miscellaneous *structures* not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings

Aircraft hangars, accessory to a one- or two-family residence (see Section 412.4)

Barns

Carports

Communication equipment *structures* with a *gross floor area* of less than 1,500 square feet (139 m^2)

Fences more than 7 feet (2134 mm) in height

Grain silos, accessory to a residential occupancy

Livestock shelters

Live fire training facilities

Private garages

Retaining walls

Sheds

Stables

Tanks

Towers

Add new text as follows:

SECTION 3115
LIVE FIRE TRAINING STRUCTURES

3115.1 General. Where approved by the *building official* and the *fire code official*, *live fire training facilities* designed in accordance with Chapter 7 of NFPA 1402, or Chapters 6, 7, or 8 of NFPA 1403, and the provisions of Section 3115 shall be deemed to satisfy the requirements of this code.

3115.2 Posting. Temporary and permanent *live fire training structures* shall be provided with signs that state **"DANGER - FIREFIGHTER ACCESS ONLY. DANGEROUS BUILDING CONDITIONS WITHIN."**. Signs shall be readily visible and located near every entrance to the structure or, where the temporary or permanent *live fire training structure* is entirely surrounded by fencing, at every fence entrance.

3115.3 Structural. Temporary and permanent *live fire training structures* shall be designed in accordance with Chapter 16 and this section and supported on foundations or other supporting *structures* designed and constructed in accordance with Chapter 16 through 23.

3115.3.1 Intermodal shipping containers. Where temporary or permanent *live fire training structures* are comprised of *intermodal shipping containers* such *intermodal shipping containers* shall comply with Section 3114.2 through 3114.4 and 3114.8 through 3114.8.5.3.

3115.4 Building heights and area. *Live fire training structures* shall comply with Chapter 5.

> **Exception:** Where *approved* by the building official and *fire code official*, *live fire training structures* shall be exempt from the *building height*, number of stories and *building area limitations specified in Sections 504 through 506.*

3115.5 Fire separation distance. Temporary and permanent *live fire training structures* shall have a *fire separation distance* not less than 30 feet.

> **Exception:** Where multiple temporary and permanent *live fire training structures* exist on the same site, such structures shall shall not be required have a *fire separation distance* between them.

3115.6 Responder safety features. Temporary and permanent *live fire training structures* shall comply with Section 914 and 918.

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

1402-2019	Standard on Facilities for Fire Training and Associated Props
1403-2018	Standard on Live Fire Training Evolutions

2024 International Fire Code

Add new definition as follows:

LIVE FIRE TRAINING STRUCTURES. A structure utilized by the fire department for conducting live fire training on a repetitive basis.

Revise as follows:

[BG] 203.11 Miscellaneous Group U. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings

Aircraft hangar, accessory to a one- or two-family residence (see Section 412.4 of the *International Building Code*)

Barns

Carports

Communication equipment structures with a gross floor area of less than 1,500 square feet (139 m^3)

Fences more than 7 feet (2134 mm) in height

Grain silos, accessory to a residential occupancy

Livestock shelters

Live fire training facilities

Private garages

Retaining walls

Sheds

Stables

Tanks

Towers

Reason: The IBC currently lacks clear guidelines for live fire training facilities. Previous attempts to address this have been unsuccessful, but this proposal builds on those lessons, offering building code officials a prescriptive path that ensures structural integrity while balancing life-safety with the need for realistic training scenarios.

With increased demands for these structures, and little code guidance, the path for a building code official to approve the structures becomes increasingly difficult.

This code change:

- Classifies live fire training structures within Group U Occupancies.
- Mandates signage for safety awareness and public warning.
- Ensures compliance with IBC structural standards, with specific guidance for structures made from intermodal shipping containers.
- Establishes a 30-foot minimum fire separation distance, based on T705.5.
- Requires basic responder safety features like shaftway and equipment room identification, and radio coverage.

Of note, this proposal is designed for relatively easy understanding and adoption by leveraging existing sections for structural design or integrates with current safety feature requirements, making the code more cohesive rather than adding complexity.

Bibliography: NPFA 1402-2019 may be viewed online here (https://www.nfpa.org/codes-and-standards/nfpa-1402-standard-development/1402).
NFPA 1403-2018 may be viewed online here (https://www.nfpa.org/codes-and-standards/nfpa-1403-standard-development/1403).

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0, however, this code change could lead to a decrease in immediate construction costs by providing clearer guidelines for live fire training facilities.

Estimated Immediate Cost Impact Justification (methodology and variables):

By offering specific standards, it reduces the need for custom solutions, simplifies compliance, and optimizes resource use in design and construction.

Estimated Life Cycle Cost Impact:

The lifecycle costs of these facilities might be reduced due to the strategic selection of materials and placement of required signs and systems.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Choosing durable materials for signage, locating systems like radio responder coverage externally, and selecting cost-effective products could lower maintenance and operational costs.

Staff Analysis:

- A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
  - NFPA 1402-2019 Standard on Facilities for Fire Training and Associated Props
  - NFPA 1403-2018 Standard on Live Fire Training Evolutions

G193-25

G194-25

IBC: SECTION 3115 (New), 3115.1 (New), SECTION 202 (New), ICC Chapter 35 (New)

Proponents: Bora Gencturk, University of Southern California, representing ICC Committee 1150 (gencturk@usc.edu)

2024 International Building Code

Add new text as follows:

SECTION 3115
AUTOMATED CONSTRUCTION TECHNOLOGY FOR 3D PRINTING WALLS

3115.1 General. 3D printing materials and 3D printing walls shall be designed and constructed in accordance with ICC 1150.

Add new definition as follows:

3D AUTOMATED CONSTRCUCTION TECHNOLOGY (3D-ACT). Construction-scale 3D printing technology, also known as additive manufacturing or layer-by-layer automated construction technology, used in the construction of buildings, or building components, consisting of a computer program, *3D printer software*, and computer-controlled equipment, *3D printer*, to create three-dimensional shapes with 3D printing material.

3D PRINTING MATERIALS. A proprietary or non-proprietary cementitious material, concrete or mortar, that consists of cement, *fibers*, *supplementary cementitious materials*, fine or coarse aggregate, and *admixtures*, if applicable. *3D printing material* is extruded in layers during construction.

3D PRINTING WALLS. Walls constructed with the use of *3D automated construction technology* using 3D printing material. Walls may be printed in various configurations, including but not limited to, printing 3D printing material in layers to create two outer face shells with a *core fill grout* between the shells to form a solid wall. If applicable, structural steel reinforcing shall be placed within the *core fill grout*, or within the shell layers.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

1150-2026	Standard for Automated Construction Technology for 3D Printing Walls

Reason: There is growing interest for 3D printing construction. 3D printing construction is being increasingly used across the United States. Currently there is no code available for this construction approach. The purpose of this proposed code change is to establish design provisions for *3D printed walls* and their connections where the walls are built using 3D *automated construction technology* (3D-ACT) with proprietary or non-proprietary *3D printing materials*, that are in compliance with the intent of the model building codes.The proposed changes improve upon the technical requirements to reflect current industry practices related to materials testing and structural design. The proposed changes aim to eliminate any conflicts with codes and establish common terms and rigor. The resulting changes provide appropriate protections for health, safety and welfare while avoiding unnecessary restrictions on the use of new materials, technologies or designs. The referenced standard was developed following the rigorous ANSI standard development process.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a new construction methodology. It is not anticipated to increase cost of construction approach.

Staff Analysis: A review of the standard proposed for inclusion in the code, ICC 1150-2026 Standard for Automated Construction Technology for 3D Printing Walls, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

G195-25 Part I

IBC: SECTION 202 (New), SECTION 3115 (New), 3115.1 (New), 3115.2 (New), 3115.3 (New), ICC Chapter 35 (New)

Proponents: Jon Hannah-Spacagna, representing Modular Building Institute; Jay Richards, State of Ohio, representing Board of Building Standards (jay.richards@com.ohio.gov); Jonathon Paradine, State of Michigan, representing LARA/ Bureau of Construction Codes (paradinej@michigan.gov); Shane Nilles, representing American Wood Council (snilles@awc.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Kelly Kelly, Texas Department of Licensing and Regulation, representing self (kelly.kelly@tdlr.texas.gov); Crisi Cooper, Texas Dept of Licensing and Regulation, representing Industrialized Housing and Building (crisi.cooper@tdlr.texas.gov)

THIS IS AN 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC-GENERAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new definition as follows:

MODULAR COMPONENT. A subassembly, subsystem or combination of elements for use as a part of a building that is not structurally independent and is a part of structural, plumbing, mechanical, electrical, fire protection or other systems affecting life safety.
MODULE. A three-dimensional, volumetric section of a building designed and constructed to be transported as a single section to a site for on-site installation with or without other sections and/or on-site construction.

Add new text as follows:

SECTION 3115
MODULES AND MODULAR COMPONENTS

3115.1 General. Planning, design, fabrication, transportation, assembly, inspection and regulatory compliance of *modules* or *modular components* shall comply with this section.

Exceptions:

1. *Modules or Modular components* not containing plumbing, mechanical, electrical, or fire protection systems that comply with the requirements of Section 1704.2.5 for *fabricated items*.
2. *Modules or Modular components*, rooms, suites, or pods manufactured, *listed*, *labeled* and installed in accordance with *approved* standards.

3115.2 Construction. In additionto other applicable requirements in this code, *modules or modular components* shall be constructed in accordance with ICC/MBI 1200

3115.3 Regulatory Compliance. In additionto other applicable requirements in this code, *modules or modular components* constructed off-site shall be inspected and regulated in accordance with ICC/MBI 1205 and ICC/MBI 1210.

Exceptions:

1. Jurisdictions where requirements for *modules or modular components* constructed off-site are established and regulated in accordance with the laws of the state or jurisdiction in which the site of the completed building will be located.
2. Inspection of *modules or modular components* manufactured in such a manner that all portions can be inspected, in accordance with this code, without disassembly, damage or destruction thereof.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

ICC/MBI 1200-2021	Standard for Off-Site Construction: Planning, Design, Fabrication and Assembly
ICC/MBI 1205-2021	Standard for Off-Site Construction: Inspection and Regulatory Compliance
ICC/MBI 1210-2023	Standard for Mechanical, Electrical, Plumbing Systems, Energy Efficiency and Water Conservation in Off-site Construction.

Reason: Many segments of the building industry including code officials, building owners, designers and contractors are often unfamiliar with the offsite construction processes. In some cases, the code officials have no direction or guidance on how to regulate certain construction activities that do not occur on the project site. In other cases, manufacturers are forced to deal with a myriad of regulations from local agencies where state entities are not empowered to regulate the built environment when constructed offsite.

The MBI/ICC 1200 and 1205 provides direction and guidance for offsite construction that is not covered by traditional methods and code applications. To facilitate understanding of the off-site construction process, assure off-site projects meet the requirements of construction codes; the International Code Council (ICC) and the Modular Building Institute (MBI) initiated a joint project to develop standards for the planning, design, fabrication, assembly, inspection, and regulatory compliance of off-site and modular construction in February 2019. The result of the collaboration is the MBI/ICC 1200 *Standard for Off-Site Construction: Planning, Design, Fabrication, and Assembly* and MBI/ICC1205 *Standard for Offsite Construction: Inspection and Regulatory Compliance.*

These standards include requirements for a controlled manufacturing environment, supply chain integration, structural modular vs non-structural modular, the fabrication process and on-site assembly such as: staging area for construction materials, foundations, placing modules, structural connections, utilities (PMG), weather considerations, finishing mate lines, inspections, approval and regulatory compliance of off-site construction components and their assembly. The standards also include the completion of the building at the final site such as: permitting; in-plant and on-site final inspections; third party inspections; the role of Industrialized Building Departments, state modular programs and the local Authority Having Jurisdiction.

This proposal recognizes there are different pathways to demonstrate code compliance for offsite construction. This proposal is not intended to remove or replace any existing traditional method as noted in the exceptions, but also provide the necessary guidance for code users and officials can rely on. These methods referenced in the codes and standards have been:

- Items fabricated in accordance with IBC Section 1704.2.5., including those assembled under the approved fabricator program (1704.2.5.1).
- Products, assemblies, and equipment manufactured, listed, and installed in accordance with an approved standard.
- State Industrialized or Manufactured Building programs.

A similar proposal (G102-21) was submitted and was not approved for the 2024 IBC. This proposal specifically looked at the opposing testimony in an attempt to not cast too large of a compliance net. The proposal addresses existing approval methodologies: approved structural fabrication, panelized systems, listed self-contained rooms or pods, elements that can be inspected on-site; but also allows for the recognition and coordination of state-wide programs. Furthermore, the location appears to be better suited in Chapter 33 - Special Construction vs Chapter 4 – Special Detailed Requirements Based on Occupancy and Use.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal outlines off-site construction methods that may be unfamiliar to inexperienced industry participants and offers a model regulatory
process to address state and local needs.

Staff Analysis:

- A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

- ICC/MBI 1200-2021, Standard for Off-Site Construction: Planning, Design, Fabrication and Assembly
- ICC/MBI 1205-2021, Standard for Off-Site Construction: Inspection and Regulatory Compliance
- ICC/MBI 1210-2023, Standard for Mechanical, Electrical, Plumbing Systems, Energy Efficiency and Water Conservation in Off-site Construction

G195-25 Part I

G195-25 Part II

IRC: SECTION 202 (New), R301.1.5 (New), R301.1.5.1 (New), R301.1.5.2 (New), ICC Chapter 44 (New)

Proponents: Jon Hannah-Spacagna, representing Modular Building Institute; Jay Richards, State of Ohio, representing Board of Building Standards (jay.richards@com.ohio.gov); Jonathon Paradine, State of Michigan, representing LARA/ Bureau of Construction Codes (paradinej@michigan.gov); Shane Nilles, representing American Wood Council (snilles@awc.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Crisi Cooper, Texas Dept of Licensing and Regulation, representing Industrialized Housing and Building (crisi.cooper@tdlr.texas.gov)

2024 International Residential Code

Add new definition as follows:

MODULAR COMPONENT. A subassembly, subsystem or combination of elements, including panelized systems, building shells or bathroom pods, for use as a part of a modular building that is not structurally independent, but is a part of structural, plumbing, mechanical, electrical, fire protection or other systems affecting life safety.
MODULE. A three-dimensional, volumetric section of a building designed and constructed to be transported as a single section to a site for on-site installation with or without other sections and/or on-site construction.

SECTION R301
DESIGN CRITERIA

Add new text as follows:

R301.1.5 Modules and Modular Components. Planning, design, fabrication, transportation, assembly, inspection and regulatory compliance of *modules* or *modular components* shall comply with this section.

Exceptions:

1. *Modules or Modular components* not containing plumbing, mechanical, electrical, or fire protection systems that comply with *approved* standards or the requirements of the International Building Code for fabricated items.
2. *Modules or Modular components*, rooms, suites, or pods manufactured, *listed*, *labeled*, and installed in accordance with *approved* standards.

R301.1.5.1 Construction. In addition to other applicable requirements in this code, *modules* or *modular components* constructed off-site shall be constructed in accordance with ICC/MBI 1200.

R301.1.5.2 Regulatory Compliance. In additionto other applicable requirements in this code, *modules* or *module components* constructed off-site construction shall be inspected and regulated in accordance with ICC/MBI 1205 and ICC/MBI 1210.

Exceptions:

1. Jurisdictions where requirements for *modules or modular components* constructed off-site are established and regulated in accordance with the laws of the state or jurisdiction in which the site of the completed building will be located.
2. Inspection of *modules* or *modular components* manufactured in such a manner that all portions can be inspected, in accordance with this code, without disassembly, damage or destruction thereof.

Add new standard(s) as follows:

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

ICC/MBI 1200-2021	Standard for Off-Site Construction: Planning, Design, Fabrication and Assembly
ICC/MBI 1205-2021	Standard for Off-Site Construction: Inspection and Regulatory Compliance
ICC/MBI 1210-2023	Standard for Mechanical, Electrical, Plumbing Systems, Energy Efficiency and Water Conservation in Off-site Construction.

Reason: Many segments of the building industry including code officials, building owners, designers and contractors are often unfamiliar with the offsite construction processes. In some cases, the code officials have no direction or guidance on how to regulate certain construction activities that do not occur on the project site. In other cases, manufacturers are forced to deal with a myriad of regulations from local agencies where state entities are not empowered to regulate the built environment when constructed offsite.

The MBI/ICC 1200 and 1205 provides direction and guidance for offsite construction that is not covered by traditional methods and code applications. To facilitate understanding of the off-site construction process, assure off-site projects meet the requirements of construction codes; the International Code Council (ICC) and the Modular Building Institute (MBI) initiated a joint project to develop standards for the planning, design, fabrication, assembly, inspection, and regulatory compliance of off-site and modular construction in February 2019. The result of the collaboration is the MBI/ICC 1200 *Standard for Off-Site Construction: Planning, Design, Fabrication, and Assembly* and MBI/ICC1205 *Standard for Offsite Construction: Inspection and Regulatory Compliance.*

These standards include requirements for a controlled manufacturing environment, supply chain integration, structural modular vs non-structural modular, the fabrication process and on-site assembly such as: staging area for construction materials, foundations, placing modules, structural connections, utilities (PMG), weather considerations, finishing mate lines, inspections, approval and regulatory compliance of off-site construction components and their assembly. The standards also include the completion of the building at the final site such as: permitting; in-plant and on-site final inspections; third party inspections; the role of Industrialized Building Departments, state modular programs and the local Authority Having Jurisdiction.

This proposal recognizes there are different pathways to demonstrate code compliance for offsite construction. This proposal is not intended to remove or replace any existing traditional method as noted in the exceptions, but also provide the necessary guidance for code users and officials can rely on. These methods referenced in the codes and standards have been:

- Items fabricated in accordance with special inspection provisions of the IBC. This is addressed in Section 1704.2.5., including those assembled under the approved fabricator program (1704.2.5.1).
- Products, assemblies, and equipment manufactured, listed, and installed in accordance with an approved standard.
- State Industrialized or Manufactured Building programs.

A companion proposal has been submitted for the International Building Code that will create a new section in Chapter 33 of the IBC. Both proposals address existing approval methodologies: approved structural fabrication, panelized systems, listed self-contained rooms or pods, elements that can be inspected on-site; but also allows for the recognition and coordination of state-wide programs.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal outlines off-site construction methods that may be unfamiliar to inexperienced industry participants and offers a model regulatory
process to address state and local needs.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

ICC/MBI 1200-2021 Standard for Off-Site Construction: Planning, Design, Fabrication and Assembly

ICC/MBI 1205-2021 Standard for Off-Site Construction: Inspection and Regulatory Compliance

ICC/MBI 1210-2023 Standard for Mechanical, Electrical, Plumbing Systems, Energy Efficiency and Water Conservation in Off-site Construction.

G195-25 Part II

G196-25

IBC: SECTION 202 (New), SECTION 3115 (New), 3115.1 (New), 3115.2 (New), 3115.3 (New), FM Chapter 35 (New)

Proponents: David Campbell, TuffWrap, representing SmartSeam (tmdevit@gmail.com)

2024 International Building Code

Add new definition as follows:

TEMPORARY CEILING CONSTRUCTION BARRIER. A system utilizing seamed membrane sheets and attachments to supporting construction used to mitigate dust and debris from falling from a work area above the barrier to an area below the barrier.

Add new text as follows:

SECTION 3115
TEMPORARY CEILING CONSTRUCTION BARRIERS

3115.1 General. *Temporary ceiling construction barriers* shall be certified and labeled by an approved agency to comply with the requirements of Sections 3115.2 and 3115.3 and other applicable sections of this code.

3115.2 Transverse loads. *Temporary ceiling construction barriers* shall withstand 15 punds per square foot transverse loads in accordance with ASTM E330, Procedure A.

3115.3 Fire provisions. *Temporary ceiling construction barriers* shall be permitted to be installed below *automatic sprinkler systems* providing the *temporary ceiling construction barrier* complies with all of the following:

1. The ceiling finishes meets the requirements of Class A in accordance with Section 803.1.2.2 of the *International Fire Code*.
2. The ceiling meets the requirements of UL 723S, Section 3.3 and shown to comply with Section 3.4 for minimum and maximum distances beneath fire sprinklers.
3. Meets the satisfactory performance of FM4651 for melt-out or drop out in accordance with the following:
   - 3.1. Before sprinkler operation, within 1 min 45 seconds of flame exposure.
   - 3.2. After sprinkler operation, within 1 min 45 seconds of flame exposure.

Add new standard(s) as follows:

FM

FM Approvals
Headquarters Office1151 Boston-Providence TurnpikeP.O. Box 9102
Norwood, MA 02062

FM4651	Approval Standard for Plastic Suspended Ceiling Panels

Reason: The Temporary Ceiling Construction Barrier market started in 1999, and has grown significantly in the last 7-10 years as building owners, retail and commercial spaces, and manufacturers want to continue normal operations during construction/ renovation, to continue operations as normal, when such remedial or improvement work is necessary. This change is needed to include the option for temporary ceiling construction barriers in the code.
Health concerns have grown in these spaces, and protecting these spaces, while allowing activities to continue, has given rise to this product/installation to negate having to shut down an area while doing roof related work. UL and FM have test protocols designed specifically to address and evaluate these product materials and installations. These products are used as barriers, on the underside of the roof during construction and above occupied space, to help reduce dust and small debris from falling from upper areas of construction to lower occupied levels. These systems are particularly useful in ceiling construction and other applications where business operations need to continue below a roof area being worked on. The inclusion of these systems into the code is important as

addressing potential safety considerations is critical for occupant safety, including falling dust and fire-safety considerations. There is no significant loading requirements on the system, as they are not intended to protect from heavy falling debris, only for dust and smaller particles that affect cleanliness and operation of the level below. The fire safety concerns are critical to the safety of the building and its occupants, as these systems are designed to open up in the event of a fire and not affect the operation of the fire sprinkler system's ability to extinguish a fire. This is particularly important as these systems are often placed between the fire sprinklers and the occupied level below.

Please use the included link below to the FM site to acquire the FM 4651 Standard referenced in this code change, and simply enter the standard number, 4651, to view the standard.

https://www.fmapprovals.com/Resources/Approval-Standards (type 4651 in the search box).

Cost Impact: Increase

Estimated Immediate Cost Impact:

There is a cost associated with the installation of this product, but compared to the use of scaffolding or a shutdown and loss of productivity in the space under the construction area, the net cost impact is favorable and positive to the owners. Abnormally high traffic on the roof in the vicinity of the construction area shakes loose dust, insects, and any accumulated debris on open format ceilings, like bar joist or open beam construction. This installation protects the inhabited space below the construction area, allowing activities normally done in this area to continue. The health safety concerns usually mandate a temporary scaffold type protection be put in place, which disrupts or prohibits normal traffic and activity to various degrees, this product is not intrusive as it never comes in contact with the area below the construction area.

Estimated Immediate Cost Impact Justification (methodology and variables):

Typical installation cost is $1.00 - $2.00/sq ft, which includes the removal of the product at the end of the construction period or the limit of the installation timing.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

FM4651 Approval Standard for Plastic Suspended Ceiling Panels

G196-25

G197-25

IBC: 3304.1.1

Proponents: John-Jozef Proczka, representing City of Phoenix Planning and Development Department (john-jozef.proczka@phoenix.gov)

2024 International Building Code

Revise as follows:

3304.1.1 Slope limits. Slopes for permanent fill shall be not steeper than one unit vertical in two units horizontal (50-percent slope). Cut slopes for permanent excavations shall be not steeper than one unit vertical in two units horizontal (50-percent slope). Deviation from the foregoing limitations for cut slopes shall be permitted only upon the presentation of a ~~soil~~ geotechnical investigation report acceptable to the *building official*.

Reason: Geotechnical investigation report is the term used throughout the code, especially in Section 1803.6.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Terminology change only without intent change.

G197-25

G198-25

IBC: C104.1, SECTION C105 (New), C105.1 (New)

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Building Code

APPENDIX C
GROUP U—AGRICULTURAL BUILDINGS

SECTION C104
EXITS

Revise as follows:

C104.1 Exit facilities. *Exits* shall be provided in accordance with ~~Chapters~~ Chapter 10 ~~and 11~~.

Exceptions:

1. The maximum travel distance from any point in the *building* to an *approved exit* shall not exceed 300 feet (91 440 mm).
2. One *exit* is required for each 15,000 square feet (1393.5 m^2) of area or fraction thereof.

Add new text as follows:

SECTION C105
ACCESSIBLITY

C105.1 Accessibility. Agricultural buildings shall be *accessible* in accordance with Chapter 11.

Reason: From commentary, and reaffirmed here, "typically, Group U buildings are exempt from Chapter 11's accessibility requirements for person with physical disabilities. Section 1103.2.4 only mandates that access is required to paved work areas and those areas within a building or structure that are open to the general public." The proposed langage removes an unnecessary pointer to Chapter 11 in regards to exits and provides a seperate section more appropriately point to Chapter 11.

CHAPTER 11
ACCESSIBILITY

SECTION1103
SCOPING REQUIREMENTS

1103.2.4 Utility buildings. Group U occupancies are not required to comply with this chapter other than the following:

1. In agricultural *buildings*, access is required to paved work areas and areas open to the general public.
2. *Private garages* or carports that contain required accessible parking.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed langage reaffirms the the existing language.

G199-25

IBC: D102.2.8

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Building Code

APPENDIX D
FIRE DISTRICTS

SECTION D102
BUILDING RESTRICTIONS

Revise as follows:

D102.2.8 Permanent canopies. Permanent *canopies* are permitted to extend over adjacent open spaces provided that all of the following are met:

1. The *canopy* and its supports shall be of noncombustible material, *fire-retardant-treated wood*, Type IV construction or of 1-hour fire-resistance-rated construction.

   Exception: Any textile covering for the *canopy* shall comply with the fire propagation performance of Test Method 1 or Test Method 2, as appropriate of ~~be flame resistant as determined by tests conducted in accordance with~~ NFPA 701 after both accelerated water leaching and accelerated weathering.

2. Any canopy covering, other than textiles or *fire-retardant-treated wood*, shall comply with either one of the following, when tested in the form intended for use:

   2.1. Have a *flame spread index* not greater than 25 when tested in accordance with ASTM E84 or UL 723 ~~in the form intended for use~~.

   2.2. Meet all of the following criteria when tested in accordance with NFPA 286:

      2.2.1. During the 40 kW exposure, flames shall not spread to the ceiling.

      2.2.2. Flashover, as defined in NFPA 286, shall not occur.

      2.2.3. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.

      2.2.4. The peak heat release rate throughout the test shall not exceed 800 kW.

3. The *canopy* shall have one long side open.
4. The maximum horizontal width of the *canopy* shall be not greater than 15 feet (4572 mm).
5. The *fire resistance* of *exterior walls* shall not be reduced.

Reason: This proposal makes three changes:

1. The terminology in the section for textiles is inappropriate. Use of the term "flame resistant" is not correct and misleading. Everywhere else in ICC codes the terminology relating to NFPA 701 testing has been changed to read as follows" "meet the fire propagation performance of Test Method 1 or Test Method 2", and that language is proposed here.

2. The proposal allows for testing in accordance with NFPA 286 as an alternative to testing in accordance with ASTM E84 or UL 723. Chapter 8 of the IBC is clear that any time a Class A material (meaning a material with a flame spread index not exceeding 25 in ASTM E84 or UL 723) is required, compliance by a material with all the criteria in chapter 8 for testing to NFPA 286 is equally acceptable to a Class A material. The reason for adding this is because materials may have already been tested to NFPA 286 and it is unnecessary (and wasteful) to have them retested to ASTM E84.

3. Fire-retardant-treated wood materials are required to exhibit a listed flame spread index of no more than 25 in accordance with ASTM E84 (per section 2303.2 of the IBC) so retesting to ASTM E84 per item 2 is unnecessary.

Note that neither the existing code text nor the proposed revision addresses smoke release.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Basically just a cleanup.

G199-25

G200-25

IBC: F101.5, F101.5.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

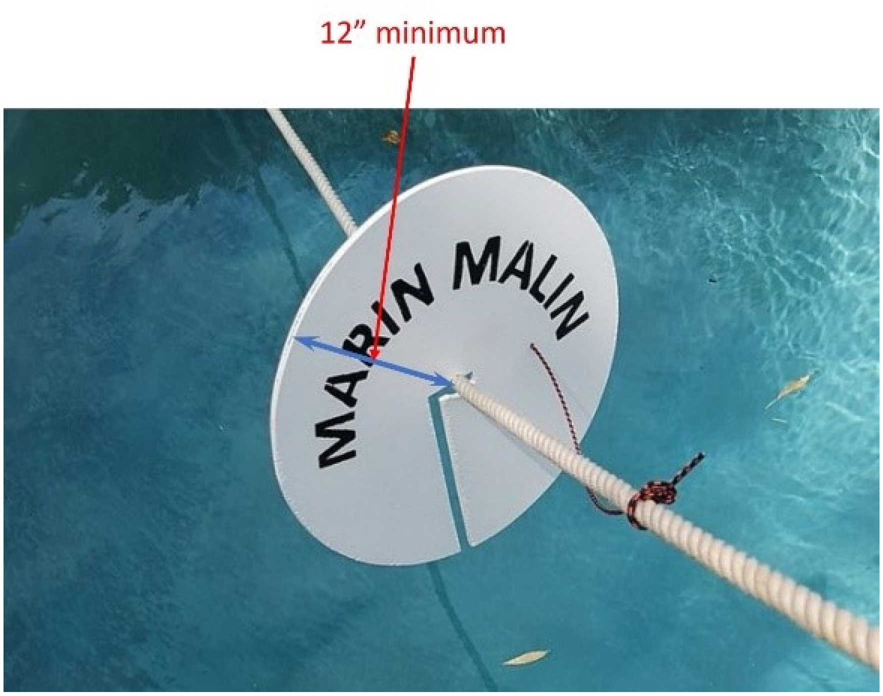
APPENDIX F
RODENTPROOFING

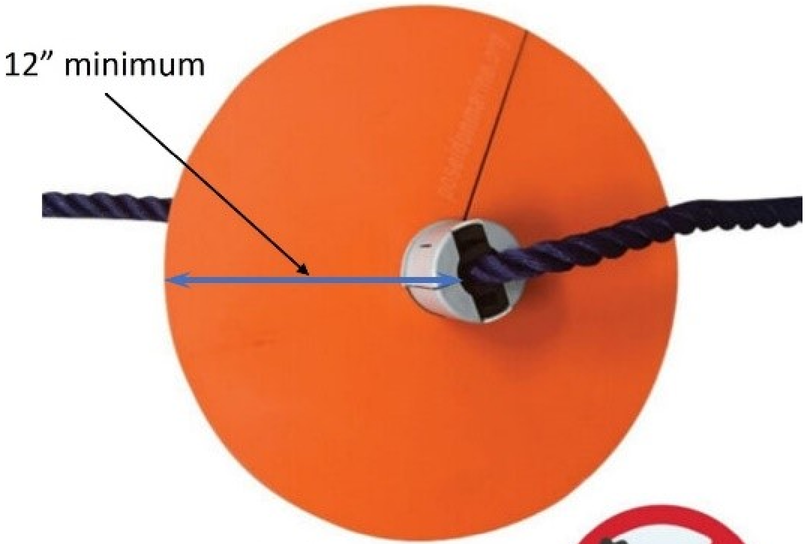
Revise as follows:

F101.5 Windows and other openings. Windows and other openings for the purpose of light or ventilation located in *exterior walls* and with the bottom of the opening ~~within~~ 2 feet (610 mm) or less above the ~~existing ground level immediately below such opening~~ finish grade shall be covered for their entire height and width, including frame, with hardware cloth of not less than 0.035-inch (0.89 mm) wire or heavier.

F101.5.1 Rodent~~-accessible~~ access to openings. Windows and other openings for the purpose of light ~~and~~ or ventilation in ~~the~~ *exterior walls* not otherwise covered in this section, ~~chapter, accessible to~~ which are susceptible to entry by rodents by way of exposed pipes, wires, conduits ~~and~~ or other appurtenances, shall be covered with ~~wire~~ hardware cloth of ~~at least~~ not less than 0.035-inch (0.89 mm) wire. In lieu of ~~wire~~ a hardware cloth covering, ~~said~~ such pipes, wires, conduits and other appurtenances shall ~~be blocked from~~ inhibit rodent ~~usage~~ entry by installing solid sheet metal ~~guards~~ barriers with a minimum thickness of 0.024 inch (0.61 mm)~~ thick or heavier~~. ~~Guards~~ Such barriers shall be fitted around pipes, wires, conduits or other appurtenances~~. In addition, they~~ and shall be fastened securely. ~~to and shall extend perpendicularly~~ The barriers shall be located a minimum of 12 inches (305mm) from the *exterior wall* ~~for not less than~~ and shall have a minimum radius of 12 inches (305 mm) beyond ~~and on either side of~~ the surface of the pipes, wires, conduits or other appurtenances.

Reason: This is a clarification and consistency in terminology of the existing requirements for rodentprooofing of openings. Something like the photos below is envisioned for the criteria in the last sentence.





This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial clarification of requirements.

G200-25

G201-25

IBC: H106.1.1

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Building Code

APPENDIX H
SIGNS

SECTION H106
ELECTRICAL

Revise as follows:

H106.1.1 Internally illuminated signs. Except as provided for in Section 2611, where internally illuminated *signs* have facings of wood or of a ~~*approved*~~ plastic material complying with the requirements of Section 2606.4, the area of such facing section shall be not more than 120 square feet (11.16 m^2) and the wiring for electric lighting shall be entirely enclosed in the *sign* cabinet with a clearance of not less than 2 inches (51 mm) from the facing material. The dimensional limitation of 120 square feet (11.16 m^2) shall not apply to *sign* facing sections made from flame-resistant-coated fabric (ordinarily known as “flexible *sign* face plastic”) that weighs less than 20 ounces per square yard (678 g/m^2) and that, when tested in accordance with NFPA 701, meets the fire propagation performance requirements of both Test 1 and Test 2 or that, when tested in accordance with an *approved* test method, exhibits an average burn time of 2 seconds or less and a burning extent of 5.9 inches (150 mm) or less for 10 specimens.

Reason: The term "approved plastic" used to be in several ICC codes, and referred to "approved light-transmitting plastic, but there is no longer a definition or an explanation of what it is. In each application, certain plastic materials may be approved for that use. In the case of this section, plastic materials complying with the requirements of section 2606.4 are approved. That is clear and the word "approved" just introduces potential confusion.
Approved light transmitting plastics were ones that met the fire property requirements of section 2606.4. The section 2606.4 (shown below) simply provides a requirement for the fire properties of the plastic material. Therefore, the change proposed simply eliminates a confusing word and clarifies.

IBC section 2606.4

2606.4 Specifications. Light-transmitting plastics, including *thermoplastic*, *thermosetting* or reinforced thermosetting plastic material, shall have a self-ignition temperature of 650°F (343°C) or greater where tested in accordance with ASTM D1929; a *smoke-developed index* not greater than 450 where tested in the manner intended for use in accordance with ASTM E84 or UL 723, or a maximum average smoke density rating not greater than 75 where tested in the thickness intended for use in accordance with ASTM D2843 and shall conform to one of the following combustibility classifications:

Class CC1: Plastic materials that have a burning extent of 1 inch (25 mm) or less where tested at a nominal thickness of 0.060 inch (1 ASTM D635.

Class CC2: Plastic materials that have a burning rate of $2^1/_2$ inches per minute (1.06 mm/s) or less where tested at a nominal thicknes accordance with ASTM D635.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clarification. See reason statement.

G201-25

G202-25

IBC: H110.1, H110.2 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

APPENDIX H
SIGNS

SECTION H110
ROOF SIGNS

Revise as follows:

H110.1 General. *Roof signs* shall be constructed entirely of metal or other *approved* noncombustible material except as provided for in Sections H106.1.1 and H107.1. Provisions shall be made for electric grounding of metallic parts. Where combustible materials are permitted in letters or other ornamental features, wiring and tubing shall be kept free and insulated therefrom. ~~*Roof signs* shall be so constructed as to leave a clear space of not less than 6 feet (1829 mm) between the roof level and the lowest part of the *sign* and shall have not less than 5 feet (1524 mm) clearance between the vertical supports thereof.~~ *Roof sign structures* shall not project beyond an *exterior wall*.

~~**Exception:** *Signs* on flat roofs with every part of the roof accessible.~~

Add new text as follows:

H110.2 Clearance. Roof signs shall be so constructed as to leave a clear height of not less than 6 feet (1829 mm) between the roof surface and the lowest part of the sign and shall have not less than 5 feet (1524 mm) clearance between the vertical supports thereof.

Exception: Signs on flat roofs where there is access to the signs are not required to comply with this section.

Reason: The purpose of this change is to clarify existing requirements. The current text includes several requirements, so it is not clear which part the exception applies too. The current exception is an incomplete sentence and is too open for interpretation.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial clarification of roof sign requirements.

G202-25

G203-25

IBC: APPENDIX K, SECTION K103, K103.1, K103.2

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Building Code

APPENDIX K
ADMINISTRATIVE PROVISIONS

SECTION K103
PERMITS

K103.1 Types of permits. An *owner*, authorized agent or contractor who desires to construct, enlarge, alter, *repair*, move, demolish or change the occupancy of a *building* or *structure*, or to erect, install, enlarge, alter, *repair*, remove, convert or replace electrical systems or equipment, the installation of which is regulated by this code, or to cause such work to be done, shall first make application to the *building official* and obtain the required *permit* for the work.

Exception: Where *repair* or replacement of electrical systems or equipment must be performed in an emergency situation, the *permit* application shall be submitted within the next working business day of the department of electrical inspection.

Revise as follows:

K103.2 Work exempt from permit. Exemptions from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Permits shall not be required for the following ~~The following work shall be exempt from the requirement for a *permit*~~:

1. Listed cord- and plug-connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles, but not the outlets therefor.
3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Temporary wiring for experimental purposes in suitable experimental laboratories.
5. Electrical wiring, devices, appliances, apparatus or equipment operating at less than 25 volts and not capable of supplying more than 50 watts of energy.

~~Exemption from the *permit* requirements of this code shall not be deemed to grant authorization for work to be done in violation of the provisions of this code or other laws or ordinances of this *jurisdiction*.~~

Reason: The proposed language is confined to reorganization with preference to the language used in 105.2.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no technical change.

G203-25

G204-25

IBC: P105.1

Proponents: Robert Marshall, representing FCAC (fcac@iccsafe.org)

2024 International Building Code

APPENDIX P
SLEEPING LOFTS

SECTION P105
SMOKE ALARMS

Revise as follows:

P105.1 General. ~~Listed~~ Single- ~~*single-*~~ or *multiple-station smoke alarms* ~~complying~~ *listed* and *labeled* in accordance with UL 217 shall be installed in all *sleeping lofts* or within the room to which the sleeping loft is open, in the immediate vicinity of the sleeping loft..

Reason: FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the **FCAC Website**

Occupants utilizing a sleeping loft should be protected with a smoke alarm. This revised language correlates with requirements in the 2024 IRC as revised by RB153-22 (AM/AMPC 1, 2 & 3) and for corresponding revisions submitted by F-CAC for the IBC and IFC Section 907.2.11 to update the 2024 editions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The Appendix is only enforceable when specifically adopted by a jurisdiction. This proposal simply makes editorial revisions to correlate with smoke alarm protection requirements for sleeping lofts currently in the 2024 IRC and those proposed for the 2027 IBC and IFC.

G204-25

G205-25

IBC: P102.1, P103.6.3 (New), P105.1

Proponents: Jenifer Gilliland, Seattle Department of Construction and Inspections, representing Washington Association of Building Officials Technical Code Development Committee (jenifer.gilliland@seattle.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov)

2024 International Building Code

APPENDIX P
SLEEPING LOFTS

SECTION P102
DEFINITIONS

Revise as follows:

P102.1 General. The following term shall, for the purposes of this appendix, have the meaning shown herein. Refer to Chapter 2 for general definitions.
SLEEPING LOFT. A space <u>designated for sleeping</u> on an intermediate level or levels between the floor and ceiling of a Group R occupancy dwelling or *sleeping unit*, open on one or more sides to the room in which the sleeping loft is located.

SECTION P103
MEANS OF EGRESS

Add new text as follows:

<u>**P103.6.3**</u> <u>**Emergency escape and rescue openings**</u>**.** <u>Sleeping lofts shall be permitted to be served by an EERO in the room to which the sleeping loft is open.</u>

SECTION P105
SMOKE ALARMS

Revise as follows:

P105.1 General. Listed *single-* or *multiple-station smoke alarms* complying with UL 217 shall be installed ~~in~~ <u>within the room to which a sleeping loft is open, in the immediate vicinity of the</u> ~~all~~ *sleeping lofts*.

Reason: The proposal aligns IBC Appendix P Sleeping Lofts (ICC proposal G112-21) with changes made in ICC proposal RB153-22 and associated public comments 1, 2, and 3, as well as comments made by the committee and other interested parties. The proposed changes clear up ambiguity around some key provisions.

Sleeping lofts are for sleeping. To make this perfectly clear in the code, we added “designated for sleeping” to the definition of *sleeping loft*.

Smoke alarms must be located within the vicinity of the sleeping loft. If the sleeping loft is located within a sleeping room, the required smoke alarm can’t be located in the hallway outside of the sleeping room. The smoke alarm can’t be located at the far end of the room; it must be “in the vicinity of” the sleeping loft.

EERO's required for sleeping lofts can be located in the room that contains the sleeping loft. While the EERO serving the loft can be located in the sleeping loft itself, the EERO does not have to be located in the sleeping loft to provide adequate safety. It can be impractical to locate the EERO in the loft in many dwelling unit configurations because the loft would either have to abut an exterior wall or be located just below a roof. Given the presence of good early warnings for sleeping loft occupants (the sleeping loft must be open to the space with a smoke alarm in close proximity), having an EERO in the room where the sleeping loft is located should provide adequate safety. A sleeping loft can be served by an EERO in the room it opens into (a sleeping room or another room, like a family room, den, etc.) **OR** by an EERO in the sleeping loft itself.

These changes are not intended to override the requirement for an EERO in a sleeping room or to allow a single EERO located in a sleeping loft to be the only EERO serving the sleeping room that the loft opens into. If the loft is located within a bedroom, a person sleeping on the bedroom level should not have to climb up into the sleeping loft to get to an EERO. In cases where a sleeping loft opens into a space like a family room, the family room itself wouldn't be required to have an EERO, but the sleeping loft would, and the EERO could be located in the loft or the family room.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Because sleeping lofts are an option, not a requirement, this proposal has no impact on the cost of construction. When a sleeping loft is provided, this proposal provides a uniform set of requirements. The provision of an EERO most likely would occur anyway to accommodate the sleeping room or other room that the sleeping loft opens into.

G205-25

G206-25

IBC: APPENDIX Q (New), SECTION Q101 (New), Q101.1 (New), SECTION Q102 (New), Q102.1 (New), SECTION 202 (New), SECTION Q103 (New), Q103.1 (New), Q103.2 (New), Q103.3 (New), Q103.3.1 (New), TABLE Q103.3.1 (New), Q103.3.2 (New), Q103.4 (New), Q103.4.1 (New), Q103.5 (New), Q103.5.1 (New), Q103.5.2 (New), SECTION Q104 (New), Q104.1 (New), Q104.2 (New), SECTION Q105 (New), Q105.1 (New), TABLE Q105.1 (New)

Proponents: Ariel Brenner, New Buildings Institute, representing New Buildings Institute (ariel@newbuildings.org); Amie Lewis, representing New Buildings Institute

2024 International Building Code

Add new text as follows:

APPENDIX Q
EMBODIED GHG EMISSIONS REPORTING AND REDUCTION

SECTION Q101
GENERAL

Q101.1 Scope. The provisions of this appendix promote methods to measure and reduce the environmental impact of building materials and products.

SECTION Q102
DEFINITIONS

Q102.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

Add new definition as follows:

COVERED PROJECT. A new building or structure, or an *addition* to an existing building or structure, [INSERT 50,000 OR 100,000] gross square feet or larger, or an *alteration* that impacts a *work area* of [INSERT 50,000 OR 100,000] gross square feet or larger.

EMBODIED GREENHOUSE GAS (GHG) EMISSIONS. The greenhouse gas (GHG) emissions generated by the extraction, production, transport, manufacturing, use, and end of life of a product, as measured using a life cycle assessment. These may include the lifecycle stages A, B, and C as defined by ISO 21931—1 or ISO 21930.

ENVIRONMENTAL PRODUCT DECLARATION (EPD). An environmental claim that provides quantified environmental data using predetermined parameters and, where relevant, additional environmental information. An EPD also includes additional product and company information. An EPD reports at least the product stage, covering the cradle-to-gate phase or life cycle modules A1-A3 as defined by ISO 21931—1 or 21930.

FACILITY-SPECIFIC ENVIRONMENTAL PRODUCT DECLARATION (FACILITY-SPECIFIC EPD). An environmental claim providing quantified environmental impacts based on data from one industrial facility at which a specific product that is represented by the *EPD* is manufactured.

GLOBAL WARMING POTENTIAL (GWP). The metric for tracking *embodied GHG emissions*, which is reported in kg CO_2e/unit. GWP normalizes different gases associated with a product to an equivalent mass of carbon dioxide over a period of 100 years.

PRODUCT-SPECIFIC ENVIRONMENTAL PRODUCT DECLARATION (PRODUCT-SPECIFIC EPD). An *EPD* that represents the impacts of a single product.

SALVAGED AND REUSED PRODUCT. A product reclaimed of reusable materials from the disassembly, deconstruction, or demolition of buildings or structures, sourced from within a radius of 500 mi (800 km) of the project site, and requiring minimal to no processing for reinstallation and use on a different project.

WORK AREA. That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents.

Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.

Add new text as follows:

SECTION Q103
REDUCTION OF EMBODIED GHG EMISSIONS

Q103.1 Embodied GHG emissions. *Covered projects* shall document *embodied GHG emissions* on *construction documents*, which shall be submitted to the *building official.*

Q103.2 Documentation of embodied GHG emissions. Documentation of *embodied GHG emissions* for *covered projects* shall meet one of the following pathways:

1. Product compliance or building compliance pathway; for a new building or structure, or an *addition* to an existing building or structure, **[INSERT 50,000 OR 100,000]** gross square feet or larger.
2. Building reuse compliance pathway; for an *alteration* that impacts a *work area* of **[INSERT 50,000 OR 100,000]** gross square feet or larger.
3. Product compliance, building compliance, or building reuse compliance pathway; for an *addition* to a building or structure that also includes an *alteration*, where the *addition* and *work area* of the *alteration* have a combined area of **[INSERT 50,000 OR 100,000]** gross square feet or larger.

Q103.3 Product compliance pathway. *Covered projects* shall submit Type III *product-specific* or *facility-specific environmental product declarations (EPDs)*, for all covered products per section Q103.3.1. The product compliance pathway shall calculate the *global warming potential (GWP)* for the total mass, volume, or area of the covered products, which shall total no more than **[INSERT 85, 90, 100, 125, OR 150]** percent of the values in Table Q103.3.1 for the same total mass, volume, or area of the covered products. This calculation shall include project-specific product quantities and *product-specific* or *facility-specific EPDs*, and be summed across the entire project based on mass, volume, or area.

Q103.3.1 Covered products. Covered products shall include no less than **[INSERT 90 OR 100]** percent of the total combined mass, volume, or area of all products used in the building project that are included in Table Q103.3.1.

TABLE Q103.3.1 COVERED PRODUCT GWP REFERENCE VALUES[a]

	COVERED PRODUCT	GLOBAL WARMING POTENTIAL (A1-A3)	UNIT OF MEASUREMENT
Ready mix concrete products[b]	Up to 2,500 psi	240	kg CO_2e/m^3
	2,501-3,000 psi	262	kg CO_2e/m^3
	3,001-4,000 psi	308	kg CO_2e/m^3
	4,001-5,000 psi	365	kg CO_2e/m^3
	5,001-6,000 psi	385	kg CO_2e/m^3
	6,001-8,000 psi	446	kg CO_2e/m^3
	Lightweight, up to 3,000 psi	492	kg CO_2e/m^3
	Lightweight, 3,001-4,000 psi	540	kg CO_2e/m^3
	Lightweight, 4,001-5,000 psi	588	kg CO_2e/m^3
Concrete masonry unit products	Normal weight, up to 3,249 psi	208	kg CO_2e/m^3
	Normal weight, 3,250-4,499 psi	232	kg CO_2e/m^3
	Normal weight, 4,500 psi and greater	241	kg CO_2e/m^3
	Medium weight, up to 3,249 psi	360	kg CO_2e/m^3

	Medium weight, 3,250 psi and greater	244	kg CO_2e/m^3
	Lightweight, up to 3,249 psi	286	kg CO_2e/m^3
	Lightweight, 3,250 psi and greater	395	kg CO_2e/m^3
Reinforcing steel products	Rebar – unfabricated	753	kg CO_2e/metric ton
	Hot-rolled sections – unfabricated	1,000	kg CO_2e/metric ton
	Hollow structural sections – unfabricated	1,710	kg CO_2e/metric ton
	Decking	2,320	kg CO_2e/metric ton
Structural steel products	Plate – unfabricated	1,480	kg CO_2e/metric ton
	Hot-dipped galvanized cold-formed steel members	2,440	kg CO_2e/metric ton
	Open web steel joists and joist girders	1,430	kg CO_2e/metric ton
	Laminated veneer lumber	361	kg CO_2e/m^3
	Laminated strand lumber	275	kg CO_2e/m^3
	Glue laminated timber	137	kg CO_2e/m^3
	Wood framing	63.1	kg CO_2e/m^3
Structural wood products	Softwood plywood	219	kg CO_2e/m^3
	Oriented strand board	243	kg CO_2e/m^3
	Cross laminated timber[c]	178	kg CO_2e/m^3
	Dowel laminated timber[c]	145.2	kg CO_2e/m^3
	Mass Ply Panel[c]	311	kg CO_2e/m^3
	Expanded polystyrene (EPS) – Type I	2.53	kg $CO_2e/1\ m^2$ @ RSI-1
	Polyiso – wall	4.10	kg $CO_2e/1\ m^2$ @ RSI-1
	Polyiso – roof – GRF facer	2.11	kg $CO_2e/1\ m^2$ @ RSI-1
	Polyiso – roof – CFG facer	2.95	kg $CO_2e/1\ m^2$ @ RSI-1
	Extruded polystyrene (XPS)[d]	41	kg $CO_2e/1\ m^2$ @ RSI-1
	Fiberglass board	5.02	kg $CO_2e/1\ m^2$ @ RSI-1
	Heavy-density mineral wool board	6.82	kg $CO_2e/1\ m^2$ @ RSI-1
	Mineral wool blanket (Light-density mineral wool board)	2.68	kg $CO_2e/1\ m^2$ @ RSI-1
Insulation products	Fiberglass blanket (Fiberglass batt) – unfaced	1.01	kg $CO_2e/1\ m^2$ @ RSI-1
	Fiberglass blanket (Fiberglass batt) – faced	1.06	kg $CO_2e/1\ m^2$ @ RSI-1
	Closed-cell spray polyurethane foam – medium density	3.47	kg $CO_2e/1\ m^2$ @ RSI-1
	Closed-cell spray polyurethane foam – roofing	4.05	kg $CO_2e/1\ m^2$ @ RSI-1
	Closed-cell spray polyurethane foam - 2K-LP	3.12	kg $CO_2e/1\ m^2$ @ RSI-1
	Open-cell spray polyurethane foam	1.05	kg $CO_2e/1\ m^2$ @ RSI-1
	Loose-fill cellulose	0.487	kg $CO_2e/1\ m^2$ @ RSI-1
	Loose-fill mineral wool	1.89	kg $CO_2e/1\ m^2$ @ RSI-1
	Loose-fill fiberglass	0.988	kg $CO_2e/1\ m^2$ @ RSI-1
Flat Glass	Flat glass (clear, tinted, and low-iron products)	1,430	kg CO2e/metric ton

a. GWP values are based on industry averages, sourced from industry-wide EPDs for all products for which there was one available.

b. AHJ to replace with regional ready mix concrete values based on NRMCA's regional benchmarks.

c. Replace with industry-wide average when available.

d. For all product types except XPS in this table, the noted GWP corresponds to A1-A3 life cycle modules (the "product stage"). An exception has been made for XPS board insulation due to the substantial contribution of blowing agent emissions to product life cycle GWP. Since insulation EPDs are required to report these impacts where applicable, the XPS value in this table includes modules A1-A3 (product stage), B1 (to account for blowing agent emissions during building life), and C4 (to account for blowing agent emissions during disposal).

Q103.3.2 Alternative Products. Covered products are permitted to be replaced with a product that is a *salvaged and reused product*. Products are permitted to be procured from onsite or from vendors. If a covered product is *salvaged and reused*, the applicable product category is permitted to assume a *GWP* of 0.

Q103.4 Building compliance pathway. *Covered projects* shall submit a building life cycle assessment (LCA) as part of the *construction documents*, which shall be submitted to the *building official*. The building LCA shall be developed in accordance with section Q103.4.1, and comply with one of the following:

1. For absolute reduction requirements, the *global warming potential (GWP)* of the proposed building shall be no more than **[INSERT 70, 80, OR 90]** percent of 1,102 lbCO$_2$e/square feet (500 kgCO$_2$e/m^2).
2. For relative reduction requirements, the *GWP* of the proposed building shall be no more than **[INSERT 70, 80, OR 90]** percent of the *GWP* of a functionally equivalent reference building. The reference building shall be of the same size, geographic location, and thermal performance as the proposed building, shall be subject to the same code requirements as the proposed building, and shall be functionally equivalent to the proposed building per ASTM E2921-22. The products and product quantities in the proposed building are permitted to vary compared to that shown in the reference building. The same LCA tool(s) or software shall be used to complete the building life cycle assessment for both the reference and proposed building designs.

Q103.4.1 Building life cycle assessment. Building LCAs shall comply with the following:

1. ISO 14040 and ISO 14044.
2. Software used to conduct a building LCA shall conform to ISO 21931—1 and/or EN 15978 and shall have a data set compliant with ISO 14044 and ISO 21930 and/or EN 15804. The software shall utilize a calculation methodology that is compliant with EN 15978, ISO 21931—1 and ISO 21929—1. Environmental impact data shall not be sourced from expired or retired data sources, unless no valid alternative data exists.
3. The life cycle scope shall cover cradle-to-grave, including all modules in life cycle stages A, B, and C, as defined by ISO 21931—1 or 21930. The life cycle scope is permitted to exclude modules B6 and B7, covering operating energy and water.
4. The building LCA shall include all of the following building elements: foundations; *exterior wall envelope; primary structural frame; secondary structural members; roof covering; roof deck; fenestration; load-bearing walls;* and insulation. The assessment is permitted to include *non-load-bearing walls;* fireproofing; insulation; interior constructions and *interior finishes.* An assessment submitted for an *addition* and/or *alteration* shall include elements within the boundary of the *addition* and/or the *work area* of the *alteration.*
5. The reference study period shall be 60 years.

6. Existing and *salvaged and reused products* shall be included or excluded at the discretion of the project team. For in-situ reused materials, it is permissible to assume the A1-A4 stages (raw material supply, raw material transport, manufacturing, and transportation to construction site) carry no impact in the proposed building's LCA to show the benefit of reusing materials, while retaining the A1-A4 estimated impacts for these materials in the LCA of the functionally equivalent reference design. For salvaged materials, it is permissible to assume the A1-A3 stages carry no impact in the proposed building's LCA to show the benefit of salvaging materials, while retaining the A1-A3 estimated impacts for these materials in the LCA of the functionally equivalent reference design.
7. Biogenic carbon and carbon sequestration shall be reported separately from fossil *GWP*.

Q103.5 Building reuse pathway. An *alteration* shall retain no less than a combined 45 percent, as calculated per section Q103.5.1, of the *existing building's primary* and *secondary structural frame* and *exterior wall envelope* as part of the *work area.* An *addition* to a building or structure that also includes an *alteration*, where the *addition* and *work area* of the *alteration* have a combined area of **[INSERT 50,000 OR 100,000]** gross square feet or larger, is permitted to use this compliance pathway.

Q103.5.1 Building reuse compliance calculation. The calculation shall include roof and floor areas, and façade area as measured in elevation, for the entire building. Façade areas are permitted to be considered retained even if the existing *exterior wall covering* is repaired, replaced, or modified to increase insulation or airtightness. *Salvaged and reused products* sourced from the project site are permitted to be counted towards the 45 percent building reuse threshold.

Exception: Buildings, or portions of buildings, that are deemed unsafe or *dangerous*, or that have *hazardous materials,* that are remediated as part of the project.

Q103.5.2 Construction documents for building reuse compliance. *Construction documents* for the building reuse compliance pathway shall clearly distinguish the square footage for existing and new elements, and include the following information:

1. Gross floor area of *existing building*(s) in square feet;
2. Gross floor area of the aggregate *addition(s)* in square feet (if applicable);
3. Gross floor area of the *alteration* in square feet;
4. Existing total floor area and retained total floor area of the *primary* and *secondary structural frame* of the *existing building*(s) in square feet; and
5. Existing total *exterior wall* and *fenestration* surface area and total retained *exterior wall* and *fenestration* surface area of the *existing building*(s) in square feet, as well as areas allowed to be excluded from the calculation.

SECTION Q104
DOCUMENTATION OF REDUCTION OF EMBODIED GHG EMISSIONS

Q104.1 Registered design professional. A r*egistered design professional* shall prepare the *construction documents* and provide signature verifying compliance with the requirements of this appendix.

Q104.2 Amended construction documents for embodied GHG emissions. Covered products shall be installed in accordance with the approved *construction documents.* Prior to the issuance of the certificate of occupancy, the r*egistered design professional* that submits documentation per Sections Q103.3, Q103.4, or Q103.5 shall ensure that as-built product selection matches the approved *construction documents.* If as-built products differ from those submitted on the approved construction documents, the r*egistered design professional* shall update the *embodied GHG emissions* calculations based on the updated procured products and attest that they are accurate to the best of the *registered design professional*'s knowledge.

SECTION Q105
REFERENCED STANDARDS

Q105.1 General. See Table Q105.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix that reference the standard.

TABLE Q105.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ASTM E2921–2022	*Standard Practice for Minimum Criteria for Comparing Whole Building Life Cycle Assessments for Use with Building Codes, Standards, and Rating Systems*	Q103.4
EN 15804—2022	*Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products*	Q103.4.1
EN 15978—2011	*Sustainability of construction works – Assessment of environmental performance of buildings – Calculation method*	Q103.4.1
ISO 14040—2006	*Environmental management – Life cycle assessment – Principles and framework*	Q103.4.1
ISO 14044—2006	*Environmental management – Life cycle assessment – Requirements and guidelines*	Q103.4.1
ISO 21929-1—2011	*Sustainability in building construction – Sustainability indicators – Part 1: Framework for the development of indicators and a core set of indicators for buildings*	Q103.4.1
ISO 21930—2017	*Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services*	Q102.1, Q103.4.1
ISO 21931-1—2022	*Sustainability in buildings and civil engineering works – Framework for methods of assessment of the environmental, social and economic performance of construction works as a basis for sustainability assessment – Part 1: Buildings*	Q102.1, Q103.4.1

Reason: Overview of Appendix Requirements

This proposal adds a new voluntary appendix to the International Building Code (IBC), which may act as a reference for jurisdictions wishing to establish code methods to measure and reduce the embodied greenhouse gas (GHG) emissions impact of building materials. Appendix Q provides criteria for the production and submission of environmental product declarations, building life cycle assessment, and proof of building reuse for a building project.

In sum, the appendix provides a requirement for construction document submittals to include reporting on the embodied GHG emissions associated with proposed projects over a choice of 50,000 or 100,000 square feet, as determined by the AHJ. Project teams must choose one form of documentation from the following three options:

1. **Product compliance pathway:** submit product- or facility-specific environmental product declarations (EPDs) for covered products that indicate that the global warming potential (GWP) meets a certain percentage – as determined by the AHJ – of the industry-average GWP of the product;
2. **Building compliance pathway:** submit a building life cycle assessment (LCA) for the building's structure and enclosure that indicates a percent-reduction – as determined by the AHJ – in GWP from 102 $lbCO_2e$/square feet (500 $kgCO_2e/m^2$) or compared to an industry-average baseline;
3. **Building reuse pathway:** submit proof of reuse of at least 45% of an existing building's structure and enclosure.

Finally, the proposed appendix aims to provide a clear and simple path for code officials to determine compliance at two points along the project timeline: at the initial submission of construction documents and at the subsequent submission of amended construction documents. The role of the code official is to check for the submission of required documentation, confirm that requirements were met, and verify that the registered design professional has signed off on meeting these provisions. These efforts that fall on the design professional as well as the code official are anticipated to require minimal effort.

Problem and Opportunity

Building operations and building construction are responsible for 39% of today's global greenhouse gas (GHG) emissions.[1] About 11% of these emissions are embodied GHG emissions – the emissions associated with the creation of building materials and construction activities.[1] The largest contributors tend to be found in buildings' structures and envelopes due to their high embodied GHG emissions and quantity of use in projects.

The need to confront and reduce embodied GHG is urgent. The IPCC reports that limiting warming to the target set by the Paris Agreement – and avoiding the worst-case impacts of the climate crisis – is contingent on GHG emissions peaking by 2025 at the latest and reducing them by 43% by 2030.[2]

Doing justice to the urgency presented by climate change requires a focus on the embodied emissions associated with the full lifecycle, and especially the early phases of buildings' construction and materials. Unlike operational emissions, which can be improved over the lifespan of a building through deep-energy retrofits and decarbonizing the electric grid, most of a building's embodied GHG emissions occur before a building is occupied and cannot be reduced over time. A joint University of Washington and University of California, Berkeley study found that, on average, 80% of a building's embodied GHG impacts over its lifetime takes place in the phases leading up to a building's completion before occupancy.[3]

Therefore, addressing embodied GHG in the construction of buildings presents an urgent and valuable opportunity to reduce GHG emissions in the built environment. The IBC thus holds critical potential to address this bulk of emissions, as it impacts decisions made early during the design process, which directly and most substantially influence early production and construction activities. Prioritizing these immediate emissions will help to stop the accumulation of GHGs in the atmosphere, improving the likelihood that adopting jurisdictions will reach their GHG peaks sooner.

Finally, the IBC has been in place and used by the design and construction industry to ensure that materials in the built environment preserve public health and safety. This appendix is intended to do just that: to safeguard the public from the hazards associated with the creation of buildings and their materials. This entails reducing emissions in the extraction, manufacturing, and transportation of these products, which can improve air quality and public health in communities located near industrial centers and manufacturing facilities.

Methodology and Reasoning

The IBC is suitable for addressing embodied GHG emissions. First, it is intended to "preserve public health and safety that provides safeguards from hazards associated with the built environment."[4] This proposal protects the public as well as the environment from the hazards associated with the creation of building materials. Second, IBC regulations have a clear focus on materials and building elements, which is consistent with this proposal's approach to addressing the emissions associated with building products. Finally, the wide adoption of the IBC would make this appendix an easily accessible resource for jurisdictions looking to address embodied GHG in their building codes.

This is proposed as a voluntary appendix, available to jurisdictions that are interested in implementing it. For these jurisdictions, this proposal offers a standardized approach and set of requirements, saving them time and effort in potentially developing their own requirements from scratch, or piecemeal from other sources. It is also intended to save practitioners considerable trouble in trying to comply with varying requirements from one jurisdiction to the next. This matters to designers and contractors when they have to navigate these differences. In addition, it saves building department staff considerable trouble when they need to correct permit applicants on how the forms are filled out for their local requirements. Having consistency in voluntary measures benefits everyone.

This proposal is also intended to provide a level of flexibility for jurisdictions and project teams to meet these provisions in ways that are most suited to their own unique needs, goals, and circumstances. Three compliance pathways are included to provide project teams with that flexibility. These pathways are also based in precedent, drawing from California's statewide building code, CALGreen, the latest version of which is now in effect.

The proposed appendix also provides flexibility on the quantitative thresholds that jurisdictions may choose to adopt according to their unique needs and preferences. These jurisdictional options deal with the project size to which the appendix would apply; product-level GWP cap for the product compliance pathway; percentage of products required to submit EPDs for the product compliance pathway; and building-level GWP percentage reduction for the building compliance pathway.

Bibliography: [1] "Bringing Embodied Carbon Upfront," World Green Building Council, 2019, https://worldgbc.org/advancing-net-zero/embodied-carbon/.

[2] Working Group III, "The Evidence Is Clear: The Time for Action Is Now. We Can Halve Emissions by 2030.," The Intergovernmental Panel on Climate Change, April 4, 2022, https://www.ipcc.ch/2022/04/04/ipcc-ar6-wgiii-pressrelease/.

[3] Brad Benke et al., "The California Carbon Report: An Analysis of the Embodied and Operational Carbon Impacts of 30 Buildings" (The Carbon Leadership Forum, May 2024), https://carbonleadershipforum.org/california-carbon/.

[4] ICC, "The International Building Code" (International Code Council), https://www.iccsafe.org/products-and-services/i-codes/2018-i-codes/ibc/#:~:text=The%20International%20Building%20Code%20(IBC)%20is%20the,or%20exceed%20public%20health%20and%20s

[5] California Department of General Services, Building Standards Commission, "Economic and Fiscal Impact Statement (Form 399), Attachment C- CCRC regulations 54day, Amend the 2022 California Green Building Standards Code, CCR, Title 24, Part 11,"

Department of General Services, March 2, 2023, https://www.dgs.ca.gov/-/media/Divisions/BSC/03-Rulemaking/2022-Intervening-Cycle/Public-Comments/GREEN-45-Day/BSC/BSC-04-22-399-PT11-Attachment-C-R1-45day.pdf?la=en&hash=E1121CBF2FEA6D07492DCD1E962D8AA1AFC43618.

[6] State Building Code Council, "Greenhouse Gas Emissions Reduction for Steel Products," State of Washington, 2022, accessed August 9, 2024, https://sbcc.wa.gov/sites/default/files/2022-04/095_Sections%20202%20and%202205_IBC.pdf

[7] "Economic and Fiscal Impact Statement (Form 399) Attachment C – CCRC regulations 45day" (California Department of General Services, 2022), https://www.dgs.ca.gov/-/media/Divisions/BSC/03-Rulemaking/2022-Intervening-Cycle/Public-Comments/GREEN-45-Day/BSC/BSC-04-22-399-PT11-Attachment-C-R1-45day.pdf?la=en&hash=E1121CBF2FEA6D07492DCD1E962D8AA1AFC43618/.

Cost Impact: Increase

Estimated Immediate Cost Impact:

In jurisdictions in which this appendix is adopted, it is anticipated that the economic impact of each of the pathways in this proposal will increase either at an insignificant level or not at all.

A project's embodied GHG emissions can be significantly reduced at little to no additional up-front cost. There are products and solutions available today that can realize embodied GHG reductions with low to no financial burden. In the future, these costs are only anticipated to decrease, and ultimately result in additional cost savings, as the production of low embodied GHG materials, the practice of conducting a building life cycle assessment, and pursuing building reuse scale up and the cost of low embodied GHG materials goes down as a result of increased practice and demand.

As with many code changes, there is an expected short-term cost associated with an initial learning curve, which requires additional time spent on training and learning about how to implement new compliance requirements. This is expected to decrease over time, as code officials, design and development teams, and product manufacturers and suppliers become more familiar with the requirements and the processes needed to comply.

It is also worth noting that jurisdictions that choose to act on embodied GHG emissions and adopt this voluntary appendix would incur many of these costs anyway; having this code language as a resource will ultimately realize savings on needing to develop code from scratch.

In assessing the impact of this proposal, the costs described below were considered.

Estimated Immediate Cost Impact Justification (methodology and variables):

Costs to Design and Development Teams

- **Impact of product compliance pathway:** Designers and developers specifying and procuring materials covered under the first pathway option can use EPD databases to search for, filter, and compare products with GWP limits that comply with code requirements. Users can download EPD documents for code submission and verification. Building Transparency's Embodied Carbon in Construction Calculator (EC3) is a robust EPD database for construction materials that project teams can use at no cost. Requesting EPDs from manufacturers directly is another option.
- **Impact of building compliance pathway:** For developers and design professionals, option 2, requiring a building lifecycle assessment, would be the costliest path, adding an estimated cost in the range of of $15,000.[5] This cost may vary depending on the number of analyses performed throughout the project timeline, whether a baseline is modeled, and the size and complexity of the project. However, for many of the larger projects that would be subject to this appendix, this cost impact is negligible compared to total project costs. Beyond the direct costs of training and LCA software, professionals may take additional time to prepare documents for code review.
- **Building reuse pathway:** Costs will be minimal or nonexistent. The only analysis required to comply is a calculation of square footage.

Costs to Manufacturers and Suppliers

- **Impact of materials-based and building-level pathways:** Material manufacturers can face costs associated with the production of EPDs. EPDs typically expire after five years, at which point manufacturers must repeat the process. There is an expense associated with generating EPDs, but many manufacturers have already made this investment. The total cost of generating an EPD varies depending on the complexity of manufacturing processes for each material type. However, any product cost increase imposed by the manufacturer to alleviate the cost of EPDs is spread across consumers and negligible to individual project costs.[6]

- **Building reuse pathway:** There are no additional requirements placed on materials manufacturers and suppliers in this pathway.

Costs of Code Enforcement

There is no major fiscal impact on local governments to enforce the regulation: local governments would only need to verify results provided by applicants, in a standardized manner, to ensure compliance with the proposed pathways. Additionally, a study published for CALGreen's 2022 embodied GHG requirements, which includes similar materials-based, building-level, and building reuse pathway requirements as this proposal, determined that there was a minor increase of costs to local governments to review and check plans for compliance with one of the three pathways.[7]

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

ASTM E2921–2022 Standard Practice for Minimum Criteria for Comparing Whole Building Life Cycle Assessments for Use with Building Codes, Standards, and Rating Systems
EN 15804—2022 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
EN 15978—2011 Sustainability of construction works – Assessment of environmental performance of buildings – Calculation method
ISO 14040—2006 Environmental management – Life cycle assessment – Principles and framework
ISO 14044—2006 Environmental management – Life cycle assessment – Requirements and guidelines
ISO 21929-1—2011 Sustainability in building construction – Sustainability indicators – Part 1: Framework for the development of indicators and a core set of indicators for buildings
ISO 21930—2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
ISO 21931-1—2022 Sustainability in buildings and civil engineering works – Framework for methods of assessment of the environmental, social and economic performance of construction works as a basis for sustainability assessment – Part 1: Buildings

G206-25

G207-25

IBC: APPENDIX Q (New), SECTION Q101 (New), Q101.1 (New), SECTION Q102 (New), Q102.1 (New), SECTION 202 (New), SECTION Q103 (New), Q103.1 (New), Q103.2 (New), Q103.3 (New), Q103.4 (New), Q103.4.1 (New), Q103.4.2 (New), Q103.4.3 (New), Q103.5 (New), SECTION Q104 (New), Q104.1 (New), SECTION Q105 (New), Q105.1 (New), Q105.2 (New), Q105.3 (New), Q105.4 (New), Q105.5 (New), Q105.6 (New), SECTION Q106 (New), Q106.1 (New), Q106.2 (New), Q106.3 (New), Q106.4 (New), Q106.5 (New), SECTION Q107 (New), Q107.1 (New), TABLE Q107.1 (New)

Proponents: Bryan Holland, representing National Electrical Manufacturers Association (NEMA) (bryan.holland@nema.org)

2024 International Building Code

Add new text as follows:

APPENDIX Q
CONNECTED BUILDING MANAGEMENT SYSTEMS PROVISIONS

SECTION Q101
GENERAL

Q101.1 Purpose. To provide safe and effective installation and operation of fully integrated and connected building management systems.

SECTION Q102
DEFINITIONS

Q102.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

Add new definition as follows:

CONNECTED BUILDING. A facility equipped with advanced digital technologies to enhance its operational safety and efficiency, energy efficiency, occupant comfort, and environmental sustainability. These technologies include various interconnected systems and devices that are managed through a centralized platform, often utilizing the Internet of Things (IoT), automation, and data analytics.
CONNECTED BUILDING MANAGEMENT SYSTEMS. Equipment that monitors and controls power within an electrical system and may include an energy management system, power control system, automatic load management system, or other building management systems that are connected to the internet and fully integrated.
DATA. Unprocessed values collected from various sensors and devices within a building. These sensors can monitor building and environmental conditions that provide a real-time picture of a building's operational state.

Add new text as follows:

SECTION Q103
CONNECTED BUILDING MANAGEMENT SYSTEMS PERFORMANCE CRITERIA

Q103.1 Referenced standards. Connected building management systems shall comply with all applicable codes and standards.

Q103.2 Installation requirements. Connected building management systems shall comply product’s listing and labeling, the manufacturer’s installation instructions, and the provisions of this appendix.

Q103.3 Systems integration and communication protocols. The connect building management systems shall include the following features:

1. Utility-interactive for demand response functionality and peak load shaving.
2. Ability to facilitate distinct operating modes in accordance with Q103.4.
3. Fault detection and diagnostics (FDD).
4. Full integration with building life safety, fire safety, and emergency systems.
5. Supervision of communication protocols.
6. Cybersecurity and data privacy protocols.

Exception: Fire, life-safety, security, and emergency communication devices and systems shall not be connected to a demand response or peak load shaving controlled circuit.

Q103.4 Connected building management system operating modes. Connected building management system operating mode shall be capable of optimizing the building performance to mitigate other internal and external conditions as established by the building design team and shall comply with Q103.4.1 through Q103.4.3.

Q103.4.1 Operating modes. Connected building management systems shall be capable to be programed with distinct operating modes as follows:

1. During normal operation, all devices, equipment, and systems are fully operational.
2. During emergency operation, all devices, equipment, and systems are monitored and controlled from the fire command center.
3. For indoor pollutant mitigation, the predetermined threshold for the concentration of pollutants in the occupiable space are lowered by increasing the outdoor airflow rate, overriding supply air filter bypass, or adjusting indoor temperature set points.
4. For outdoor pollutant mitigation, the mechanical system suspends outdoor airflow and override supply air filter bypass to maximize return air filtration.
5. For utility demand response and peak load shaving, energy consumption of the building is decreased, as needed, by reducing lighting power, adjusting indoor temperature set points, shifting non-essential operational loads, discharging of energy storage systems, and suspending the charging of energy storage and electrical vehicles.
6. For reduced occupancy, energy consumption of the building is reduced by setting one or more of the following as a default condition capable of being overridden by an occupant:
   - 6.1. Non-emergency lighting is turned off.
   - 6.2. Indoor temperature set points for non-occupancy schedules are held.
   - 6.3. Ventilation rates are adjusted to minimize outdoor air.
   - 6.4. Nonessential plug loads are switched off.
7. In other operating modes, devices, equipment, and systems are operated and controlled in a distinct mode based on environmental conditions or other changes to building occupancy and use.

Q103.4.2 Password protection. All operating modes shall password protection and issue daily notification to the building owner or other designee when the system is in override.

Q103.4.3 Buildng readiness plan. Where facilities are designed to operate in various modes in response to natural or manmade threat to, and exposure of the building, the following shall be documented through an approved Building Readiness Plan (BRP). The BRP shall include the operations and maintenance (O&M) procedures involved in this operating mode, the mechanical equipment affected, final design drawings, critical asset inventory management plan, maintenance schedules, the maintenance requirements, frequencies, and establish a return to normal mode review period.

Q103.5 Maintenance requirements. Connected building management systems shall be maintained in accordance with the referenced standards and commissioned in accordance with Section Q106.

SECTION Q104
CONNECTED BUILDING MANAGEMENT SYSTEM COMPONENTS

Q104.1 General. Connected building management systems shall operate and control devices, equipment, and systems installed in buildings, including but not limited to:

1. Demand responsive lighting controls.
2. Dynamic shading and automatic glazing coverings.
3. Electric vehicle power transfer system equipment.
4. Demand control ventilation.
5. Fault detection and diagnostics (FDD).
6. Energy storage systems (ESS).
7. Onsite interconnected power production sources.

SECTION Q105
SYSTEM INTEGRATION AND COMMUNICATION PROTOCOLS

Q105.1 General. Connected building management systems shall include system integration and communication protocols in accordance with this section.

Q105.2 Directory. A directory identifying the systems, equipment, circuits, or devices that are controlled by the connected building management system shall be posted on the enclosure of the integrated building system controller, disconnecting means, or branch-circuit overcurrent device.

Q105.3 Cybersecurity. Connected building management systems that are connected to a communication network and controlling any device, appliance, or equipment shall be assessed to address its ability to withstand unauthorized updates and malicious attacks while continuing to perform its intended safety functionality set forth by the building owner or owner’s authorized agent.

Q105.4 Privacy. Connected building management systems that are connected to a communication network to store and transmit data shall include protocols for data privacy set forth by the building owner or owner’s authorized agent.

Q105.5 System malfunction. When the connected building management system controls are used to reduce the electrical load on an electrical service or feeder, the connected building management system shall use monitoring and controls to automatically deenergize non-essential systems upon malfunction of the connected building system controls.

Q105.6 Monitoring, alarming, scheduling, and trending. The connected building management system shall monitor the connected systems, receive alarms from connected systems, allow scheduling of connected systems, and store trend data from connected systems. Data collected by the connected building management system shall be backed up and stored on an enterprise server or cloud based.

SECTION Q106
MAINTENANCE INFORMATION AND SYSTEM COMMISSIONING

Q106.1 General. Maintenance information and commissioning of the connected building management systems shall comply with this section.

Q106.2 Building operations and maintenance information. The building operations and maintenance documents shall be provided to the owner and shall consist of manufacturers' information, specifications, and recommendations; programming procedures and data points; narratives; and other means of illustrating to the owner how the building, equipment and systems are intended to be installed, maintained and operated. Required regular maintenance actions for equipment and systems shall be clearly stated on a readily visible label. The label shall include the title or publication number for the operation and maintenance manual for that model and type of product.

Q106.3 Emergency and standby source load testing. Where connected building system control setpoints are bypassed for the required annual load testing for emergency and standby sources in accordance with NFPA 110, NFPA 111, NFPA 70, NFPA 855 or other applicable standard, the system controls shall be returned back to the original commissioned setpoints at the conclusion of the load testing.

Q106.4 Commissioning plan and report. A commissioning plan shall be developed by a registered design professional or approved agency and shall include a narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities, a listing of the specific equipment to be tested and a description of the tests to be performed, equipment functions to be tested, conditions under which the test will be performed, and measurable criteria for performance. A report of test procedures and results identified as "Final Commissioning Report" shall be delivered to the building owner or owner's authorized agent. The report shall include the results of functional performance tests, disposition of deficiencies found during testing, including details of corrective measures used or proposed, and functional performance test procedures used during the commissioning process, including measurable criteria for test acceptance, provided herein for repeatability.

Q106.5 Records. Records shall be created and maintained for all connected building system controls inspections, operational tests, repairs, and modifications. Records shall be made available to the code official upon request. Records shall include the date of the maintenance report, identification of the servicing personnel, notation of any unsatisfactory condition and the corrective action taken, including parts replaced, and testing of any repair in the time recommended by the manufacturer. Records shall be retained for a period of time defined by the building owner, facility management, or by the code official.

SECTION Q107
REFERENCED STANDARDS

Q107.1 General. See Table Q107.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix that reference the standard.

TABLE Q107.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
NFPA 70-23	National Electrical Code	Q106.3
NFPA 110-22	Standard for Emergency and Standby Power Systems	Q106.3
NFPA 111-22	Standard on Stored Electrical Energy Emergency and Standby Power Systems	Q106.3
NFPA 855-23	Standard for the Installation of Stationary Energy Storage Systems	Q106.3

Reason: The purpose of this appendix proposal is to consolidate and integrate isolated devices, equipment, and systems that are required or permitted by the family of I-Codes into a single connected building management system to maximize safety, efficiency and resiliency during the use and occupancy of the building. In addition to installation requirements, the appendix outlines maintenance and commissioning requirements for the connected building management system.

- **Section Q102** provides three new definitions to help users of the appendix understand the meaning and context of these terms.
- **Section Q103** outlines the performance criteria for the connected building management systems. The core requirement is that all devices, equipment, and systems are installed in accordance with their listing and manufacturer's installation instructions. Essential features of the connected building management systems are outlined. Applicable NFPA standards may include but not be limited to NFPA 3, 4, 70, and 72.
- **Section Q104** ensures that other devices, equipment, and systems that are not required, but permitted, to be installed in buildings are integrated into the connected building management systems.
- **Section Q105** outlines system integration and communication protocols to address cybersecurity, data privacy and system malfunction concerns.
- **Section Q106** outlines the system maintenance information and commissioning requirements to ensure the connected building management systems was properly installed, fully operational, and will continue to function as designed for the life of the building.

Cost Impact: Increase

Estimated Immediate Cost Impact:

As an appendix, the impact cost will be $0 since it is only optional unless adopted by the jurisdiction having authority. This proposed appendix will increase the cost of construction for those projects that elect to implement the safe and effective installation and operation of fully integrated and connected building management systems in compliance with this appendix. The additional costs may be offset by energy savings, more efficient operations, increased productivity, and reduced operational downtime.

Estimated Immediate Cost Impact Justification (methodology and variables):

Unknown - No Cost Impact Justification Study Performed

Staff Analysis: The proposed referenced standard, NFPA 855-23 Standard for the Installation of Stationary Energy Storage Systems, is currently referenced in the IFC.

G207-25

G208-25

IBC: [BS] 3301.3, 3301.3.1 (New), 3301.3.2 (New); IEBC: [BS] 1501.3, 1501.3.1 (New), 1501.3.2 (New)

Proponents: Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Seth Thomas, KPFF Consulting Engineers, representing Self (seth.thomas@kpff.com); Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BS] 3301.3 ~~Roof loads~~ Loads during construction. ~~Structural roof components shall be capable of supporting the roof-covering system and the material and equipment *loads* that will be encountered during installation of the system.~~Structural loads and lateral force resisting strength during construction shall comply with sections 3301.3.1 and 3301.3.2.

Add new text as follows:

3301.3.1 Roof loads. Structural roof components shall be capable of supporting the roof-covering system and the material and equipment loads that will be encountered during installation of the system.

3301.3.2 Buildings occupied during construction. Existing buildings that remain occupied during construction shall comply with the following:

1. Gravity load supporting capacity of existing structural system shall not be reduced from their pre-construction state, unless such systems are shown to comply with the gravity loads required by the IBC for the use and occupancy during construction.
2. The lateral force resisting strength of any story in any given direction shall not be reduced by more than 10% from its pre-construction state.

Temporary or permanent measures shall be permitted to augment the strength and stiffness of the gravity or lateral system in order to comply with this section. Modification of the lateral force resisting system shall not create a Type 1 or 4 Horizontal or Type 1, 3 or 4 Vertical structural irregularity as defined in ASCE 7. Where approved by the authority having jurisdication, the duration of construction shall be permitted to be considered in evaluating element lateral forces.

2024 International Existing Building Code

Revise as follows:

[BS] 1501.3 ~~Roof loads~~ Loads during construction. ~~Structural roof components shall be capable of supporting the roof-covering system and the material and equipment loads that will be encountered during installation of the system.~~Structural loads and lateral force resisting strength during construction shall comply with sections 1501.3.1 and 1501.3.2.

Add new text as follows:

1501.3.1 Roof loads. Structural roof components shall be capable of supporting the roof-covering system and the material and equipment loads that will be encountered during installation of the system.

1501.3.2 Buildings occupied during construction. Existing buildings that remain occupied during construction shall comply with the following:

1. Gravity load supporting capacity of existing structural system shall not be reduced from their pre-construction state, unless such systems are shown to comply with the gravity loads required by the *International Building Code* for the use and occupancy during construction.
2. The lateral force resisting strength of any story in any given direction shall not be reduced by more than 10% from its pre-construction state.

Temporary or permanent measures shall be permitted to augment the strength and stiffness of the gravity or lateral system in order to comply with this section. Modification of the Lateral force resisting system shall not create a Type 1 or 4 Horizontal or Type 1, 3 or 4 Vertical structural irregularity as defined in ASCE 7. Where approved by the authority having jurisdiction, the duration of construction shall be permitted to be considered in evaluating element lateral forces.

Reason: Currently the IEBC provides no regulations on the requirements for modification of the lateral force resisting system (LFRS) during construction. Some AHJ's do have requirements for occupied buildings (e.g. City of Portland, Oregon). For certain types of buildings (Hospitals, airports, etc.) portions of these structures often remain occupied during construction. When the construction project (seismic upgrade or other) within a publicly occupied building modifies the LFRS it is important to maintain a minimum amount of resistance to gravity loads and possible environmental loads to protect the occupants. Often seismic upgrades or renovations will modify shear walls or move braces around occupied space, sometimes these construction activities take days (i.e. swapping out a brace) and some times the moves take weeks or months. This proposal aims to strike a balance between providing a minimum level of structural requirements to protect the public occupants while providing flexibility for construction projects.

The provisions specifically allow for temporary measures to be used to meet the requirements of this section. This could be a temporary header when a floor opening is being added or a temporary wall or brace to augment the LFRS so that the 10% threshold is not exceeded.

In addition to the requirement not to reduce the lateral strength by more than 10 percent there is a restriction on creating certain types of new structural irregularities. Irregularities are selected that are often triggered by modification of the lateral force resting system that increase the collapse hazard of the building. The irregularities selected are as follows;

- Type 1 horizontal irregularity: This could happen by removing a wall near the edge of a building and replacing it with a wall near the center. While the lateral strength of the story is not changed the different location can trigger a torsional irregularity which increases the collapse hazard of the building, specifically the new strength portion of the check introduced in ASCE 7-22.
- Type 4 horizontal irregularity: The condition could be created by moving a brace from one bay to another which creates a horizontal load transfer through a diaphragm that is not designed for these loads.
- Type 1 Vertical Stiffness Irregularity: This condition could be triggered by inadvertently by adding or subtracting too much temporary or permanent LFRS elements to an adjacent floor. The base provision only restricts removal of 10% of the story strength, this limit restricts the change in adjacent stiffness.
- Type 3 Vertical Irregularity: This could happen if a larger opening is put in an existing wall. While a new wall could replace the strength of the wall at that level, if the new opening triggers a Type 3 vertical irregularity for the pier/column element below and that element is not designed or detailed as required a dangerous condition is created.
- Type 4 Vertical Strength Irregularity: This condition could be triggered by inadvertently adding or subtracting to much temporary or permanent LFRS elements to an adjacent floor. The base provision only restricts removal of 10% of the story strength, this limit restricts adding too much strength to a floor above.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Ensuring structural safety of buildings that remain occupied during construction of renovation work is generally required by code and should be enforced by AHJ as part of renovation or demolition permitting. The added text is simply a clarification and standardization of standard of practice requirements.

G208-25

G209-25

IBC: [F] TABLE 509.1

Proponents: Greg Johnson, Johnson & Associates Consulting Services, representing self (gjohnsonconsulting@gmail.com); Robert Buchetto, HED, representing Self (rbuchetto@hed.design); Jay Peters, representing Codes and Standards International (peters.jay@me.com)

2024 International Building Code

Revise as follows:

[F] TABLE 509.1 INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Electrical installations and transformers	See Sections 110.26 through 110.34 and Sections 450.8 through 450.48 of NFPA 70 for protection and separation requirements.
In Group D, rooms with lithium-ion or lithium metal batteries	2 hours

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

Reason: Data centers are unique occupancies and merit their own occupancy classification, as is proposed in a companion change. It is typical in the data center industry for energy storage systems using lithium batteries to be separated by 2 hour fire separations from the data hall and accessory office spaces.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

What is proposed is consistent with current industry practices and should create no additional expense.

Staff Analysis: Provisions for the separtation of rooms containig lithium-ion and lithium metal batteries was added in the 2024 IFC Section 320.4.2.2 by F21-21; and relocated to a new Chapter 42 by F230-24.

G209-25

G210-25

IBC: SECTION 429 (New), 429.1 (New), 429.2 (New), 429.3 (New), 429.3.1 (New), 429.4 (New), 429.5 (New), NFPA Chapter 35 (New), NEMA (New), 2702.2.20 (New); IFC: 1203.2.20 (New)

Proponents: Bryan Holland, representing National Electrical Manufacturers Association (NEMA) (bryan.holland@nema.org)

2024 International Building Code

Add new text as follows:

SECTION 429
DATA CENTERS AND COMPUTER ROOMS

429.1 Applicability. The provisions of Sections 429.1 through 429.5 shall apply to all buildings and structures or parts of buildings and structures that contain data centers or computer rooms.

429.2 Power and lighting systems. Power and lighting equipment and systems installed for data centers and computer rooms shall comply with NEMA XX.

429.3 Standby power. Equipment and systems installed for data centers and computer rooms shall be provided with standby power installed in accordance with Section 1203 of the International Fire Code and Article 701 of NFPA 70. Standby power loads shall be supplied by an electrical energy storage system (ESS) installed in accordance with Section 1207 of the International Fire Code, NFPA 855, and Article 706 of NFPA 70.

429.3.1 Capacity and duration. The standby power supply shall be capable of operating the equipment and systems installed for data centers and computers rooms at 100-percent system capacity for a duration of not less than 12 hours.

429.4 Emergency power. Emergency power shall be provided for data centers and computers rooms in accordance with Section 2702 of this code, Section 1203 of the *International Fire Code*, and Article 700 of NFPA 70.

429.5 Surge protection. All services or feeders supplying data centers and computer rooms shall be provided with surge protection installed in accordance with Article 242 of NFPA 70.

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

855-23	Standard for the Installation of Stationary Energy Storage Systems

NEMA

National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Arlington, VA 22209

xx-xx	Standard for Electrical Equipment in Data Centers and Computer Rooms

Add new text as follows:

2702.2.20 Data Centers and Computer Rooms. Emergency and standby power shall be provided for data centers and computer rooms as required in Section 429 of the *International Buidling Code.*

2024 International Fire Code

Add new text as follows:

1203.2.20 Data Centers and Computer Rooms. Emergency and standby power shall be provided for data centers and computer rooms as required in Section 429 of the*International Buidling Code.*

Reason: Data centers and computers rooms have and are rapidly becoming critical infrastructure requiring reliable power systems with sufficient standby and emergency power, resilient to transient energy from overvoltage and surge currents. NEMA is currently developing a standard for data center power and lighting equipment and systems that will be published in time for the 2026 Public Comment Hearings or potentially ahead of the 2025 Group B CAH #2. Additionally, this proposal adds essential power reliability by mandating standby power for the equipment and systems installed for data centers and computer rooms along with emergency power for life safety and fire responder operations. Surge protection will also be required for all services and feeders installed for the normal, standby, and emergency equipment and systems. The combination of standby power, emergency power, and surge protection will ensure data centers and computer rooms will remain energized during normal power outages and will not be damaged from transient surges.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal will increase the cost of construction of data centers and computer rooms by requiring compliance with requirements outlined in Sections 429 and 2702.2.20. However, the increased costs at time of construction will be offset operational savings achieved by reduced downtime, increased productivity, and protection against data loss and equipment damage. This return on investment will vary depending on project scale and scope.
For example, a small computer room with a single network terminal may only require the installation of a single surge-protective device and a UPS for standby power backup, whereas a 50k square foot standalone data center with thousands of network terminals may require extensive electrical infrastructure to meet the proposed requirements in Sections 429 and 2702.2.20.
Actual costs in dollars could be as low as $500 in the first example above to more than $100k in electrical upgrades in the second example above.

Estimated Immediate Cost Impact Justification (methodology and variables):

Unknown - No Cost Impact Justification Study Performed. NEMA’s proposals are developed by a member consensus process where both our bylaws and federal regulations prohibit us from discussing prices, cost, and other financial details of electrical products.
The best we can offer is a statement that we acknowledge the proposed requirements will indeed increase the cost of construction dependent on the scale and scope of the project, but that we also believe these initial costs will be offset by operational savings achieved by reduced downtime, increased productivity, and protection against data loss and equipment damage, as stated in our proposal.

Staff Analysis: The proposed referenced standard, NFPA 855-23 Standard for the Installation of Stationary Energy Storage Systems, is currently referenced in the IFC.

A review of the standard proposed for inclusion in the code, NEMA XX-XX *Standard for Electrical Equipment in Data Centers and Computer Rooms,* with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

G210-25

2025 GROUP B – PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE - STRUCTURAL

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American Wood Council
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TENTATIVE ORDER OF DISCUSSION
2025 PROPOSED CHANGES TO THE
INTERNATIONAL BUILDING CODE – STRUCTURAL

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some S code change proposals may not be included on this list, as they are being heard by another committee.

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S1-25 Part I

IBC: 1502.4 (New)

Proponents: Emily Lorenz, representing International Institute of Building Enclosure Consultants (IIBEC) (emilyblorenz@gmail.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new text as follows:

1502.4 Drainage of other surfaces. Where balconies, decks, landings, exterior stairways, and similar surfaces exposed to the weather have an impervious layer, the impervious layer shall be sloped to provide positive drainage away from the structure.

S1-25 Part I

S1-25 Part II

IRC: R507.1.1 (New), R903.5 (New)

Proponents: Emily Lorenz, representing International Institute of Building Enclosure Consultants (IIBEC) (emilyblorenz@gmail.com)

2024 International Residential Code

Add new text as follows:

R507.1.1 Impervious layers. Decks with impervious layers shall comply with Section R903.5 for drainage.

R903.5 Drainage of other surfaces. Where balconies, decks, landings, exterior stairways, and similar surfaces exposed to the weather have an impervious layer, the impervious layer shall be sloped to provide positive drainage away from the structure.

Reason: The purpose of this proposal is to ensure life-safety of users of balconies in cold climates, and to promote bulk water flow away from exterior walls or assemblies that adjoin balconies, so that ponding does not occur.

Proper drainage on balconies, decks, etc., is an important performance requirement to aid in draining liquid water away from the building. In cold climates, any ponding that may occur could potentially freeze, causing a safety issue.

Section 1402.3 of the 1997 Uniform Building Code (UBC) is what most waterproofing consultants considered the gold standard for ensuring that architects and builders constructed balcony and stairways with a minimum of 2% slope. The 2% slope requirement referenced in the Section 1402.3 of the 1997 UBC does not exist at any location within any version of IBC from 2000 through 2024. Decks were also listed as an area that should be waterproofed and sloped.During the transition from the UBC to the IBC, this valuable and useful reference to require a minimum 2% surface slope for balconies, landings, and exterior stairways was omitted from the IBC and IRC. There are no referenced statements or definitions anywhere in the current codes on this issue.

This proposal adds modified code language from the 1997 UBC Chapter 14 under the roof drainage sections of IBC Chapter 15 (1502) and IRC Chapter 9 (R903.4). Section 1402.3 of the 1997 Uniform Building Code (UBC) stated:

"1402.3 Waterproofing Weather-exposed Areas. Balconies, landings, exterior stairways, occupied roofs, and similar surfaces exposed to the weather and sealed underneath shall be waterproofed and sloped a minimum of 1/4 unit vertical in 12 units horizontal (2% slope) for drainage."

Additionally, 2024 IBC Section 2304.12.2.4 states, “Wood structural members that support moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, shall be of naturally durable or preservative-treated wood unless separated from such floors or roofs by an impervious moisture barrier. The impervious moisture barrier systems protecting the structure supporting floors shall provide positive drainage of water that infiltrates the moisture-permeable floor topping.” This proposal supports providing drainage required by Section 2304.12.2.4.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proper slope of decks and other surfaces may be accommodated in most situations with no additional materials nor labor.

S1-25 Part II

S2-25

IBC: SECTION 1503, 1503.1, 1503.2

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

SECTION 1503
WEATHER PROTECTION

1503.1 General. *Roof decks* shall be covered with *approved roof coverings* secured to the *building* or *structure* in accordance with the provisions of this chapter. *Roof coverings* shall be designed in accordance with this code, and installed in accordance with this code and the manufacturer's *approved* instructions.

Revise as follows:

1503.2 Flashing. Flashing shall be designed in accordance with this code and installed in accordance with the *roof covering* manufacturer's approved instructions in such a manner so as to prevent water from entering the wall and roof through joints in copings, through moisture-permeable materials and at intersections with *parapet walls* and other penetrations through the roof plane.

Reason: This proposed code change is intended to clarify the code's requirements regarding to roofing-related flashings by making it clear roofing-reated flashing design and installation need to be according to the roof covering manufacturer's instructions. The previous section, Section 1503.1, already provides a similar requirement for the roof covering itself. Since roofing-related flashings are integral to, but not necessarily always considered a part of the roof covering ("roof covering" is specifically defined in Section 202), this added clarification is appropriate,

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposed change is clarifying in nature and will not increase or decrease the cost of construction. See reason statement.

S2-25

S3-25 Part I

IBC: 1503.2, 1503.2.1

Proponents: John Taecker, Taecker Codes & Technical Services, representing Taecker Codes & Technical Services (john@taeckercodes.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1503.2 Flashing. Flashing shall be installed in such a manner so as to prevent water from entering the wall and roof through joints in copings, through moisture-permeable materials and at intersections with *parapet walls*, *rooftop structures* and other penetrations through the roof plane.

1503.2.1 Locations. Flashing shall be installed at wall and roof intersections, at gutters, at *rooftop structures*, wherever there is a change in roof slope or direction and around roof openings. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than 0.019 inch (0.483 mm) (No. 26 galvanized sheet).

S3-25 Part I

S3-25 Part II

IBC: 1511.1.3 (New)

Proponents: John Taecker, Taecker Codes & Technical Services, representing Taecker Codes & Technical Services (john@taeckercodes.com)

2024 International Building Code

Add new text as follows:

1511.1.3 Flashing. Flashing shall be installed at *rooftop structures* in accordance with Section 1503.2 and 1503.2.1.

Reason: The general flashing requirements in Section 1503.2 and 1503.2.1 do not include flashing for rooftop structures. There are no flashing requirements, other than for lightning protection systems, in Section 1511. Flashing should also be required for any rooftop structure.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Good construction practices would include appropriate flashing for rooftop structures, so the increase has the potential to be minimal. There may be an increase for those installers who have not done this practice.

S3-25 Part II

S4-25 Part I

IBC: 1503.2.1 (New), UL Chapter 35 (New)

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing NASFM (phil@browning.red)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new text as follows:

1503.2.1 Attachment of photovoltaic (PV) panel systems. Flashing shall be installed in a manner that prevents water from entering the roof at attachment points for rooftop-mounted *photovoltaic (PV) panel systems* in accordance with one of the following:

1. The roof covering manufacturer's instructions.
2. A metallic or nonmetallic flashing material or system that is *listed* and *labeled* in accordance with UL 2703A and installed in accordance with the flashing manufacturer's installation instructions.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

2703A-2022	Outline of Investigation for Flashing Devices and Systems for Rooftop-Mounted Photovoltaics

S4-25 Part I

S4-25 Part II

IRC: R903.2.3 (New), UL Chapter 44 (New)

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing NASFM (phil@browning.red)

2024 International Residential Code

Add new text as follows:

R903.2.3 Photovoltaic (PV) panel systems. Flashing shall be installed in a manner that prevents moisture from entering the roof at attachment points for rooftop-mounted *photovoltaic (PV) panel systems* in accordance with one of the following:

1. The roof covering manufacturer's instructions.
2. A metallic or nonmetallic flashing material or system that is *listed* and *labeled* in accordance with UL 2703A and installed in accordance with the flashing manufacturer's installation instructions.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

2703A-2022	Outline of Investigation for Flashing Devices and Systems for Rooftop-Mounted Photovoltaics

Reason: While flashing is required for roofing in IBC 1503.2 and IRC R903.2 , this section is silent on specific requirements for rooftop-mounted photovoltaic (PV) panel systems. This proposal clarifies that flashing or weathersealing of rooftop attachments for PV systems can be metallic or nonmetallic, and provides a method for evaluating these alternative methods.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal will not increase or decrease the cost of construction This proposal does not change cost of construction. It provides clarity, as well as additional alternative methods. This provides an additional option for construction.

Staff Analysis: A review of the standard proposed for inclusion in the code, UL 2703A-2022 Outline of Investigation for Flashing Devices and Systems for Rooftop-Mounted Photovoltaics, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S4-25 Part II

S5-25 Part I

IBC: 1504.2 (New), 1504.2, TABLE 1504.2, 1504.2.2 (New), 1504.2.2.1 (New), 1504.2.2.2 (New), 1504.4.3, 1504.4.4, 1507.2.5, 1507.16.8, UL Chapter 35 (New)

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new text as follows:

1504.2 Wind resistance of asphalt shingles, hip shingles, and ridge shingles. Wind resistance of asphalt shingles shall be in accordance with Section 1504.2.1. Wind resistance of hip and ridge shingles shall be in accordance with Section 1504.2.2.

Revise as follows:

~~1504.2~~ 1504.2.1 Wind resistance of asphalt shingles. Asphalt shingles shall be tested in accordance with ASTM D7158. Asphalt shingles shall meet the classification requirements of Table ~~1504.2~~ 1504.2.1 for the appropriate maximum *basic wind speed*. Asphalt shingle packaging shall bear a *label* to indicate compliance with ASTM D7158 and the required classification in Table ~~1504.2~~ 1504.2.1.

Exception: Asphalt shingles not included in the scope of ASTM D7158 shall be tested and *labeled* in accordance with ASTM D3161. Asphalt shingle packaging shall bear a *label* to indicate compliance with ASTM D3161 and the required classification in Table ~~1504.2~~ 1504.2.1.

TABLE ~~1504.2~~ 1504.2.1 CLASSIFICATION OF STEEP SLOPE ROOF SHINGLES TESTED IN ACCORDANCE WITH ASTM D3161 OR D7158

MAXIMUM BASIC WIND SPEED, *V*, FROM FIGURES 1609.3(1)– (4) OR ASCE 7(mph)	MAXIMUM ALLOWABLE STRESS DESIGN WIND SPEED, V_{asd}, FROM Table 1609.3.1 (mph)	ASTM D7158 [a] CLASSIFICATION	ASTM D3161 or UL 7103 CLASSIFICATION
110	85	D, G or H	A, D or F
116	90	D, G or H	A, D or F
129	100	G or H	A, D or F
142	110	G or H	F
155	120	G or H	F
168	130	H	F
181	140	H	F
194	150	H	F

For SI: 1 foot = 304.8 mm, 1 mph = 0.447 m/s.

a. The standard calculations contained in ASTM D7158 assume Exposure Category B or C and building height of 60 feet or less. Additional calculations are required for conditions outside of these assumptions.

Add new text as follows:

1504.2.2 Wind resistance of hip and ridge shingles. Hip and ridge shingles shall comply with Section 1504.2.2.1 or 1504.2.2.2.

1504.2.2.1 Testing of hip and ridge shingles. Hip and ridge shingles shall be tested and classified in accordance with the wind test requirements in UL 2375 modified to use a wind speed of 110 mph (177 km/hr). Hip and ridge shingle packaging shall bear a *label* to indicate compliance with the modified version of UL 2375.

1504.2.2.2 Prescriptive alternative for attaching hip and ridge shingles. Prior to installing each hip or ridge shingle, two minimum 1-inch diameter spots of roof cement complying with ASTM D3019 or ASTM D4586 shall be placed on each side of the hip or ridge. The spots shall be placed near the leading edge and fully covered by the exposed portion of the hip or ridge shingle. Each hip or ridge shingle shall be fastened in accordance with the hip or ridge shingle manufacturer's installation instructions.

Revise as follows:

1504.4.3 Metal roof shingles. *Metal roof shingles* applied to a solid or closely fitted deck shall be tested in accordance with ASTM D3161, FM 4474, UL 580 or UL 1897. *Metal roof shingles* tested in accordance with ASTM D3161 shall meet the classification requirements of Table ~~1504.2~~ 1504.2.1 for the appropriate maximum *basic wind speed* and the metal shingle packaging shall bear a *label* to indicate compliance with ASTM D3161 and the required classification in Table ~~1504.2~~ 1504.2.1.

1504.4.4 Slate shingles. Slate shingles shall be tested in accordance with ASTM D3161. Slate packaging shall bear a *label* indicating compliance with ASTM D3161 and the required classification in Table ~~1504.2~~ 1504.2.1.

1507.2.5 Fasteners. Fasteners for asphalt shingles, including hip and ridge shingles, shall be galvanized, stainless steel, aluminum or copper roofing nails, minimum 12-gage [0.105 inch (2.67 mm)] shank with a minimum $^3/_8$-inch-diameter (9.5 mm) head, complying with ASTM F1667, of a length to penetrate through the roofing materials and not less than $^3/_4$ inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than $^3/_4$ inch (19.1 mm) thick, the nails shall penetrate through the sheathing. ~~Fasteners shall comply with ASTM F1667.~~

1507.16.8 Wind resistance. BIPV shingles shall comply with the classification requirements of Table 1504.2.1 for the appropriate maximum *basic wind speed* .

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

2375-2006	Outline for Hip and Ridge Shingles

S5-25 Part I

S5-25 Part II

IRC: R905.2.4.2 (New), R905.2.4.2.1 (New), R905.2.4.2.2 (New), R905.2.5, UL Chapter 44 (New)

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Add new text as follows:

R905.2.4.2 **Wind resistance of hip and ridge shingles.** Hip and ridge shingles shall comply with Section R905.2.4.2.1 or R905.2.4.2.2.

R905.2.4.2.1 **Testing of hip and ridge shingles.** Hip and ridge shingles shall be tested and classified in accordance with the wind test requirements in UL 2375 modified to use a wind speed of 110 mph (177 km/hr). Hip and ridge shingle packaging shall bear a *label* to indicate compliance with the modified version of UL 2375.

R905.2.4.2.2 **Prescriptive alternative for attaching hip and ridge shingles.** Prior to installing each hip or ridge shingle, two minimum 1-inch diameter spots of roof cement complying with ASTM D3019 or ASTM D4586 shall be placed on each side of the hip or ridge. The spots shall be placed near the leading edge and fully covered by the exposed portion of the hip or ridge shingle. Each hip or ridge shingle shall be fastened in accordance with the hip or ridge shingle manufacturer's installation instructions.

Revise as follows:

R905.2.5 Fasteners. Fasteners for asphalt shingles, including hip and ridge shingles, shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12-gage [0.105 inch (3 mm)] shank with a minimum $^3/_8$-inch-diameter (9.5 mm) head, complying with ASTM F1667, of a length to penetrate through the roofing materials and not less than $^3/_4$ inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than $^3/_4$ inch (19.1 mm) thick, the fasteners shall penetrate through the sheathing.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

2375-2006	Outline for Hip and Ridge Shingles

Reason: Areas of roofing systems where wind flow is diverted, such as at hips and ridges, may generate larger uplift pressures, making the products installed in these areas more vulnerable to damage in windstorms. Post-storm investigations conducted by the Federal Emergency Management Agency and other stakeholders document the vulnerability of these transition areas. Although post-storm investigations do not identify specific causes for damage to hip and ridge shingles during wind events, the associated observations that products are sometimes damaged in these areas is a reason to consider improved testing or installation options to reduce the likelihood of damage.

This proposal adds a new requirement that hip and ridge shingles used on asphalt shingle roofs either demonstrate compliance to a third-party test that evaluates wind resistance, or be installed using a prescriptive method designed to increase resistance to uplift in wind events. Also, it clarifies that fasteners used to install hip and ridge shingles are to comply with the existing asphalt shingle fastener requirements, and makes an editorial change in the IBC to position the reference to ASTM F1667 with the other fastener requirements instead of as a stand-alone sentence.

UL 2375 is a fan-induced wind resistance test which is modified from ASTM D3161 specifically for testing hip and ridge shingles. Decks are constructed to simulate a roof ridge, and tests are conducted in two orientations (i.e., with fan-induced wind perpendicular or parallel to the ridge). Like ASTM D3161, UL 2375 is conducted at a fixed wind speed for two hours. As written, UL 2375 is performed at 60 mph. Therefore, the proposal modifies the wind test speed to 110 mph to align with the Class F designation associated with ASTM D3161.

In the IBC, renumbering of Table 1504.2 to 1504.2.1 is addressed in all sections which currently reference the table.

Cost Impact: Increase

Estimated Immediate Cost Impact:

A best-case scenario would result in $0 cost impact to the consumer. This would occur if the installer (in the case of the prescriptive option) or the manufacturer (in the case of the testing option) elects not to pass any cost increase along.

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal introduces new requirements applicable to hip and ridge shingles. The two compliance options may both increase cost of construction, since there will be a cost associated with either conducting the UL 2375 test and managing associated labeling or with the use of roof cement for the prescriptive installation method. However, the actual cost experienced by the consumer is directly related to unknown future behavior of the product manufacturer (in the case of the testing option) and the installer (in the case of the prescriptive option).

Estimate of Material Costs for Prescriptive Installation:

Material cost for the prescriptive installation option may be estimated as follows:

- Assume a roof cement cost of approximately $5 per 10.1 oz. tube (example, based on online search for ASTM D4586 roof cement).
- Assume four spots per shingle of exactly a one-inch diameter and exactly 1/8 inch thickness.
- Assume hip or ridge shingle exposure of five inches, which requires 2.4 shingles per linear foot.
- Estimated volume of roof cement per shingle is 0.5 in. x 0.5 in. x 3.14 x 0.125 in. x 4 spots/shingle, which calculates to 0.3925 cu.in. per shingle.
- Estimated volume of roof cement per linear foot of hip or ridge is 0.3925 cu.in. x 2.4 shingles per linear foot, which calculates as 0.942 cu.in. per linear foot.
- Estimated cost per cubic inch of sealant is $5 per 10.1-ounce tube ÷ 18.23 cu.in. per 10.1 ounces, which calculates as $0.274 per cu.in.
- Estimated cost per linear foot is 0.942 cu.in./linear foot x $0.274 per cu in., which calculates as $0.26 per linear foot.

There may be additional labor costs for this prescriptive installation, but those are not estimated.

Costs Associated with Testing Option:

Two costs are applicable—the cost of obtaining an initial listing and the cost of maintaining that listing. In many cases, hip and ridge products may already have the appropriate listing in place so there will be no additional cost for this option if this proposal is accepted. In cases where a listing does not exist, some additional cost will be incurred, but it is unknown whether those costs will be passed to the consumer.

Staff Analysis: A review of the standard proposed for inclusion in the code, UL 2375-2006 Outline for Hip and Ridge Shingles, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S5-25 Part II

S6-25

IBC: 1504.2, TABLE 1504.2

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

1504.2 Wind resistance of asphalt shingles. Asphalt shingles shall be tested in accordance with ASTM D7158. Asphalt shingles shall meet the classification requirements of Table 1504.2 for the appropriate maximum *basic wind speed*. Asphalt shingle packaging shall bear a *label* to indicate compliance with ASTM D7158 and the required classification in Table 1504.2.

Exception: Asphalt shingles not included in the scope of ASTM D7158 shall be tested and *labeled* in accordance with ASTM D3161. Asphalt shingle packaging shall bear a *label* to indicate compliance with ASTM D3161 and the required classification in Table 1504.2.

Revise as follows:

TABLE 1504.2 CLASSIFICATION OF STEEP SLOPE ROOF SHINGLES TESTED IN ACCORDANCE WITH ASTM D3161 OR D7158

MAXIMUM BASIC WIND SPEED, *V*, FROM FIGURES 1609.3(1)– (4) OR ASCE 7(mph)	MAXIMUM ALLOWABLE STRESS DESIGN WIND SPEED, V_{asd}, FROM Table 1609.3.1 (mph)	ASTM D7158 [a] CLASSIFICATION	ASTM D3161 or UL 7103 CLASSIFICATION
110	85	D, G or H	~~A,~~ D or F
116	90	D, G or H	~~A,~~ D or F
129	100	G or H	~~A, D or~~ F
142	110	G or H	F
155	120	G or H	~~F~~ Not permitted
168	130	H	~~F~~ Not permitted
181	140	H	~~F~~ Not permitted
194	150	H	~~F~~ Not permitted

For SI: 1 foot = 304.8 mm, 1 mph = 0.447 m/s.

a. The standard calculations contained in ASTM D7158 assume Exposure Category B or C and building height of 60 feet or less. Additional calculations are required for conditions outside of these assumptions.

Reason: This proposed code change is intended to correlate maximum allowable wind speeds with the applicable test method's resistances to wind velocities.

ASTM D3161 provides for three classes, as follows:

- Class A--Pass at a test velocity of 60 mph
- Class D--Pass at a test velocity of 90 mph
- Class F--Pass at a test velocity of 110 mph

A copy of ASTM D3161-20, which is referenced in Chapter 35, is attached for reference. The classifications appear in ASTM D3161's Section 4-Classes of Steep Slope Roofing Proeducts.

IBC 2024's Table 1504.2 currently permits shingle-type roof coverings to be used at wind speeds higher than their ASTM D3161 tested classifications. This proposed code changes revises the allowable classifications in the table's ASTM D3161 column to properly correlate with tested the maximum ASD wind speed (V_{asd}).

IBC 2024 Table 1504.2's ASTM D7158 column classifications already properly correlate with ASTM D7158, so no changes are needed in this particular column.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

For asphalt shingles with self-seal strips, while this proposed code change will limit use of allowable wind resistance classifications based on the ASTM D3161 test method, other permissable classifications are already in-place using the ASTM D7158 test method addressing higher wind speeds.

Table 1504.2's ASTM D3161 or UL 7103 Classification column also applies to metal roof shingles (Section 1504.4.3), slate shingles (Section 1504.4.4) and BIPV shingles (Section 1507.16.6). While properly correlating the table with ASTM D3161's classifications will no longer permit use of these particular roof coverings in areas having a maximum basic wind speed, *V*, above 142 mph, or a maxmium allowable ASD wind speed, V_{asd}, above 110 mph, alterantive roof covering types are available at equal or lower costs. Therefore, there is no impact on the cost of construction resulting form this code change proposal.

S6-25

S7-25

IBC: 1504.4.1, SPRI Chapter 35 (New)

Proponents: Amanda Hickman, The Hickman Group, representing Single-Ply Roofing Industry (SPRI) (amanda@thehickmangroup.com)

2024 International Building Code

Revise as follows:

1504.4.1 Other roof systems. Built-up, modified bitumen, ~~fully adhered or mechanically attached~~ single-ply roof systems, metal panel roof systems applied to a solid or closely fitted deck and other types of membrane *roof coverings* shall be tested in accordance with FM 4474, UL 580 or UL 1897 and shall be bonded or mechanically attached in accordance with tested configurations that meet the requirements of this section and ANSI/SPRI WD-1. The wind uplift resistance for base sheets, insulation and membrane shall be as determined by the test methods in accordance with FM 4474, UL 580 or UL 1897.

Add new standard(s) as follows:

SPRI

Single-Ply Roofing Industry
465 Waverly Oaks Road, Suite 421
Waltham, MA 02452

ANSI/SPRI WD-1 2025 Wind Design Standard Procedure for Roofing Assemblies

Reason: The current code requirements for wind design uplift lack the specificity and rigor needed to address the vulnerabilities of roofing assemblies. The generalized guidelines in the IBC often fall short when it comes to the demands of critical roof zones—field, perimeter, and corner (Zone 1', Zone1, Zone 2, Zone 3)—leaving gaps in installation to enforce assurance of performance. This lack of requirement can result in underperforming roof assemblies, especially in high wind events, presenting significant risks to building occupants and long-term asset protection.

Incorporating ANSI/SPRI WD-1 into the building code offers a much-needed solution to these limitations. This standard provides a mathematically engineered methodology specifically for roofing systems, ensuring compliance with wind design uplift as referenced in performance requirements of the code. Unlike the generalized guidelines in the IBC, ANSI/SPRI WD-1 delivers actionable guidance, empowering designers to achieve a greater reliability on occupancy's safety and roof assembly performance.

The standard also integrates robust testing protocols, such as FM 4474, UL 580 and UL 1897, that directly evaluate the wind uplift resistance of roofing assemblies. These protocols ensure that tested assemblies are not only compliant with the building code but also proven to perform. Furthermore, ANSI/SPRI WD-1 offering clear instructions for optimizing wind performance in the most vulnerable roof areas.

By requiring compliance with ANSI/SPRI WD-1, the building codes can bridge the gap between missing requirements and the level of safety for occupants and performance demanded by today's roofing challenges. This standard provides the clarity and precision needed to protect lives, reduce property damage, and ensure resilience in the face of increasingly severe wind events.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Although this code change mandates compliance with ANSI/SPRI WD-1, implementing this methodology will not result in additional costs. The reason compliance with ANSI/SPRI WD-1 will not lead to increased costs lies in the methodology's integration with standard construction practices and materials already in use. ANSI/SPRI WD-1 provides a set of guidelines and calculations for wind design of low-slope roofing systems, which aligns with industry norms. Since most contractors and designers are already familiar with these practices and materials required for compliance, there is no significant deviation from current procedures that would drive up costs. Additionally, the tools and resources needed to implement this standard are readily accessible, minimizing any additional investment.

Staff Analysis: A review of the standard proposed for inclusion in the code, ANSI/SPRI WD-1 2025 Wind Design Standard Procedure for Roofing Assemblies, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

CC # S7-25 and CC # S8-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S7-25

S8-25

IBC: 1504.4.1, 1504.4.1 (New), 1504.4.1.1 (New), 1504.4.1.2 (New), 1504.4.1.2.1 (New), 1504.4.1.2.2 (New), MCA (New)

Proponents: Robert A. Zabcik, Z-tech Consulting LLC, representing Metal Construction Association (bob@ztech-consulting.com)

2024 International Building Code

Revise as follows:

~~1504.4.1~~1504.4.5 Other roof systems. Built-up, modified bitumen, fully adhered or mechanically attached single-ply roof systems~~, metal panel roof systems applied to a solid or closely fitted deck~~ and other types of membrane *roof coverings* shall be tested in accordance with FM 4474, UL 580 or UL 1897.

Add new text as follows:

1504.4.1 Metal roof panel systems over deck. *Metal roof panel* systems applied to a solid or closely fitted deck shall be tested in accordance with this section. Wind resistance shall be taken as the average result from a minimum of two tests. A minimum 2 to 1 margin of safety shall apply for *allowable stress design* and a strength reduction factor of no more than 0.7 shall apply for *load and resistance factor design*.

1504.4.1.1 Non-Hurricane-prone regions. *Metal roof panels* in non-hurricane-prone regions shall be tested in accordance with FM 4474, UL 580 or Part I of UL 1897.

1504.4.1.2 Hurricane-prone regions. *Metal roof panels* and related hip, ridge and edge systems in *hurricane-prone* regions shall be tested in accordance with Section 1504.4.1.2.1 and 1504.4.1.2.2.

1504.4.1.2.1 Metal roof panels. *Metal roof panels* shall be tested in accordance with FM 4474 or UL 580. When UL 580 is used and wind resistance in excess of that provided by Class 90 is required for design, UL 1897 Part I shall be used to determine wind resistance as follows:

1. The positive pressure applied below the assembly shall be held at 48.5 psf (240 kPa) throughout the test.
2. The negative pressure applied above the assembly shall be 63.5 psf (310 kPa) initially and increased in intervals of 15 psf (75 kPa). Each interval shall be held for at least one minute.
3. The wind resistance shall be taken as the average of the highest completed interval of no fewer than two samples subsequent to completing Phase 5 of the Class 90 test sequence of UL 580.

1504.4.1.2.2 Metal edge systems. Metal hip, ridge, and edge systems, excluding gutters, shall be tested for uplift resistance in accordance with ANSI/MCA FTS-1.

MCA

Metal Construction Association
1601 American Lane Suite 310
Schaumburg, IL 60631

ANSI/MCA FTS-1 2019	Test Method for Wind Load Resistance of Flashings Used with Metal Roof Systems

Reason: The purpose of this proposal is to clarify existing and add new requirements to determination of wind load resistance values of metal roof panel assemblies over solid or closely fitted deck, especially in hurricane-prone regions. These changes are consistent with the recommendations of FEMA P-2342 and also align with the Florida Building Code (FBC) Test Application Standard TAS-125, which is widely used in the metal roofing industry and is considered the best testing practice of these systems. However, it does NOT require any third-party listing like FBC. It also moves the other roofs section (Currently 1504.4.1) to 1504.4.5 as "other" is typically used at the end of a list, not the beginning. The technical changes fall into four general areas and are discussed in detail as shown below:

1. Stipulations for the required number of tests and applicable margin of safety for allowable stress design.
2. Providing a strength reduction coefficient (a.k.a. phi factor) needed for the application of load and resistance factor design.
3. Introduction of new test requirements for edge, hip and roof systems to address issues observed by FEMA in their Hurricane Ian investigation.
4. Provide a test methodology consistent with TAS-125, addressing limitations of UL 580, which terminates at 105 psf instead of progressing to failure.

Items 1 and 2

Item 1 is self-explanatory. Item 2 is similar to Item 1 and is needed because ASCE 7, the cited load standard in Chapter 16 if IBC, has been positioning to remove allowable stress design provisions for some time and it seems that load and resistance factor design is the future. These items apply in both hurricane prone and non-hurricane prone regions.

Item 3

Item 3 only applies within hurricane-prone regions, as defined by IBC and adds requirements for testing of ridge, hip and edge metal systems similar to those currently in place for low-slope built-up, modified bitumen and single-ply roof systems in Section 1504.6. It is being put forth to address issues observed by the Roofing Industry Committee on Weather Issues (RICOWI) through their Windstorm Investigation Program (WIP) as well as FEMA's Hurricane Ian investigation. The test standard cited, ANSI/MCA FTS-1-2019, was developed by MCA through the Single Ply Roofing Institute's (SPRI) ANSI-accredited canvassing process. The RICOWI and FEMA WIP field studies revealed instances where metal ridge, hip and/or edge system were torn from the perimeter of a building with a metal roof, exposing a longer leading edge of the incorporated roof panel and initiating a partial failure of the roof system, particularly near the corners and gable edges of the roof. Although the damage was very localized, it did allow water to enter the building and in cases, the edge metal became a wind-borne debris threat. Most commonly, this occurred in two situations:

- Where a multi-piece edge trim assembly incorporating cleats deformed enough to disengage from the cleat.
- Where the metal edge trim assembly was fastened to a non-metal substrate such as wood or masonry, leaving to question the appropriateness of the fastener used since it would often not be provided by the edge system manufacturer for non-metal substrates.

The figures in the attachment depict these conditions. These tendencies were also observed by FEMA in their Mitigation Assessment Team Report for Hurricane Ian. (https://tinyurl.com/mmrstxju.) Section 6.3 of this report includes Conclusion FL-10, recommending that FEMA support industry stakeholders in supporting code change proposals to requiring testing of hip and ridge roof coverings. (FEMA P-2342, Page 6-9 see excerpt)

Item 4

Item 4 also only applies in hurricane-prone regions and clarifies application of UL 580 and UL 1897 to determine appropriate wind load resistance values as represented by common industry practice and in a manner consistent with FBC TAS-125. UL 580 and 1897 are very different tests. UL 1897 utilizes steady-state load sequencing progressing until system failure and often takes less than 20 minutes to complete. However, UL 580 is designed to evaluate overall system integrity using a cyclic load sequence and yields a performance rating (Classification) from a fixed set of options. UL 580 involves two separate hour-long periods of cyclic loading and is generally considered the more rigorous test, but the test standard does not allow for additional testing to failure once the highest classification (Class 90) is achieved. Class 90 provides a net uplift value of 105 psf, which equates to a safe working load of 52.5 psf. With the current version of ASCE 7 Chapter 30, this result is not useful in the extreme edge or corner zones of roofs in hurricane-prone regions of the US. This issue is addressed by the proposed additions, which are based on the Florida Test Application Standard TAS-125. This standard uses UL 580 as a base qualification test but then allows the metal roof panel manufacturer to perform additional testing using a modified UL 1897 sequence until failure is observed. This process is repeated at least once more and a margin of safety of two is applied to the average result for the purposes of allowable stress design. This qualifies the panel for wind load resistance higher than the 105 psf net load given by Class 90 of UL 580 and ensures repeatability. Although TAS-125 listing is only a requirement in the High Velocity Hurricane Zone as defined by the Florida Building Code, the underlying methodology has become the de-facto way to derive allowable design loads within the metal roofing industry for all locales.

This proposal is being brought forward by The Metal Construction Association. (MCA) Founded in 1983, the MCA is a 501(c)(6) organization promoting the use of metal in the building envelope by bringing together manufacturers and suppliers of metal products used in structures throughout the world to collaborate on marketing, education and advocacy. For more information, see the MCA website at www.metalconstruction.org.

- **Figures and Excerpt for Proposal 11122.pdf**
  https://www.cdpaccess.com/proposal/11122/35660/documentation/184858/attachments/download/9755/

Bibliography:

1. Federal Emergency Management Association (FEMA); Mitigation Assess Team Report Hurricane Ian in Florida; FEMA P-2342, December 2023; Page 6-9.
2. Roofing Industry Committee on Weather Issues (RICOWI); Wind Investigation Report: Hurricane Ian; September 2023; Pages 87-90.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This change would increase the cost of construction indirectly as the cost of the testing would presumably be passed to the consumer for those products to be approved for use in hurricane-prone regions of the US. However, the impact is miniscule, conservatively estimated as less than 0.5% of initial building cost. This estimate ignores the benefit of any lowered operating costs, such as insurance, as well as any benefit over time, such as longer asset life.

Estimated Immediate Cost Impact Justification (methodology and variables):

ANSI/MCA FTS-1 testing is estimated to be $1,500/test and most manufacturers carry 4-8 styles of edge metal systems different enough to test separately. Thus, total cost is estimated to be $36,000. Similarly, additional UL 580/1897 testing required for wind resistance of the panel system is estimated as $2,500 per test over a product line of 8 profiles for $40,000. This is a total of $76,000 to carry both. If this cost is accrued over the life of the product lines, assumed to be at least 1,000 buildings, it results in a nominal increase of at most $76 per building. A typical building of this construction is 5,000 square feet of roof area at $6/square foot and 600 lineal feet of edge/hip/ridge materials valued at $5/lineal foot, this represents a total cost of $33,000 installed. At a total cost of $30/square foot, the building would be $150,000, making the roof 22% of the total cost, which is consistent with industry estimation practices. The increase over the total building cost is 76/150,000, or 0.5%.

Note: Cost estimates are based on general experience of industry stakeholders and are not available publicly due to antitrust restrictions.

Staff Analysis: A review of the standard proposed for inclusion in the code, ANSI/MCA FTS-1 2019 Test Method for Wind Load Resistance of Flashings Used with Metal Roof Systems, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

CC # S8-25 and CC # S7-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S8-25

S9-25

IBC: 1504.4.5 (New)

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

Add new text as follows:

1504.4.5 **BIPV shingles.** BIPV shingles shall be tested for wind resistance and *listed* and *labeled* in accordance with UL 7103 and shall meet the classification requirements of Table 1504.2.

Reason: This code change proposal adds specific requirements for wind resistance of BIPV shingles to IBC 2024's Section 1504-Performance Requirements. Wind resistance testing is already included in UL7103, which is referenced in Sec. 1507.16.6. This proposed code change clarifies the code by including BIPV shingles' wind resitance in the same section as other roof covering types.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is a clarification and does not increase or decrease the stringency of the code or have an impact on the cost of construction.

S9-25

S10-25

IBC: 1504.6

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

Revise as follows:

1504.6 Metal edge ~~Edge~~ systems for low-slope roofs. Metal ~~edge systems, except gutters and counterflashing,~~ coping, fascia and gravel stop at the perimeter edges ~~installed~~ on built-up, modified bitumen and single-ply ~~roof systems on a~~ *low-slope* roofs shall be designed and installed for wind *loads* in accordance with Chapter 16 and tested for resistance in accordance with ~~Test Methods RE-1, RE-2 and RE-3 of~~ ANSI/SPRI/FM 4435/ES-1~~, except *basic wind speed , V*, shall be determined from Figures 1609.3(1)through 1609.3(4), as applicable~~. The wind *loads* shall be determined using *allowable stress design*.

Exceptions:

1. Coping, fascia and gravel stop constructed of cold-formed steel shall be designed and tested in accordance with the applicable reference structural design standard in Section 2204.1.
2. Coping, fascia and gravel stop constructed of aluminum shall be designed and tested in accordance with the applicable referenced structural design standard in Section 2002.1.

Reason: This proposed code change is intended to clarify the code. Section 1504.6, which is a requirement for the design and testing of roofs' metal edge systems, was first added to IBC 2003. Since that time, this section has been modified several times, has gotten a bit confusing and is in need of some clarity. The following changes are proposed here:

- Change the title from "Edge systems..." to "Metal edge systems...". The section's text and referenced standard apply specifically to metal edge systems and not other types of roof edge systems, such as stone or masory copings.
- In the text, instead of indicating "...edge systems, except gutters and counterflashing...", indicate the metal edge types the requirement specifically applies to--that is coping, fascia and gravel stop. Gutters are addressed in Section 1504.6.1.
- Strike the references to ANSI/SPRI ES-1's Test Methods RE-1, RE-2 and RE-3 as these are individual test applicable to specific edge metal profiles. All three test methods (i.e., the "and") do not apply to a specific metal profile. For example, Test Method RE-1 applies to fascia or gravel stop used with dependently terminated roof membranes. Test Method RE-2 applies to fascia and gravel stop used with dependently or independently terminated roof membranes. Test Method RE-1 applies to copings. In some instances, both Test Methods RE-1 and RE-2 will be apply. The ANSI/SPRI ES-1 standard indicates which test methods apply to specific specific metal profiles.
- Change the reference of the standard from "ANSI/SPRI ES-1" to "ANSI/SPRI/FM 4435/ES-1", which is consistent with the current standard designation and reference in IBC Chapter 35.
- The qualifying statement "...except *basic wind speed*...applicable." is no longer needed. Previous editions of ANSI/SPRI ES-1 included its own procedure for determined design wind loads. Design wind load determination is no longer included in the current version of ANSI/SPRI ES-1; the standard now only deals with load resistance. The determination of design wind loads in accordance with Chapter 16 is now required making this qualifying statement unnecessary.
- Add the sentence permitting the use of allowable stress design. This is consistent with Section 1504.4 and Section 1609.3.1.
- Exceptions have been added allowing for design and testing of steel and aluminum coping, fascia and gravel stop in accorance with AISI S100, or AA ASM 35 and AA ADM, respectively. These exceptions are consistent with what already appears in Section 1504.4.2 regarding structural metal panel roofs.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is clarifying in nature and does not change the stringency of the code. As a result, this code change proposal will not increase or decrease the cost of construction.

S11-25

IBC: 1504.6.1

Proponents: Amanda Hickman, The Hickman Group, representing Single-Ply Roofing Industry (SPRI) (amanda@thehickmangroup.com)

2024 International Building Code

Revise as follows:

1504.6.1 Gutters ~~securement~~ for low-slope roofs. Gutters ~~that are used to secure the perimeter edge of the roof membrane~~ on *low-slope* built-up, modified bitumen, and single-ply roofs, shall be designed, constructed and installed to resist wind loads in accordance with Section 1609 and shall be tested in accordance with ~~Test Methods G-1 and G-2 of~~ ANSI/SPRI GT-1.

Reason: Gutter failures can lead to roof damage, regardless of whether the gutters are directly securing the roof. Such failures can result in costly repairs, water intrusion, and safety hazards. Testing all systems to the GT-1 standard helps mitigate these risks, offering significant long-term savings for building owners.

While GT-1 test methods G-1 and G-2 evaluate horizontal and vertical wind loads, the inclusion of Test Method G-3 completes the performance assessment by addressing static downward forces. This comprehensive testing approach ensures gutters can withstand all critical forces they may face.

Incorporating Test Method G-3 strengthens the reliability of gutter systems, ensuring they perform effectively under the combined stresses of wind, water, snow, and ice.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

When gutters are tested per GT-1 all three tests including G-3 are performed, so there is no additional testing required, or additional expense incurred, to require all three. Requiring gutters to be tested to GT-1 overall is nominal because it's spread over the entire product line and does not result in a cost increase.

S11-25

S12-25

IBC: [BF] 1505.10, 1507.15, 1507.15.1 (New), [BF] 1507.15.1; IFC: 317.1

Proponents: Robert Marshall, representing FCAC (fcac@iccsafe.org); Jeff Grove, Chair, representing Building Code Action Committee (BCAC) (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

[BF] 1505.10 Landscaped and vegetative roofs. Landscaped and *vegetative roofs* shall comply with Sections 1505.1 and 1507.15. ~~*Vegetative roofs* shall be installed in accordance with ANSI/SPRI VF-1.~~

1507.15 Vegetative roofs and landscaped roofs. *Vegetative roofs* and *landscaped roofs* shall comply with the requirements of this chapter~~,~~and Section 1607.14~~ and the *International Fire Code* ~~. *Vegetative roofs* shall be installed in accordance with ANSI/SPRI VF-1.

Add new text as follows:

1507.15.1 Roof drainage. *Vegetative roofs* and *landscaped roofs* shall be provided with roof drainage in accordance with Section 1502.

Revise as follows:

[BF] ~~1507.15.1~~1507.15.2 Structural fire resistance. The structural frame and roof construction supporting the load imposed on the roof by the *vegetative roof* or *landscaped roofs* shall comply with the *fire-resistance-rating* requirements of Table 601.

2024 International Fire Code

Revise as follows:

317.1 General. Vegetative roofs and landscaped roofs shall ~~comply with Sections 1505 and~~ be installed in accordance with Section 1507.15 of the International Building Code and be ~~installed and~~ maintained in accordance with Sections 317.2 through 317.4.

Reason: IBC Reason Statement: This proposal relocates the reference to the vegetative roof standard ANSI/SPRI VF-1 to the more appropriate section of the code. There is a corresponding IFC proposal that updated the pointer to this section. Additionally, a pointer to the roof drainage section is also being added to make it clear that the roof drainage requirements shall also apply.

IFC Reason Statement: Vegetative roofs are intricate systems that require effective coordination across various disciplines and codes for their proper design, installation, and maintenance. The language in this section was originally taken from a previous edition of ANSI/SPRI VF-1, however the code with respect to vegetative and landscaped roofs has undergone many revisions over the years. This proposal provides the appropriate section in the IBC which references ANSI/SPRI VF-1 (the applicable installation standard) for vegetative roofs.

Link to SPRI VF-1 Standard: https://www.spri.org/download/ansi-spri_standards_2020_restructure/vf-1/ANSI-SPRI-VF-1-2023-External-Fire-Design-Standard-for-Vegetative-Roofs.pdf

This proposal is submitted jointly by the ***ICC Building Code Action Committee (BCAC)*** and the ***ICC Fire Code Action Committee (FCAC)***.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at **BCAC webpage**.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned

International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the **FCAC Website**

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal is editorial and only adds clarity to the appropriate IBC section which address roof installation.

Staff Analysis: CC # S12-25 and CC # S13-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S12-25

S13-25

IBC: [BF] 1505.10, 1507.15, 1507.15.1 (New), [BF] 1507.15.1; IFC: 317.1

Proponents: Amanda Hickman, The Hickman Group, representing The Single-Ply Roofing Industry (SPRI) (amanda@thehickmangroup.com)

2024 International Building Code

Revise as follows:

[BF] 1505.10 Landscaped and vegetative roofs. *Landscaped* and *vegetative roofs* shall comply with Sections 1505.1 and 1507.15 . ~~*Vegetative roofs* shall be installed in accordance with ANSI/SPRI VF-1.~~

1507.15 Vegetative roofs and landscaped roofs. *Vegetative roofs* and *landscaped roofs* shall comply with the requirements of this chapter~~,~~and Section 1607.14 ~~and the *International Fire Code*~~. *Vegetative roofs* shall be installed in accordance with ANSI/SPRI VF-1.

Add new text as follows:

1507.15.1 Roof drainage. *Vegetative roofs* and *landscaped roofs* shall be provided with roof drainage in accordance with Section 1502.

Revise as follows:

[BF] ~~1507.15.1~~ 1507.15.2 Structural fire resistance. The structural frame and roof construction supporting the load imposed on the roof by the *vegetative roof* or *landscaped roofs* shall comply with the *fire-resistance-rating* requirements of Table 601.

2024 International Fire Code

Revise as follows:

317.1 General. *Vegetative roofs* and *landscaped roofs* shall comply with Section~~s~~ 1505 and be installed in accordance with Section 1507.15 of the International Building Code and be ~~installed and~~ maintained in accordance with Sections 317.2 through 317.4.

Reason: IBC Reason Statement:

The more appropriate section for the reference to ANSI/SPRI VF-1 is IBC 1507.15. This proposal relocates it to that section. The second part of this proposal addresses the IFC Section 317 to update the pointer to the IBC relocated section. Additionally, a pointer to the roof drainage section is also being added to make it clear that the roof drainage requirements shall also apply.

IFC Reason Statement:

This proposal updates the pointer to the relocated IBC section (1507.15) for ANSI/SPRI VF-1 installation standard for vegetative roofs.

Link to SPRI Standard VF-1:

https://www.spri.org/download/ansi-spri_standards_2020_restructure/vf-1/ANSI-SPRI-VF-1-2023-External-Fire-Design-Standard-for-Vegetative-Roofs.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal is editorial and only adds clarity and links to the appropriate IBC sections.

Staff Analysis: CC # S13-25 and CC # S12-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S14-25 Part I

IBC: TABLE 1507.1.1(2)

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

TABLE 1507.1.1(2) UNDERLAYMENT APPLICATION

ROOF COVERING	SECTION	MAXIMUM BASIC WIND SPEED, *V* < 130 MPH IN HURRICANE-PRONE REGIONS OR *V* < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS	MAXIMUM BASIC WIND SPEED, *V* ≥ 130 MPH IN HURRICANE-PRONE REGIONS OR *V* ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS
Asphalt shingles	1507.2	Underlayment shall be one of the following: 1. For roof slopes from 2 units vertical in 12 units horizontal (2:12) to less than 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply a full-width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch ~~2 inches~~. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped a minimum of 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's ~~manufacturers'~~ installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment ~~felt~~ for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply a full-width sheet~~s~~ of underlayment for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's ~~manufacurers'~~ installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Clay and concrete tile	1507.3	Underlayment shall be one of the following: 1. For roof slopes from $2^1/_2$ units vertical in 12 units horizontal ($2^1/_2$:12) to less than 4 units vertical in 12 units horizontal (4:12), underlayment shall be not fewer than two layers applied in the following manner: Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves , fastened sufficiently to hold in place. Starting at the eaves, apply a full-width sheet ~~strip~~ of underlayment ~~felt~~ for the second course. Apply the third course of underlayment, ~~shall be applied,~~ overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped a minimum of 2 inches. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's ~~manufacturers'~~ installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply a full-width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. ~~Distortions in the underlayment shall not interfere with the ability of the shingles to seal.~~ End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's ~~manufacurers'~~ installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.
Metal roof panels	1507.4		Underlayment shall be one of the following:
Metal roof shingles	1507.5		

Mineral-surfaced roll roofing	1507.6	Apply in accordance with the manufacturer’s installation instructions	1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply a full-width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third couse of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~successful sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. ~~Distortions in the underlayment shall not interfere with the ability of the shingles to seal.~~ End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer’s installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's ~~manufacurers'~~ installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.
Slate shingles	1507.7		
Wood shingles	1507.8		
Wood shakes	1507.9		
BIPV roof coverings	1507.16	Underlayment shall be one of the following: 1. For roof slopes from 3 units vertical in 12 units horizontal (3:12) to less than 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves , fastened sufficiently to hold in place. Starting at the eaves, apply a full-width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. ~~Distortions in the underlayment shall not interfere with the ability of the shingles to seal.~~ 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped a minimum of 2 inches. ~~Distortions in the underlayment shall not interfere with the ability of the shingles to seal.~~ End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's ~~manufacturers'~~ installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply a full-width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. ~~Distortions in the underlayment shall not interfere with the ability of the shingles to seal.~~ End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer’s installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's ~~manufacurers'~~ installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s.

S14-25 Part I

S14-25 Part II

IRC: TABLE R905.1.1(2)

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

TABLE R905.1.1(2) UNDERLAYMENT APPLICATION

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
Asphalt shingles	R905.2	Underlayment shall be one of the following: 1. For roof slopes from 2 units vertical in 12 units horizontal (2:12)~~, up~~ to less than 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: ~~a~~Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply a full-width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: ~~u~~Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped a minimum of 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply a full-width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch- wide membrane strips. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Clay and concrete tile	R905.3	Underlayment shall be one of the following: 1. For roof slopes from 2$^1/_2$ units vertical in 12 units horizontal (2$^1/_2$:12)~~, up~~ to less than 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: ~~a~~Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply a full-width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: ~~u~~Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped a minimum of 2 inches. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment ~~felt~~ for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply a full width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. ~~Distortionsin the underlayment shall not interferewith the ability of the shingles to seal.~~ End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Metal roof shingles	R905.4	Apply in accordance with the manufacturer's installation instructions.	Underlayment shall be be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply a full width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch.~~2 inches~~. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet.
Mineral-surfaced roll roofing	R905.5		
Slate and slate-type shingles	R905.6		
Wood shingles	R905.7		
Wood shakes	R905.8		

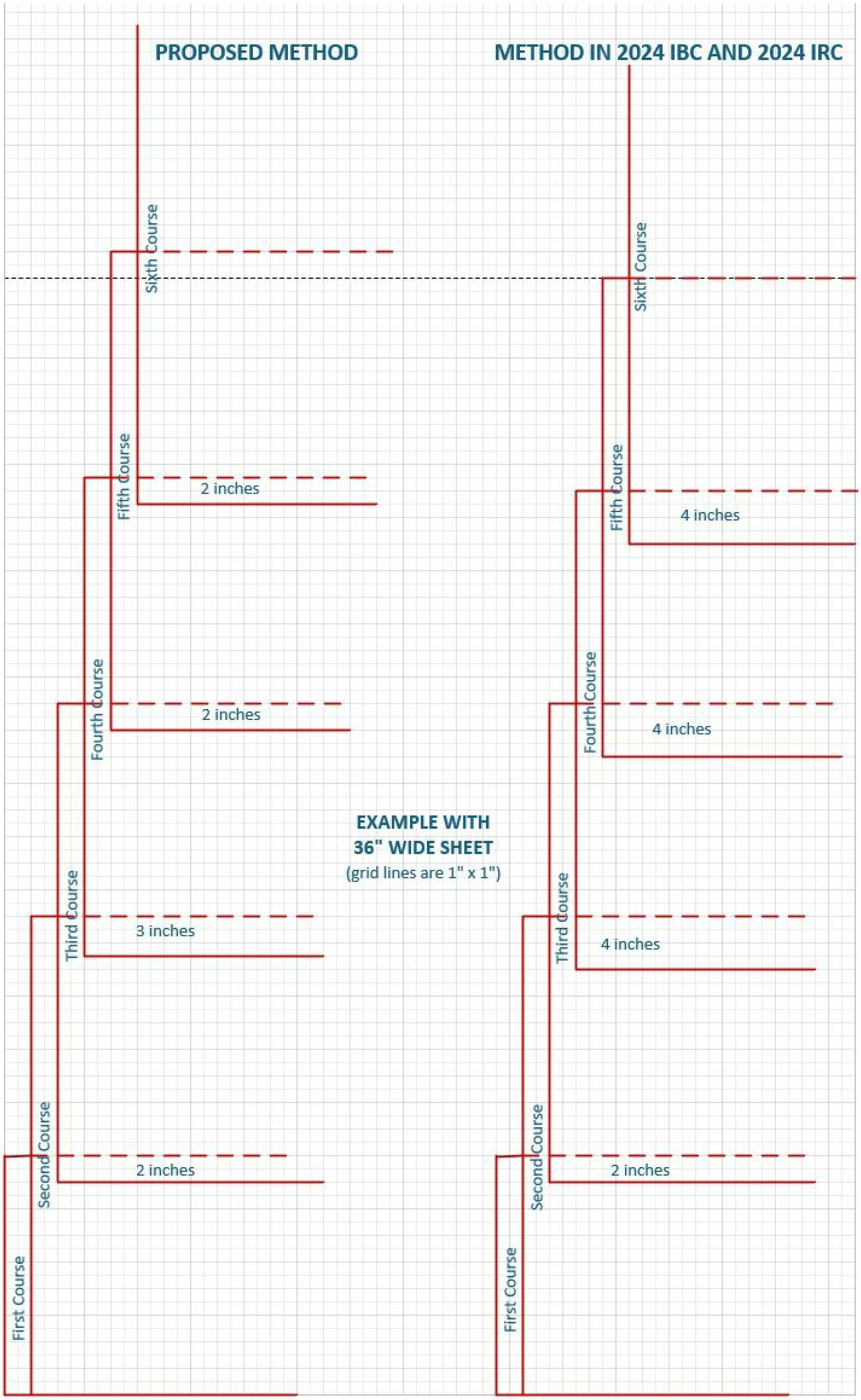
Metal panels	R905.10		2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
BIPV roof coverings	R905.15	Underlayment shall be one of the following: 1. For roof slopes from 2 units vertical in 12 units horizontal (2:12)~~, up~~ to less than 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: ~~a~~Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply a full width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. ~~Distortions in the underlayment shall not interfere with the ability of the shingles to seal.~~ End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: ~~u~~Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped a minimum of 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. ~~Two layers of mechanically fastened underlayment applied in the following manner:~~ Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply a full width sheet~~s~~ of underlayment~~,~~ for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches. Overlap all successive courses by ~~sheets~~ half the width of a full sheet plus a minimum of 1 inch~~2 inches~~. ~~Distortions in the underlayment shall not interfere with the ability of the shingles to seal.~~ End laps shall be a minimum of 4 inches and shall be offset by a minimum of 6 feet. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s.

Reason: A two-layer installation of mechanically fastened underlayment has been shown to be an effective installation which helps prevent water intrusion if the primary roof covering is compromised in a wind event, thus making the roofing system more resilient. This proposal offers an improved installation method which reduces material usage, providing important stewardship and sustainability enhancements. As is illustrated in the diagram (Example.jpg, shown below and also available via the link), the current method leads to successive courses with an area of triple coverage that is 4 inches wide beginning with installation of the third full width sheet (fourth course). The proposed method ends up with 2-inch-wide triple coverage beginning with the fourth full-width sheet (fifth course). This pattern occurs regardless of the width of the underlayment sheet. Adopting the proposed method will lead to material savings which depend on the width of the underlayment sheet and the number of underlayment courses needed to complete the roof.

In addition to providing an installation method which saves material, this proposal makes several changes to standardize language and clarify requirements:

- Clarifies the requirements associated with a slope of exactly 4:12 by inserting "less than" before 4:12 in appropriate locations.
- Adds "a minimum of" in appropriate locations to clarify that the dimensions are not meant to be exact.
- For the self-adhering polymer modified underlayment options, clarifies that the instructions of both the underlayment and roof covering manufacturer are to be considered.
- Removes "Distortions in the underlayment shall not interfere with the ability of the shingles to seal" from locations where it is not applicable.



Cost Impact: Decrease

Estimated Immediate Cost Impact:

The worst-case scenario if this proposal is accepted will be a $0.00 change in the cost of construction. As is illustrated below, a material cost decrease approaching 5% is a reasonable best case estimate.

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal is expected to reduce the cost of construction by using less material to create a two-layer mechanically fastened underlayment installation. The amount of material cost reduction is dependent upon the number of courses of underlayment required to cover the roof and the width of the underlayment employed.

Using a 36” wide sheet as an example, installation of the fourth course creates a 3” wide area of triple coverage compared to a 4” wide area for the current method, which amounts to a 1/36 (2.8%) reduction in material. Installation of the fifth course and each successive course creates a 2” wide area of triple coverage compared to a 4” wide area for the current method, which amounts to a 2/36 (5.5%) reduction in material.

These estimated percentage reductions in material usage demonstrate the potential material savings, but creation of an estimate of dollar savings is unrealistic, since each project will have a different combination of width of underlayment employed, number of rows of underlayment installed, size of the installed area, and cost of the material.

By covering a greater area per row of installed material than the current method, the proposed method also has the potential to lead to an incremental reduction in labor cost. The same challenges as mentioned in the paragraph immediately above prevent the calculation of a potential labor cost change estimate beyond what can be deduced using the percentages calculated for material cost reduction.

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IBC: TABLE 1507.1.1(1), TABLE 1507.1.1(2), TABLE 1507.1.1(3)

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2024 International Building Code

Revise as follows:

TABLE 1507.1.1(1) UNDERLAYMENT TYPES

ROOF COVERING	SECTION	~~MAXIMUM BASIC WIND SPEED, V < 130 MPH IN~~ AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~OR V < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~	~~MAXIMUM BASIC WIND SPEED, V ≥ 130 MPH IN~~ AREAS WITHIN HURRICANE-PRONE REGIONS ~~OR V ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~
Asphalt shingles	1507.2	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Clay and concrete tiles	1507.3	ASTM D226 Type II ASTM D1970 ASTM D2626 ASTM D6380 Class M ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D8257
Metal roof panels applied to a solid or closely fitted deck	1507.4	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Metal roof shingles	1507.5	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Mineral-surfaced roll roofing	1507.6	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Slate shingles	1507.7	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Wood shingles	1507.8	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Wood shakes applied to a solid sheathing roof deck	1507.9	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
BIPV roof coverings	1507.16	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257

TABLE 1507.1.1(2) UNDERLAYMENT APPLICATION

ROOF COVERING	SECTION	~~MAXIMUM BASIC WIND SPEED, V < 130 MPH IN~~ AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~OR V < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~	~~MAXIMUM BASIC WIND SPEED, V ≥ 130 MPH IN~~ AREAS WITHIN HURRICANE-PRONE REGIONS ~~OR V ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~

ROOF COVERING	SECTION	~~MAXIMUM BASIC WIND SPEED, V < 130 MPH IN~~ AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~OR V < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~	~~MAXIMUM BASIC WIND SPEED, V ≥ 130 MPH IN~~ AREAS WITHIN HURRICANE-PRONE REGIONS ~~OR V ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~
Asphalt shingles	1507.2	Underlayment shall be one of the following: 1. For roof slopes from 2 units vertical in 12 units horizontal (2:12) to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves. Starting at the eaves, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment felt that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply full-width sheets of underlayment overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacurers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Clay and concrete tile	1507.3	Underlayment shall be one of the following: 1. For roof slopes from 2 1/2 units vertical in 12 units horizontal (2 1/2:12) to 4 units vertical in 12 units horizontal (4:12), underlayment shall be not fewer than two layers applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves. Starting at the eaves, a full-width strip of underlayment felt shall be applied, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacurers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.
Metal roof panels	1507.4	Apply in accordance with the manufacturer's installation instructions	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply full-width sheets of underlayment, overlapping successful sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacurers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.
Metal roof shingles	1507.5		
Mineral-surfaced roll roofing	1507.6		
Slate shingles	1507.7		
Wood shingles	1507.8		
Wood shakes	1507.9		

ROOF COVERING	SECTION	~~MAXIMUM BASIC WIND SPEED, V < 130 MPH IN~~ AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~OR V < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~	~~MAXIMUM BASIC WIND SPEED, V ≥ 130 MPH IN~~ AREAS WITHIN HURRICANE-PRONE REGIONS ~~OR V ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~
BIPV roof coverings	1507.16	Underlayment shall be one of the following: 1. For roof slopes from 3 units vertical in 12 units horizontal (3:12) to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves. Starting at the eaves, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s.

TABLE 1507.1.1(3) UNDERLAYMENTFASTENING

ROOF COVERING	SECTION	~~MAXIMUM BASIC WIND SPEED, V < 130 MPH IN~~ AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~OR V < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~	~~MAXIMUM BASIC WIND SPEED, V ≥ 130 MPH IN~~ AREAS WITHIN HURRICANE-PRONE REGIONS ~~OR V ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS~~
Asphalt shingles	1507.2	Fastened sufficiently to hold in place	Mechanically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of not greater than 12 inches horizontally and vertically between side laps with a 6-inch spacing at side and end laps. Mechanically fastened underlayment shall be fastened using annular ring or deformed shank nails with 1-inch diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage (0.0134 inch) sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^{3}/_{4}$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Clay and concrete tile	1507.3		
BIPV roof coverings	1507.16		
Metal roof panels	1507.4	Manufacturer's installation instructions	Mechanically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of not greater than 12 inches horizontally and vertically between side laps with a 6-inch spacing at side and end laps. Mechanically fastened underlayment shall be fastened using annular ring or deformed shank nails with 1-inch diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^{3}/_{4}$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Metal roof shingles	1507.5		
Mineral-surfaced roll roofing	1507.6		
Slate shingles	1507.7		
Wood shingles	1507.8		
Wood shakes	1507.9		

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

Reason: This proposal expands the requirements for improved roof covering underlayment from the 130 mph and 140 mph triggers to the Hurricane-prone Region. This effectively expands the secondary roof underlayment strategies recommended by the IBHS Fortified Home - Hurricane program (sealed roof deck) from areas where the design wind speed is 130 mph and greater to areas where the design wind speed is 115 mph and greater.

Damage due to water intrusion continues to be a significant problem for buildings impacted by hurricanes. Water entry can occur where it is able to infiltrate through the roof, walls, vents, windows, and/or doors, or at interfaces between these items. The roof deck, where the roof covering is lost or damaged, is particularly susceptible. Water intrusion can cause extensive damage to interior finishes, furnishings, and other contents, and can lead to ceiling collapse when attic insulation is saturated. When power is lost and/or a building cannot otherwise be dried out within 24–48 hours, additional issues such as mold can develop, potentially extending the period during which the property may not be available for use.

Tests performed by IBHS at the Research Center have consistently shown that a sealed roof deck as recommended by the IBHS Fortified

Home - Hurricane program consistently show significantly reduced water intrusion rates when one of these strategies was employed. A summary of the results of the demonstration can be viewed at the following link:

http://ibhstest.wpengine.com/ibhsnews- releases/ibhs-hurricane-demonstration-illustrates-importance-of-sealed-roof-deck-3/.

The wind driven rain demonstration can be viewed at the following link:

https://disastersafety.org/thunderstorms/winddriven-rain-demo/.

These underlayment strategies required reduce water entry into the attic space by 70% or more.

This expansion is being proposed primarily for 2 reasons. The adoption of ASCE 7-22 in the 2024 IBC resulted in numerous changes to the wind design requirements including changes to the wind speed maps. While some wind speeds in the hurricane-prone region are increasing, notably, the 130 mph contour, which is the Wind Design Required Region trigger in the Hurricane-prone Region, is being reduced in many areas near the Gulf coast and North Atlantic coast. The following figures overlays the ASCE 7-22 design wind speeds for Risk Category II over the ASCE 7-16 design wind speeds for Risk Category II near the Gulf and Atlantic coasts. The areas shaded in blue indicate where the 130 mph contour has shifted more towards the coast effectively reducing wind speeds in these areas. As shown, the North Atlantic coast has been completely removed from the Wind Design Required Region. Without this proposed expansion, these areas would non longer be required to use the improved underlayment strategies.

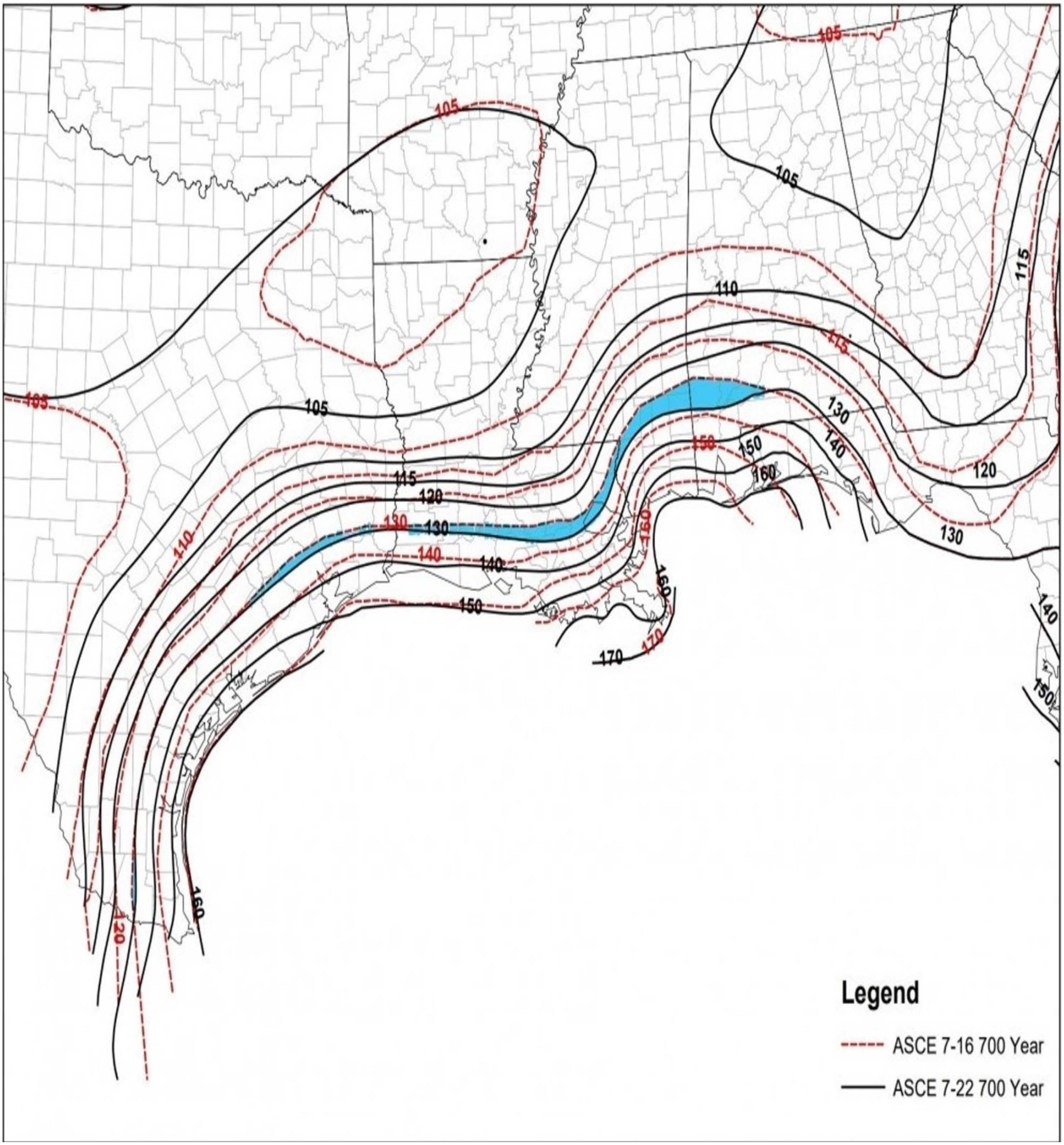


Figure 1
Loss of Wind Design Required Region in the Gulf Region Due to ASCE 7-22 Wind Speed Updates

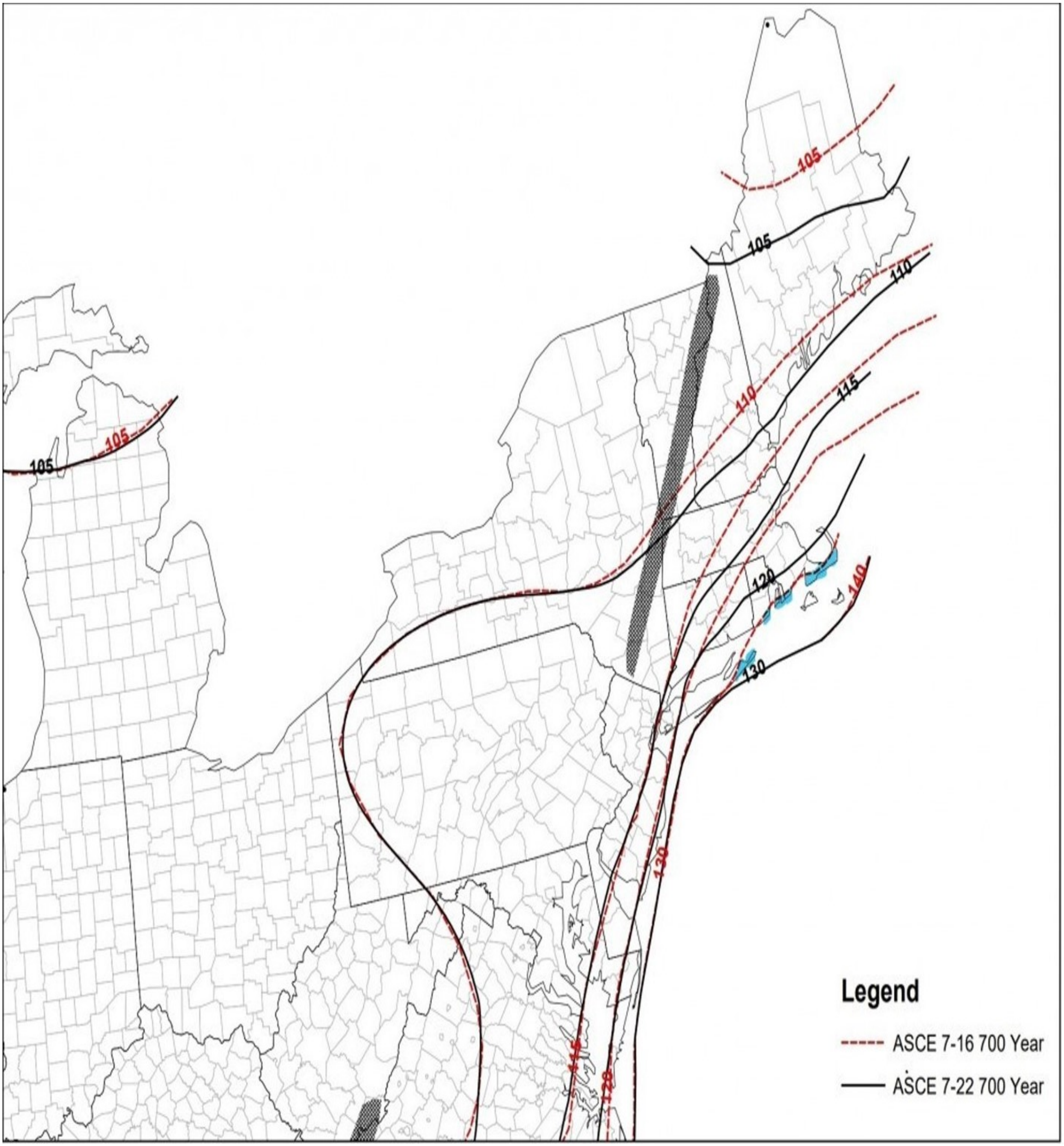


Figure 2
Loss of Wind Design Required Region in the North Atlantic Region Due to ASCE 7-22 Wind Speed Updates

Additionally, a recent report published by David Roueche with Auburn University for Home Innovation Research Labs shows that roof covering damage is by far the most common cladding damage and that even at lower wind speeds roof covering damage is frequently observed. The full report is attached to this proposal. The report is a curation of the windstorm building performance dataset collected by the StEER (Structural Extreme Events Reconnaissance) network. The dataset quantifies common wind damage patterns from recent windstorms. The following windstorm events were included in the dataset:

Joplin Tornado
Garland Tornado
Hurricane Harvey
Hurricane Irma
Hurricane Michael
Nashville/Cookeville Tornadoes
Hurricane Laura

When stratified by hazard intensity, the data shows for wind speeds between 116 mph and 140 mph the frequency of roof covering damage is near 80%. Even for wind speeds between 91 mph and 115 mph the frequency of roof covering damage is near 70%.

The report notes that “considering all hazard intensities and years of construction, 26-50% of the roof cover on a single-family home is typically damaged in an extreme windstorm.”

It should also be noted that the 7th Edition (2020) and the 8th Edition (2023) Florida Building Code adopted these underlayment strategies for the entire state. For Risk Category II buildings, design wind speeds in the state of Florida range from approximately 115 mph to 180 mph.
Installing a sealed roof deck is the most cost-effective method for reducing water intrusion through the roof deck where the primary roof covering has been damaged or lost.

Bibliography: Brown, T.M., Quarles, S.L., Giammanco, I.M., Brown, R., Insurance Institute for Business and Home Safety, "Building Vulnerability to Wind-Driven Rain Entry and Effectiveness of Mitigation Techniques." 14th International Conference on Wind Engineering (ICWE).

Roueche, D.B., Nakayama, J., Department of Civil Engineering, Auburn University Ginn Colege of Engineering, "Quantification of Common Wind Damage Patterns in Recent Windstorms." May 202

Cost Impact: Increase

Estimated Immediate Cost Impact:

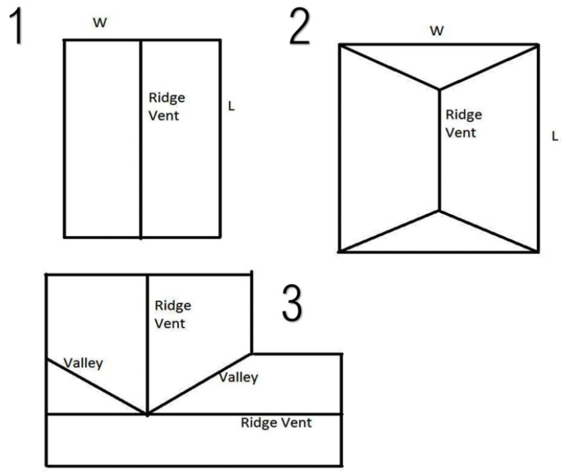
For our cost impact estimates, we used Xactimate which is a construction cost estimating software program. Select markets that would be affected by this code change were analyzed in all the hurricane-prone states.

Two sealed roof deck options were analyzed –

Option 1: Installing 4-inch-wide strips of self-adhering polymer modified bitumen over all joints in the roof deck and covering the strips with a 30# (ASTM D226 Type II, ASTM D4869 Type III or IV) felt underlayment and fastened as specified in the code.

Option 2: Installing a self-adhering polymer modified bitumen underlayment over the entire roof deck.

Three roof configurations were analyzed – 3 gable, 2 gable, and hip. Additionally, we estimated the cost impacts for large roofs (2800 square feet to 3016 square feet) and small roofs (1575 square feet to 1696 square feet). Estimated costs were developed for an asphalt shingle roof.



A copy of the Xactimate report for this analysis is attached to this code change.

The cost for either option varies according to the markets analyzed but are within close ranges.

Option 1 – (taped joints with 30# underlayment over the taped joints)

For large roofs the increased cost for Option 1 ranges from a low of $917.32 in Dothan, AL to a high of $1714.83 on Long Island, NY. For new construction, these costs represent increases of 9.5% and 9.1% respectively of the total cost of the roof (roof covering, underlayment, ventilation components, etc). For reroofing, these costs represent increases of 8.1% and 7.6% respectively of the total cost of the reroofing job.

For small roofs the increased cost for Option 1 ranges from a low of $512.29 in Dothan, AL to a high of $959.66 on Long Island, NY. For new construction, these costs represent increases of 8.9% and 8.3% respectively of the total cost of the roof (roof covering, underlayment, ventilation components, etc). For reroofing, these costs represent increases of 7.6% and 7.6% respectively of the total cost of the reroofing job.

Option 2 – (self-adhering polymer modified bitumen underlayment over the entire roof deck)

For large roofs the increased cost for Option 2 ranges from a low of $1428.39 in Florence, SC to a high of $1909.49 in Stamford, CT. For new construction, these costs represent increases of 13.4% and 10.4% respectively of the total cost of the roof (roof covering, underlayment, ventilation components, etc). For reroofing, these costs represent increases of 11.5% and 8.9% of the total cost of the reroofing job.

For small roofs the increased cost for Option 2 ranges from a low of $793.41 in Dover, DE to a high of $1065.74 in Stamford, CT. For new construction, these costs represent increases of 9.3% and 9.5% respectively of the total cost of the roof (roof covering, underlayment, ventilation components, etc). For reroofing, these costs represent increases of 8.2% and 8.2% respectively of the total cost of the reroofing job.

Estimated Immediate Cost Impact Justification (methodology and variables):

Xactimate, which is a construction cost estimating software program, was used to analyze the cost impacts of this proposal.

S15-25

S16-25

IBC: TABLE 1507.1.1(3)

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Building Code

Revise as follows:

TABLE 1507.1.1(3) UNDERLAYMENTFASTENING

ROOF COVERING	SECTION	MAXIMUM BASIC WIND SPEED, *V* < 130 MPH IN HURRICANE-PRONE REGIONS OR *V* < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS	MAXIMUM BASIC WIND SPEED, *V* ≥ 130 MPH IN HURRICANE-PRONE REGIONS OR *V* ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS
Asphalt shingles	1507.2	Fastened sufficiently to hold in place	Mechanically fastened underlayment shall be fastened at 6 inches on center 3 inches from the eave and 6 inches on center at all side and end laps. ~~with corrosion-resistant fasteners~~ Underlayment shall be fastened in a grid pattern of not greater than 12 inches on center horizontally and vertically between side laps ~~with a 6-inch spacing at side and end laps~~. Mechanically fastened underlayment shall be fastened using corrosion-resistant annular ring or deformed shank nails with 1-inch diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage (0.0134 inch) sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Clay and concrete tile	1507.3		
BIPV roof coverings	1507.16		
Metal roof panels	1507.4	Manufacturer's installation instructions	Mechanically fastened underlayment shall be fastened at 6 inches on center 3 inches from the eave and 6 inches on center at all side and end laps. ~~with corrosion-resistant fasteners~~ Underlayment shall be fastened in a grid pattern of not greater than 12 inches on center horizontally and vertically between side laps ~~with a 6-inch spacing at side and end laps~~. Mechanically fastened underlayment shall be fastened using corrosion-resistant annular ring or deformed shank nails with 1-inch diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Metal roof shingles	1507.5		
Mineral-surfaced roll roofing	1507.6		
Slate shingles	1507.7		
Wood shingles	1507.8		
Wood shakes	1507.9		

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

Reason: This code change proposal intends to clarify fastening requirements for underlayment at eave locations in areas prone to high winds and hurricanes. The code currently requires corrosion-resistant fasteners in a grid pattern no greater than 12 inches horizontally and vertically, with a 6-inch spacing at side and end laps. However, it does not specifically state how to properly fasten the underlayment at the eave edge, where wind pressures can be significantly higher than on the roof field.

The roof underlayment methods required in high wind areas (V ≥ 130 mph in hurricane-prone regions, and V ≥ 140 mph outside hurricane-prone regions) are intended to provide a secondary barrier against water infiltration through the roof deck if the primary roofing material fails. Given its importance, properly securing underlayment is vital to this function. For many roof configurations, wind pressures are highest along the eave edge, particularly the eave edge corners, due to the wind's interaction with the roof structure.

Considering that underlayment is installed shingle fashion, inadequate fastening at the edge can lead to underlayment failure at the eave during high-wind events, potentially causing a cascading failure across other rows of underlayment and compromise the entire underlayment system. This proposal addresses this vulnerability by specifically requiring the first course of underlayment to be fastened at 6 inches on center 3 inches from the eave edge.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is primarily a clarification and is not expected to add any meaningful cost to construction.

S17-25

IBC: TABLE 1507.1.1(1), TABLE 1507.1.1(2), TABLE 1507.1.1(3), 1507.17.3, 1507.17.4, 1507.17.4.1, 1507.17.4.2

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Building Code

Revise as follows:

TABLE 1507.1.1(1) UNDERLAYMENT TYPES

ROOF COVERING	SECTION	MAXIMUM BASIC WIND SPEED, *V* < 130 MPH IN HURRICANE-PRONE REGIONS OR *V* < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS	MAXIMUM BASIC WIND SPEED, *V* ≥ 130 MPH IN HURRICANE-PRONE REGIONS OR *V* ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS
Asphalt shingles	1507.2	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Clay and concrete tiles	1507.3	ASTM D226 Type II ASTM D1970 ASTM D2626 ASTM D6380 Class M ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D8257
Metal roof panels applied to a solid or closely fitted deck	1507.4	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Metal roof shingles	1507.5	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Mineral-surfaced roll roofing	1507.6	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Slate shingles	1507.7	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Wood shingles	1507.8	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Wood shakes applied to a solid sheathing roof deck	1507.9	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
BIPV roof coverings	1507.16 1507.17	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257

TABLE 1507.1.1(2) UNDERLAYMENT APPLICATION

ROOF COVERING	SECTION	MAXIMUM BASIC WIND SPEED, *V* < 130 MPH IN HURRICANE-PRONE REGIONS OR *V* < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS	MAXIMUM BASIC WIND SPEED, *V* ≥ 130 MPH IN HURRICANE-PRONE REGIONS OR *V* ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS

<table>
<tr><th>ROOF COVERING</th><th>SECTION</th><th>MAXIMUM BASIC WIND SPEED, V < 130 MPH IN HURRICANE-PRONE REGIONS OR V < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS</th><th>MAXIMUM BASIC WIND SPEED, V ≥ 130 MPH IN HURRICANE-PRONE REGIONS OR V ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS</th></tr>
<tr><td>Asphalt shingles</td><td>1507.2</td><td>Underlayment shall be one of the following:
1. For roof slopes from 2 units vertical in 12 units horizontal (2:12) to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves. Starting at the eaves, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. Distortions in the underlayment shall not interfere with the ability of the shingles to seal.
2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.
3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.</td><td>Underlayment shall be one of the following:
1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment felt that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply full-width sheets of underlayment overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.
2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer’s installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph.
3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacurers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.</td></tr>
<tr><td>Clay and concrete tile</td><td>1507.3</td><td>Underlayment shall be one of the following:
1. For roof slopes from 2$^1/_2$ units vertical in 12 units horizontal (2$^1/_2$:12) to 4 units vertical in 12 units horizontal (4:12), underlayment shall be not fewer than two layers applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves. Starting at the eaves, a full-width strip of underlayment felt shall be applied, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet.
2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches. End laps shall be 4 inches and shall be offset by 6 feet.
3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.</td><td>Underlayment shall be one of the following:
1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.
2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer’s installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph.
3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacurers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.</td></tr>
<tr><td>Metal roof panels</td><td>1507.4</td><td rowspan="6">Apply in accordance with the manufacturer’s installation instructions</td><td rowspan="6">Underlayment shall be one of the following:
1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply full-width sheets of underlayment, overlapping successful sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.
2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer’s installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph.
3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacurers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.</td></tr>
<tr><td>Metal roof shingles</td><td>1507.5</td></tr>
<tr><td>Mineral-surfaced roll roofing</td><td>1507.6</td></tr>
<tr><td>Slate shingles</td><td>1507.7</td></tr>
<tr><td>Wood shingles</td><td>1507.8</td></tr>
<tr><td>Wood shakes</td><td>1507.9</td></tr>
</table>

ROOF COVERING	SECTION	MAXIMUM BASIC WIND SPEED, *V* < 130 MPH IN HURRICANE-PRONE REGIONS OR *V* < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS	MAXIMUM BASIC WIND SPEED, *V* ≥ 130 MPH IN HURRICANE-PRONE REGIONS OR *V* ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS
BIPV roof coverings	1507.16 1507.17	Underlayment shall be one of the following: 1. For roof slopes from 3 units vertical in 12 units horizontal (3:12) to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves. Starting at the eaves, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied as follows: Underlayment shall be applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eaves, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. A strip not less than 4 inches in width of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table 1507.1.1(1) for the applicable roof covering and basic wind speed shall be applied over the entire roof over the 4-inch-wide membrane strips. Underlayment shall be applied in accordance with this table using the application requirements for where the maximum basic wind speed is less than 130 mph. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s.

TABLE 1507.1.1(3) UNDERLAYMENTFASTENING

ROOF COVERING	SECTION	MAXIMUM BASIC WIND SPEED, *V* < 130 MPH IN HURRICANE-PRONE REGIONS OR *V* < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS	MAXIMUM BASIC WIND SPEED, *V* ≥ 130 MPH IN HURRICANE-PRONE REGIONS OR *V* ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS
Asphalt shingles	1507.2	Fastened sufficiently to hold in place	Mechanically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of not greater than 12 inches horizontally and vertically between side laps with a 6-inch spacing at side and end laps. Mechanically fastened underlayment shall be fastened using annular ring or deformed shank nails with 1-inch diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage (0.0134 inch) sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Clay and concrete tile	1507.3		
BIPV roof coverings	1507.16 1507.17		
Metal roof panels	1507.4	Manufacturer's installation instructions	Mechanically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of not greater than 12 inches horizontally and vertically between side laps with a 6-inch spacing at side and end laps. Mechanically fastened underlayment shall be fastened using annular ring or deformed shank nails with 1-inch diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Metal roof shingles	1507.5		
Mineral-surfaced roll roofing	1507.6		
Slate shingles	1507.7		
Wood shingles	1507.8		
Wood shakes	1507.9		

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

1507.17.3 Underlayment. *Underlayment* shall comply with Section 1507.1.1 ~~ASTM D226, ASTM D4869 or ASTM D6757~~.

Delete without substitution:

~~**1507.17.4 Underlayment application.** *Underlayment* shall be applied *shingle fashion*, parallel to and starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.~~

~~**1507.17.4.1 High-wind attachment.** *Underlayment* applied in areas subject to high winds [V_{asd} greater than 110 mph (49 m/s) as determined in accordance with Section 1609.3.1] shall be applied in accordance with the manufacturer's instructions. Fasteners shall be applied along the overlap at not more than 36 inches (914 mm) on center. *Underlayment* installed where V_{asd} is not less than 120 mph (54 m/s) shall comply with ASTM D226, Type III, ASTM D4869, Type IV or ASTM D6757. The *underlayment* shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. The *underlayment* shall be applied in~~

~~accordance with Section 1507.1.1 except all laps shall be not less than 4 inches (102 mm). *Underlayment* shall be attached using cap nails or cap staples. Caps shall be metal or plastic with a nominal head diameter of not less than 1 inch (25.4 mm). Metal caps shall have a thickness of not less than 0.010 inch (0.25 mm). Power-driven metal caps shall have a thickness of not less than 0.010 inch (0.25 mm). Thickness of the outside edge of plastic caps shall be not less than 0.035 inch (0.89 mm). The cap nail shank shall be not less than 0.083 inch (2.11 mm) for ring shank cap nails and 0.091 inch (2.31 mm) for smooth shank cap nails. Staple gage shall be not less than 21 gage [0.0.2 inch (0.81 mm)]. Cap nail shank and cap staple legs shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch (19.1 mm) into the roof sheathing.~~

~~**Exception:** As an alternative, adhered *underlayment* complying with ASTM D1970 shall be permitted.~~

Revise as follows:

1507.17.4.~~2~~ Ice barrier. <u>Where required, ice barriers shall comply with Section 1507.1.2.</u> ~~In areas where there has been a history of ice forming along the eaves causing a back-up of water, an ice barrier consisting of not fewer than two layers of *underlayment* cemented together or of a self-adhering polymer modified bitumen sheet shall be used instead of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the *exterior wall* line of the *building*.~~

~~**Exception:** Detached accessory *structures* that do not contain conditioned floor area.~~

Reason: This proposal integrates the underlayment requirements for Building-Integrated Photovoltaic (BIPV) roof panels into Section 1507.1.1, aligning them with the underlayment requirements specified for all other roofing materials. The 2018 IBC consolidated the underlayment requrements for roofing materials into Section 1507.1.1 and, at the same time, added specifications for BIPV roof panels. However, the underlayment requirements for BIPV roof panels was not updated to reflect this consolidation and has been overlooked since. Additionally, the current underlayment requirements for high winds areas are outdated and inconsistent with those for other roofing materials, including BIPV shingles. Updates to the wind speed triggers and the application and attachment methods have been made. This proposal seeks to update the underlayment requirements for BIPV roof panels to match those of all other roofing materials.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply consolidates the underlayment requirements for BIPV roof panels into Section 1507.1.1. Underlayment requirements for all other roof covering material is covered under Section 1507.1.1.

S17-25

S18-25

IBC: TABLE 1507.1.1(1)

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Building Code

Revise as follows:

TABLE 1507.1.1(1) UNDERLAYMENT TYPES

ROOF COVERING	SECTION	MAXIMUM BASIC WIND SPEED, *V* < 130 MPH IN HURRICANE-PRONE REGIONS OR *V* < 140 MPH OUTSIDE HURRICANE-PRONE REGIONS	MAXIMUM BASIC WIND SPEED, *V* ≥ 130 MPH IN HURRICANE-PRONE REGIONS OR *V* ≥ 140 MPH OUTSIDE HURRICANE-PRONE REGIONS
Asphalt shingles	1507.2	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257 ASTM D6757
Clay and concrete tiles	1507.3	ASTM D226 Type II ASTM D1970 ASTM D2626 ASTM D6380 Class M ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D8257
Metal roof panels applied to a solid or closely fitted deck	1507.4	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Metal roof shingles	1507.5	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Mineral-surfaced roll roofing	1507.6	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Slate shingles	1507.7	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Wood shingles	1507.8	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Wood shakes applied to a solid sheathing roof deck	1507.9	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
BIPV roof coverings	1507.16	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257 ASTM D6757

Reason: This code change proposal adds an additional underlayment material for use in high wind areas (V ≥ 130 mph in hurricane-prone regions and V ≥ 140 mph outside hurricane-prone regions) of the IBC. Underlayment complying with ASTM D6757 has long been permitted for asphalt shingle roof coverings in the International Codes and is currently permitted to be used in areas where V < 130 mph in hurricane-prone regions and V < 140 mph outside hurricane-prone regions. In the 2024 IBC, the underlayment requirements high wind areas was updated to be consistent with the 2021 IRC and the IBHS Fortified requirements for a sealed roof deck (SRD). Fortified has been updated and now specifically permits the use of underlayment complying with ASTM D6757 to create a SRD. This proposal simply adds underlayment material complying with ASTM D6757 as an option in high wind areas. Support of this proposal will align the underlayment requirements in high wind areas in the IBC with the IBHS Fortified SRD and add an additional underlayment option to be used in these areas.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds an additional underlayment material for use in high wind areas.

S18-25

S19-25

IBC: 1507.1.1.1 (New)

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Building Code

Add new text as follows:

1507.1.1.1 Underlayment installation at hips and ridges. *Underlayment* shall lap over hips and ridges a minimum of 6 inches.

Exception: Hips and ridges where ventilation openings in accordance with Section 1202 are provided.

Reason: This proposal seeks to provide an additional level of water intrusion protection for minimal effort in the event part of the roof covering is blown off. If approved, this proposal will align the code with IBHS's FORTIFIED Roof™ designation regarding underlayment application at hips and ridges. The FORTIFIED Home™ program was developed to reduce avoidable suffering and financial loss caused by hurricanes, high winds, and hail. The program requirements provide a systems-based, multi tiered approach for improving the resistance of homes and their contents to damage caused by wind, wind-driven rain, and hail. There are three designation levels—FORTIFIED Roof™, FORTIFIED Silver™, and FORTIFIED Gold™—that build on each other and address different systems of the home.

Roof covering damage is typically the most observed damage in post-windstorm investigations. This has been observed in damage investigations by IBHS and FEMA Mitigation Assessment Team (MAT) deployments. While widespread roof covering damage was observed and documented in the Hurricane Ian MAT report, the report noted that the failure of hip and ridge roof coverings was the most common damage observed for all roof covering types. The following paragraph is an excerpt from Section 4.2.4 in the FEMA Hurricane Ian MAT Report (https://www.fema.gov/sites/default/files/documents/fema_rm-hurriance-ian-mat-report-12-2023.pdf):

> “Although roof covering damage was widespread at all sites visited by the MAT, the degree of roof covering damage varied across the sites. The most common damage observed by the MAT for all roof coverings was displacement of hip and ridge roof coverings.”

The FEMA Hurricane Michael in Florida MAT Report (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf) also noted that the failure of hip and ridge asphalt shingles was prevalent (see Section 4.2.1.1).

Figure 4-11 (see below) from the FEMA Hurricane Ian in Florida MAT Report shows typical examples of hip and ridge failures observed in Hurricane Ian.

Figure 4-11: Hip and ridge damage on four residences with different roof types: a tile roof (top left), asphalt shingle roof (top right), metal panel roof (bottom left), and cedar shake roof (bottom right)

When hip and ridge roof coverings are blown off, the interior of the building is at risk of water intrusion due to gaps in the roof framing and decking. This water intrusion can result in costly damage to interior contents and furnishings.The observations from the FEMA Hurricane Ian in Florida MAT led to the report recommending the follwing in Recommendation FL-10c:

FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, ARMA, NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require a minimum of 6 inches overlap of the roof underlayment to hip and ridges that do not have ventilation components. Wrapping underlayment over hips and ridges that don't have ventilation components will improve the roof's resistance to water intrusion in the event the hip and ridge coverings are damaged or blown off.

This proposal, if approved, would implement this recommendation by requiring roof underlayment to be lapped over hips and ridges a minimum of 6 inches from both sides and would also be consistent with IBHS requirements for a Fortified Roof designation. An exception to this required lapping is provided for hips and ridges that have ventilation components. According to discussions with the Asphalt Roofing Manufacturer's Association (ARMA), many of its members already recommend this practice in their installation instructions. This proposal would codify this requirement for asphalt shingles and expand this practice to all roof covering types.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is not expected to create an increase in construction costs because it is a common practice for many roof coverings and the cost to extend underlayment at hips and ridges for the required 6" lap is negligible.

S19-25

S20-25 Part I

IBC: 1507.1.2

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1507.1.2 Ice barriers. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier shall be installed for asphalt shingles, *metal roof shingles*, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, and wood shakes. The ice barrier shall consist of not less than two layers of mechanically fastened *underlayment* cemented together, or a self-adhering polymer modified bitumen sheet complying with ASTM D1970. ~~shall be used in place of normal *underlayment* and~~ The ice barrier shall extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the *exterior wall* line of the *building*, measured horizontally.

Exception: Detached accessory *structures* that do not contain conditioned floor area.

S20-25 Part I

S20-25 Part II

IRC: R905.1.2

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R905.1.2 Ice barriers. In areas where there has been a history of ice forming along the eaves causing a backup of water as designated in Table R301.2, an ice barrier shall be installed for asphalt shingles, *metal roof shingles*, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles and wood shakes. The ice barrier shall consist of not fewer than two layers of mechanically fastened *underlayment* cemented together, or a self-adhering polymer-modified bitumen sheet complying with ASTM D1970. ~~shall be used in place of normal *underlayment* and~~ The ice barrier shall extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the *building*, measured horizontally.

On roofs with slope equal to or greater than 8 units vertical in 12 units horizontal (67-percent slope), the ice barrier shall be applied not less than 36 inches (914 mm) measured along the roof slope from the eave edge of the *building*.

Exception: Detached *accessory structures* not containing *conditioned floor area*.

Reason: This proposal clarifies the materials used for the two ice barrier construction options, adds the appropriate reference standard for self-adhering ice barriers, and clarifies that the measurement for ice barrier placement is meant to be horizontal, not along the roof plane.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies existing provisions without making technical changes. Therefore, no change in cost of construction will occur.

S20-25 Part II

S21-25 Part I

IBC: SECTION 1507, 1507.1.2, 1507.17.4.2

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing NASFM (phil@browning.red)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 1507 REQUIREMENTS FOR ROOF COVERINGS

Revise as follows:

1507.1.2 Ice barriers. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier shall be installed for asphalt shingles, *metal roof shingles*, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, ~~and~~ wood shakes, and building-integrated photovoltaic (BIPV) roof coverings. The ice barrier shall consist of not less than two layers of *underlayment* cemented together, or a self-adhering polymer modified bitumen sheet shall be used in place of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the *exterior wall* line of the *building*.

Exception: Detached accessory *structures* that do not contain conditioned floor area.

1507.17.4.2 Ice barrier. Where required, ice barriers shall comply with Section 1507.1.2. ~~In areas where there has been a history of ice forming along the eaves causing a back-up of water, an ice barrier consisting of not fewer than two layers of *underlayment* cemented together or of a self-adhering polymer modified bitumen sheet shall be used instead of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the *exterior wall* line of the *building*.~~

~~**Exception:** Detached accessory *structures* that do not contain conditioned floor area.~~

S21-25 Part I

S21-25 Part II

IRC: R905.1.2, R905.16.4

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing NASFM (phil@browning.red)

2024 International Residential Code

Revise as follows:

R905.1.2 Ice barriers. In areas where there has been a history of ice forming along the eaves causing a backup of water as designated in Table R301.2, an ice barrier shall be installed for asphalt shingles, *metal roof shingles*, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, ~~and~~ wood shakes, and building-integrated photovoltaic (BIPV) roof coverings. The ice barrier shall consist of not fewer than two layers of *underlayment* cemented together, or a self-adhering polymer-modified bitumen sheet shall be used in place of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the *building*.

On roofs with slope equal to or greater than 8 units vertical in 12 units horizontal (67-percent slope), the ice barrier shall be applied not less than 36 inches (914 mm) measured along the roof slope from the eave edge of the *building*.

Exception: Detached *accessory structures* not containing *conditioned floor area*.

R905.16.4 Ice barrier. Where required, ice barriers shall comply with Section R905.1.2. ~~In areas where there has been a history of ice forming along the eaves causing a backup of water, as designated in Table R301.2, an ice barrier that consists of not less than two layers of *underlayment* cemented together or of a self-adhering polymer-modified bitumen sheet shall be used in lieu of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the *building*.~~

~~**Exception:** Detached *accessory structures* that do not contain *conditioned floor area*.~~

Reason: Unlike IBC Section 1507.17.4.2 and IRC Section R905.16.4, other roof covering ice barrier sections simply point to IBC Section 1507.1.2 or IRC Section R905.1.2, respectively. This proposal redirects the ice barrier provisions for building-integrated photovoltaic (BIPV) roof panels to the general ice barrier sections. The proposal also adds "building integrated photovoltaic (BIPV) roof coverings to the list of roof covering types within the general ice barrier sections. These changes will simplify future maintenance of the ice barrier provisions.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency.

The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner. All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal consolidates the ice barrier requirements in one location, instead of repeating in other locations.

S21-25 Part II

S22-25

IBC: 1507.2.1, 1507.3.1, 1507.4.1, 1507.5.1, 1507.6.1, 1507.7.1, 1507.8.1, 1507.8.1.1, 1507.9.1, 1507.9.1.1, 2308.11.9, 2308.11.10, TABLE 2304.8(1), TABLE 2304.8(2)

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Building Code

Revise as follows:

1507.2.1 Deck requirements. Asphalt shingles shall be installed on wood structural panels or closely fitted sawn lumber sheathing ~~fastened to solidly sheathed decks~~.

1507.3.1 Deck requirements. Concrete and clay tile shall be installed ~~only over solid~~ on wood structural panels or closely fitted sawn lumber sheathing.

Exception: Spaced sawn lumber sheathing shall be permitted in *Seismic Design Categories* A, B and C.

1507.4.1 Deck requirements. *Metal roof panel roof coverings* shall be installed on wood structural panels or closely fitted sawn lumber sheathing~~applied to a solid or closely fitted deck~~, except where the *roof covering* is specifically designed to be applied to spaced supports.

1507.5.1 Deck requirements. *Metal roof shingles* shall be installed on wood structural panels or closely fitted sawn lumber sheathing ~~applied to a solid or closely fitted deck~~, except where the *roof covering* is specifically designed to be applied to spaced sawn lumber sheathing.

1507.6.1 Deck requirements. Mineral-surfaced roll roofing shall be installed on wood structural panels or closely fitted sawn lumber sheathing~~fastened to solidly sheathed roofs~~.

1507.7.1 Deck requirements. Slate shingles shall be installed on wood structural panels or closely fitted lumber sheathing~~fastened to solidly sheathed roofs~~.

1507.8.1 Deck requirements. Wood shingles shall be installed on ~~solid~~ wood structural panels, closely fitted sawn lumber sheathing or spaced sawn lumber sheathing. Where spaced sawn lumber sheathing is used, sheathing boards shall be not less than 1-inch by 4-inch (25 mm by 102 mm) nominal dimensions and shall be spaced on centers equal to the weather exposure from Table 1507.8.7 to coincide with the placement of fasteners. Where 1-inch × 4-inch (25 mm × 102 mm) spaced sawn lumber sheathing is installed at 10 inches (254 mm) on center or greater, additional 1-inch × 4-inch (25 mm × 102 mm) boards shall be installed between the sheathing boards. When wood shingles are installed over spaced sawn lumber sheathing and the underside of the shingles ~~are~~is exposed to the *attic* space, the *attic* shall be ventilated in accordance with Section 1202.2. The shingles shall not be backed with materials that will occupy the required air gap space and prevent the free movement of air on the interior side of the spaced sawn lumber sheathing.

1507.8.1.1 ~~Solid sheathing required~~ Sheathing under ice barrier. ~~Solid~~ Wood structural panel sheathing or closely fitted sawn lumber sheathing shall be provided for portions of the roof deck requiring an ice barrier in accordance with Section 1507.1.2~~is required in areas where the average daily temperature in January is 25°F (-4°C) or less or where there is a possibility of ice forming along the eaves causing a backup of water~~.

1507.9.1 Deck requirements. Wood shakes shall ~~only~~ be ~~used~~ installed on ~~solid~~wood structural panel sheathing, closely fitted sawn lumber sheathing, or spaced sawn lumber sheathing. Where spaced sawn lumber sheathing is used, sheathing boards shall be not less than 1-inch by 4-inch (25 mm by 102 mm) nominal dimensions and shall be spaced on centers equal to the weather exposure from Table 1507.9.8 to coincide with the placement of fasteners. Where 1-inch by 4-inch (25 mm by 102 mm) spaced sawn lumber sheathing is installed at 10 inches (254 mm) on center, additional 1-inch by 4-inch (25 mm by 102 mm) boards shall be installed between the sheathing boards. Where wood shakes are installed over spaced sawn lumber sheathing and the underside of the shakes ~~are~~ is exposed to the *attic* space, the *attic* shall be ventilated in accordance with Section 1202.2. The shakes shall not be backed with materials that will occupy the required air gap space and prevent the free movement of air on the interior side of the spaced sawn lumber sheathing.

1507.9.1.1 ~~Solid sheathing required~~ Sheathing under ice barrier. ~~Solid~~Wood structural panels or closely fitted sawn lumber sheathing shall be provided for portions of the roof deck requiring an ice barrier in accordance with Section 1507.1.2.~~is required in areas where the average daily temperature in January is 25°F (-4°C) or less or where there is a possibility of ice forming along the eaves causing a backup of water.~~

2308.11.9 Roof sheathing. Roof sheathing shall be in accordance with Tables 2304.8(3) and 2304.8(5) for *wood structural panels*, and Tables 2304.8(1) and 2304.8(2) for sawn lumber and shall comply with Section 2304.8.2.

2308.11.10 Joints. Joints in sawn lumber sheathing shall occur over supports unless *approved* end-matched lumber is used, in which case each piece shall bear on not fewer than two supports.

TABLE 2304.8(1) ALLOWABLE SPANS FOR SAWN LUMBER FLOOR AND ROOF SHEATHING

Portions of table not shown remain unchanged.

SPAN (inches)	MINIMUM NET THICKNESS (inches) OF SAWN LUMBER PLACED			
	Perpendicular to supports		Diagonally to supports	
	Surfaced dry[a]	Surfaced unseasoned	Surfaced dry[a]	Surfaced unseasoned

TABLE 2304.8(2) SAWN LUMBER SHEATHING ~~LUMBER~~, MINIMUM GRADE REQUIREMENTS: BOARD GRADE

Portions of table not shown remain unchanged.

~~SOLID~~ CLOSELY FITTED FLOOR OR ROOF SHEATHING	SPACED SAWN LUMBER ROOF SHEATHING	GRADING RULES

Reason: Code users have questioned if "lumber sheathing" is the same thing as "wood structural panels". This code change is intended to make a clearer distinction between the two by changing "lumber sheathing" to "sawn lumber sheathing" throughout. Sawn lumber is the appropriate terminology that refers to structural wood members that are not a composite and are rather sawn from a log.

Additionally, the phrase "solid sheathing" is misleading where sawn lumber is used as it leaves the code user to question if any gaps are permitted. The code also recognizes "closely fitted" as a phrase to indicate that sawn lumber used as sheathing is permitted to be installed with necessary gaps due to construction tolerances, provided they are closely fitted. Therefore the language has been cleaned up to only refer to "closely fitted" in the context of sawn lumber sheathing.

Lastly, a change has been made to the provisions for decking requirements of wood shakes and shingles to appropriately indicate Section 1507.1.2 for the requirement to install an ice barrier, rather than have duplicated language in that section and the decking sections.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change.

S22-25

S23-25 Part I

IBC: 1507.2.2, 1507.3.2

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1507.2.2 Slope. Asphalt shingles shall ~~only~~ be used on roof slopes of 2 units vertical in 12 units horizontal (17-percent slope) or greater, in accordance with the *underlayment* requirements of Section 1507.1.1. ~~For roof slopes from 2 units vertical in 12 units horizontal (17-percent slope) up to 4 units vertical in 12 units horizontal (33-percent slope), double *underlayment* application is required in accordance with Section 1507.1.1.~~

1507.3.2 Deck slope. Clay and concrete roof tile shall be installed on roof slopes of 2 $^1/_2$ units vertical in 12 units horizontal (21-percent slope) or greater, in accordance with the *underlayment* requirements of Section 1507.1.1. ~~For roof slopes from 2 $^1/_2$ units vertical in 12 units horizontal (21-percent slope) to 4 units vertical in 12 units horizontal (33-percent slope), double *underlayment* application is required in accordance with Section 1507.1.1.~~

S23-25 Part I

S23-25 Part II

IRC: R905.2.2, R905.3.2

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R905.2.2 Slope. Asphalt shingles shall be used ~~only~~ on roof slopes of 2 units vertical in 12 units horizontal (17-percent slope) or greater, in accordance with the *underlayment* requirements of Section R905.1.1. ~~For roof slopes from 2 units vertical in 12 units horizontal (17-percent slope) up to 4 units vertical in 12 units horizontal (33-percent slope), double *underlayment* application is required in accordance with Section R905.1.1.~~

R905.3.2 Slope. Clay and concrete roof tile shall be installed on roof slopes of $2^1/_2$ units vertical in 12 units horizontal (25-percent slope) or greater, in accordance with the *underlayment* requirements of Section R905.1.1. ~~For roof slopes from 2^1/_2 units vertical in 12 units horizontal (25-percent slope) to 4 units vertical in 12 units horizontal (33-percent slope), double *underlayment* application is required in accordance with Section R905.3.3.~~

Reason: This proposal corrects errors in the underlayment requirements for asphalt shingles and clay and concrete tile in the IBC and IRC. In prior code development cycles, the underlayment provisions were consolidated into single sections (IBC 1507.1.1 and IRC R905.1.1), which contain options for underlayment installation in IBC Table 1507.1.1(2) and IRC Table R905.1.1(2). Details in the tables establish slope conditions where a double-layer installation of mechanically fastened underlayment is required, slope conditions where a single-layer mechanically fastened underlayment is permitted, and situations where a single layer of self-adhesive underlayment is acceptable. The second sentence in each section of this proposal conflicts with the provisions of the underlayment tables by indicating a double layer installation is required for all underlayment types for lower slopes. This second sentence is not necessary, and its removal is proposed to resolve the existing conflict. An editorial change removes "only" from Sections 1507.2.2 and R905.2.2 since it does not add meaning.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal resolves an internal conflict in the code, without altering existing technical requirements. Therefore, no change in the cost of construction is expected if this proposal is accepted.

S23-25 Part II

S24-25 Part I

IBC: 1507.2.4, 1507.2.6, 1507.2.6.1 (New)

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1507.2.4 Material standards ~~Asphalt shingles~~. Asphalt shingles shall comply with ASTM D3462.

1507.2.6 Fastening ~~Attachment~~. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer's installation instructions, but not less than four fasteners per ~~strip~~ shingle or two fasteners per partial ~~individual~~ shingle. ~~Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12), shingles shall be installed as required by the manufacturer.~~

Exception: Interlocking asphalt shingles shall have not less than two fasteners per shingle or partial shingle.

Add new text as follows:

1507.2.6.1 Slopes exceeding 21 units vertical in 12 units horizontal. Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12), asphalt shingles shall be installed in accordance with the manufacturer's installation instructions.

S24-25 Part I

S24-25 Part II

IRC: R905.2.4, R905.2.6, R905.2.6.1 (New)

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R905.2.4 Material standards ~~Asphalt shingles.~~ Asphalt shingles shall comply with ASTM D3462.

R905.2.6 Fastening ~~Attachment~~. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer's ~~*approved*~~ installation instructions, but not less than four fasteners per ~~strip~~ shingle or two fasteners per partial ~~individual~~ shingle. ~~Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12, 175-percent slope), shingles shall be installed in accordance with the manufacturer's *approved* installation instructions.~~

Exception: Interlocking asphalt shingles shall have not less than two fasteners per shingle or partial shingle.

Add new text as follows:

R905.2.6.1 Slopes exceeding 21 units vertical in 12 units horizontal. Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12), asphalt shingles shall be installed in accordance with the manufacturer's installation instructions.

Reason: This proposal updates the asphalt shingle attachment sections of the IBC and IRC. The existing requirement for four fasteners per strip shingle and two fasteners per individual shingle harkens back to a day when three-tab strip shingles were the primary asphalt shingle product offering and interlocking shingles, which required only two fasteners per "individual" shingle due to their different width to length proportions, were more common. Today, the dominant asphalt shingle type is a laminated shingle which requires at least four fasteners per shingle. The proposal retains guidance for interlocking shingles via an exception. The changes proposed align better with asphalt shingle products in use today.

The following additional changes are offered:

- In the IBC, installation requirements are clarified by referencing manufacturer's installation instructions rather than the manufacturer. This also makes the section consistent with the existing language of the IRC.
- In the IBC, language in the exception is changed from "as required by" to "in accordance with" to align with language in the parallel section of the IRC.
- In the IRC, the requirement that manufacturer's instructions be "approved" is removed. This makes the section consistent with existing language of the IBC.
- The section titles for 1507.2.4 and R905.2.4 are altered to align with the section content and to differentiate them from the title of Sections 1507.2 and R905.2, respectively.
- Existing provisions for slopes exceeding 21:12 are placed in new subsections 1507.2.6.1 and R905.2.6.1 to improve clarity.
- Titles of Sections 1507.2.6 and R905.2.6 are changed from "Attachment" to "Fastening" to make the titles align better with the content.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies existing provisions without making technical changes. Therefore, no change in cost of construction should occur.

S24-25 Part II

S25-25

IBC: 1507.2.8.3

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Building Code

Revise as follows:

1507.2.8.3 Drip edge. A drip edge shall be provided at eaves and rake edges of shingle roofs. Adjacent segments of the drip edge shall be lapped not less than 2 inches (51 mm). The vertical leg of drip edges shall be not less than $1^1/_2$ inches (38 mm) in width and shall extend not less than $^1/_4$ inch (6.4 mm) below sheathing. The drip edge shall extend back on the roof not less than 2 inches (51 mm). *Underlayment* shall be installed over drip edges along eaves. Drip edges shall be installed over *underlayment* along rake edges. Drip edges shall be mechanically fastened at intervals not greater than 12 inches (305 mm) on center <u>with fasteners as specified in Section 1507.2.5</u>.

Reason: The International Residential Code establishes minimum requirements for fasteners used to attach drip edge flashing (Section R905.2.8.5) via a pointer to Section R905.2.5. This proposal adds a similar pointer for the same purpose to the International Building Code. In both the IRC and as proposed here for the IBC, the pointer is to the minimum fastener requirements for asphalt shingles. Inclusion of minimum fastener requirements will help reduce the use of improper fasteners.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Some type of fastener is used to attach drip edge flashing. Use of the proper fastener may slightly decrease or increase the cost of installation, but any difference is expected to be very small.

S25-25

S26-25 Part I

IBC: 1507.2.8.3

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1507.2.8.3 Drip edge. A drip edge shall be provided at eaves and rake edges of shingle roofs. Adjacent segments of the drip edge shall be overlapped not less than 2 inches (51 mm). The vertical leg of drip edges shall ~~be not less than 1 $^{1}/_{2}$ inches (38 mm) in width and shall~~ extend not less than $^{1}/_{4}$ inch (6.4 mm) below the roof sheathing. The drip edge shall extend ~~back on~~onto the roof sheathing not less than 2 inches (51 mm). ~~*Underlayment* shall be installed over drip edges along eaves. Drip edges shall be installed over *underlayment* along rake edges.~~ Drip edges shall be mechanically fastened to the roof sheathing at intervals not greater than 12 inches (305 mm) on center. *Underlayment* shall be installed over the drip edge along eaves and under the drip edge along rake edges.

S26-25 Part I

S26-25 Part II

IRC: R905.2.8.5

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R905.2.8.5 Drip edge. A drip edge shall be provided at eaves and rake edges of shingle roofs. Adjacent segments of drip edge shall be overlapped not less than 2 inches (51 mm). The vertical leg of drip ~~Drip~~ edges shall extend not less than $^{1}/_{4}$ inch (6.4 mm) below the roof sheathing. ~~and~~The drip edge shall extend ~~up back~~ onto the roof sheathing ~~*roof deck*~~not less than 2 inches (51 mm). Drip edges shall be mechanically fastened to the roof sheathing~~*roof deck*~~ at intervals not greater ~~more~~ than 12 inches (305 mm) on center ~~o.c.~~ with fasteners as specified in Section R905.2.5. *Underlayment* shall be installed over the drip edge along eaves and under the drip edge along rake edges.

Reason: Drip edge flashing installed both at roof eaves and rake edges is an important element of the roofing system, contributing to proper water management of the roofing system in these transitional areas. This proposal aligns the drip edge provisions between the IBC and the IRC, since the drip edge requirements should not differ for asphalt shingle roof systems installed on buildings subject to the provisions of these codes. In addition to standardizing the provisions, several improvements are made:

- Removes the unnecessary minimum width requirement for the vertical leg of the drip edge from the IBC. The prescription that the vertical leg extends a minimum of 1/4" below the roof sheathing is sufficient.
- Clarifies the requirement for how far the drip edge must extend back onto the roof by standardizing terminology to "roof sheathing," which is considered a more appropriate term than "roof" in the IBC and *"roof deck"* in the IRC. It requires the drip edge to extend at least two inches onto the roof sheathing. Without this stipulation, nails used for attaching the drip edge may be unintentionally placed in the space between the fascia/sub-fascia and the edge of the roof sheathing, creating a vulnerability to wind induced forces.
- The requirement is clarified to indicate that mechanical fastening is to be into the "roof sheathing" by adding "to the roof sheathing" in the IBC and changing *"roof deck"* to "roof sheathing" in the IRC. Roof sheathing was chosen because sheathing falls within the definition of *nailable substrate,* and the intention is to ensure the drip edge is mechanically fastened into the sheathing.
- Relocates the underlayment provisions in the IBC to the end of the section to mimic the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clean up of the existing drip edge provisions without technical changes. Therefore, no change in cost of construction is anticipated.

S26-25 Part II

S27-25

IBC: 1507.3.3

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net); Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Building Code

Revise as follows:

1507.3.3 Underlayment. Underlayment shall comply with Section 1507.1.1.~~Unless otherwise noted, required *underlayment* shall conform to: ASTM D226, Type II; ASTM D2626 or ASTM D6380, Class M mineral-surfaced roll roofing.~~

Reason: GRAHAM: This proposed code change is intended to remove unnecessary redundancy in the code.

Section 1507.1.1 Underlayment was added to IBC 2018 and continues in IBC 2021 and IBC 2024. The concept is consolidate all underlayment requirements from each steep-slope roof covering type into a single underlayment section. This current code change proposal is a clean-up from that original effort and replaces the ASTM product standards currently indicated in Section 1507.3.3 with a pointer to Section 1507.1.1, which includes Table 1507.1.1(1)--Underlayment Types indicating the various types of acceptable underlayments.

The specific underlayment standards currently referenced in Section 1507.3.3 are already included in Table 1507.1.1(1).

PHILLIPS: This proposal removes the incomplete list of clay and concrete tile underlayment options in Section 1507.3.3 and points to the underlayment provisions in 1507.1.1, which include a complete list of options. This change will remove confusion about which underlayments are permitted with clay and concrete tile and will simplify future maintenance of underlayment provisions by relying on the consolidated list in Section 1507.1.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

GRAHAM: This code change removes redundancy from the code and does not change the code's technical requirements or stringency. As a result, there is no increase or decrease in the cost of construction.
PHILLIPS: This proposal cleans up the underlayment provisions for clay and concrete tile without removing any options. No change in cost of construction is expected if this proposal is approved.

S27-25

S28-25

IBC: 1507.4.6 (New)

Proponents: Kurt Beres, representing MA Design (kurtb@ma-architects.com)

2024 International Building Code

Add new text as follows:

1507.4.6 Snow Guards. *Structures* with snow loads equal to or greater than 15 PSF, with roofs constructed of metal panels sloped greater than four units vertical in twelve units horizontal (33% or 4:12 slope), shall be provided with permanently attached guards sufficient to prevent ice and snow slides. The snow guards shall be installed in the locations and quantity established per the manufacturers recommendations.

Exceptions.

1. On sides of the building without occupiable areas within 6' of the face of the building.
2. When the sloped metal roof has no exposed edge such as with a parapet that would contain the build up of snow and ice.
3. Where approved by the building official.

Reason: With the ICC focus on disaster preparedness codifying good design that protects property and life with minimal cost is good code. Similar code sections have already been adopted in local codes and jurisdictions that have identified the need and simple change these types of measures can have on the protection of property and life such as the state of Kentucky. This proposal widens this to regions of the country by providing language focused on the amount of annual snow fall. Below are a couple links to articles about property and injury loss.

https://www.parkrecord.com/2019/03/05/park-city-roof-sheds-ice-and-snow-smashing-into-a-car/

https://www.nbcdfw.com/news/local/several-people-injured-at-cowboys-stadium/1910289/

Bibliography: 2018mKentucky building code.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Based on the region the proposed code change codifies good design practice and should have minimal impact on cost because it is considered best practice. Any cost increase would be dependent on the means selected, area affected and geographic location. Based on parameters defined below required snow guards should cost less than .50 cents per sf of affected roof area.

Estimated Immediate Cost Impact Justification (methodology and variables):

Methodology:Using available online tools to determine quantity, a model metal roof was used based on adhered snow guards, using a potential 40PSF roof load.

https://sno-safe.com/getLayout.php

Variables:

Size and location of the metal roofing system. Including pitch and snow load.

S28-25

S29-25

IBC: 1507.8.8, 1507.9.9

Proponents: Nav Koonar, representing Cedar Shake and Shingle Bureau, Director of Operations (nav.koonar@cedarbureau.org); David Roodvoets, DLR Consultants, representing Cedar Shake and Shingle Bureau (davelee@ix.netcom.com)

2024 International Building Code

Revise as follows:

1507.8.8 Flashing. At the juncture of the roof and vertical surfaces, flashing and counterflashing shall be provided in accordance with the manufacturer's installation instructions, and where of metal, shall be not less than 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal. The valley flashing shall extend not less than 11 inches (279 mm) from the centerline each way and have a splash diverter rib not less than 1 inch (25 mm) high at the flow line formed as part of the flashing. Sections of flashing shall have an end lap of not less than 4 inches (102 mm). For roof slopes of three units vertical in 12 units horizontal (25-percent slope) and over, the valley flashing shall have a 36-inch-wide (914 mm) *underlayment* of either one layer of Type I *underlayment* running the full length of the valley or a self-adhering polymer-modified bitumen sheet bearing a *label* indicating compliance with ASTM D1970, in addition to other required *underlayment*. ~~In areas where the average daily temperature in January is 25°F (-4°C) or less or where there is a possibility of ice forming along the eaves causing a backup of water,~~ Wood structural panels or solid lumber sheathing is required on that portion of the roof deck requiring the application of an ice barrier, the metal valley flashing *underlayment* shall be solidly cemented to the roofing *underlayment* for slopes under seven units vertical in 12 units horizontal (58-percent slope) or self-adhering polymer-modified bitumen sheet shall be installed.

1507.9.9 Flashing. At the juncture of the roof and vertical surfaces, flashing and counterflashing shall be provided in accordance with the manufacturer's installation instructions, and where of metal, shall be not less than 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal. The valley flashing shall extend not less than 11 inches (279 mm) from the centerline each way and have a splash diverter rib not less than 1 inch (25 mm) high at the flow line formed as part of the flashing. Sections of flashing shall have an end lap of not less than 4 inches (102 mm). For roof slopes of three units vertical in 12 units horizontal (25-percent slope) and over, the valley flashing shall have a 36-inch-wide (914 mm) *underlayment* of either one layer of Type I *underlayment* running the full length of the valley or a self-adhering polymer-modified bitumen sheet bearing a label indicating compliance with ASTM D1970, in addition to other required *underlayment*. ~~In areas where the average daily temperature in January is 25°F (-4°C) or less or where there is a possibility of ice forming along the eaves causing a backup of water,~~ Wood structural panels or solid lumber sheathing is required on that portion of the roof deck requiring the application of an ice barrier, the metal valley flashing *underlayment* shall be solidly cemented to the roofing *underlayment* for slopes under seven units vertical in 12 units horizontal (58-percent slope) or self-adhering polymer-modified bitumen sheet shall be installed.

Reason: The IBC wood shingle and wood shake sections in this proposal contain a trigger for ice barrier provisions (i.e., average daily temperature in January is 25°F or less) which conflicts with the ice barrier trigger in 1507.1.2. This proposal resolves the conflict by removing the trigger from 1507.8.8 and 1507.9.9.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Editorial change. See reason statement.

S29-25

S30-25 Part I

IBC: 1509.2, 1507.10.2, ASTM Chapter 35

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1509.2 Material standards. *Roof coating* materials shall comply with the standards in Table 1509.2.

TABLE 1509.2ROOF COATING MATERIAL STANDARDS

MATERIAL	STANDARD
Acrylic coating	ASTM D6083
Asphaltic emulsion coating	ASTM D1227
~~Asphalt coating~~	~~ASTM D2823~~
Asphalt roof coating	ASTM D4479
Aluminum-pigmented asphalt coating	ASTM D2824
Silicone coating	ASTM D6694
Moisture-cured polyurethane coating	ASTM D6947

1507.10.2 Material standards. *Built-up roof covering* materials shall comply with the standards in Table 1507.10.2 or UL 55A.

TABLE 1507.10.2BUILT-UP ROOFING MATERIAL STANDARDS

MATERIAL STANDARD	STANDARD
Acrylic coatings used in roofing	ASTM D6083
Aggregate surfacing	ASTM D1863
Asphalt adhesive used in roofing	ASTM D3747
Asphalt cements used in roofing	ASTM ~~D2822;~~ D3019; D4586
Asphalt-coated glass fiber base sheet	ASTM D4601
Asphalt coatings used in roofing	ASTM D1227; ~~D2823;~~ D2824; D4479
Asphalt glass felt	ASTM D2178
Asphalt primer used in roofing	ASTM D41
Asphalt-saturated and asphalt-coated organic felt base sheet	ASTM D2626
Asphalt-saturated organic felt (perforated)	ASTM D226
Asphalt used in roofing	ASTM D312
Coal-tar cements used in roofing	ASTM D4022; D5643
Coal-tar saturated organic felt	ASTM D227
Coal-tar pitch used in roofing	ASTM D450; Type I or II
Coal-tar primer used in roofing, dampproofing and waterproofing	ASTM D43
Glass mat, coal tar	ASTM D4990

MATERIAL STANDARD	STANDARD
Glass mat, venting type	ASTM D4897
Mineral-surfaced inorganic cap sheet	ASTM D3909
Thermoplastic fabrics used in roofing	ASTM D5665, D5726

Delete without substitution:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

~~D2822/D2822M—2005(2011)e1~~ ~~Specification for Asphalt Roof Cement, Asbestos Containing~~
~~D2823/D2823M—05(2011)e1~~ ~~Specification for Asphalt Roof Coatings, Asbestos Containing~~

S30-25 Part I

S30-25 Part II

IRC: R905.9.2, TABLE R909.2, ASTM Chapter 44

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R905.9.2 Material standards. *Built-up roof covering* materials shall comply with the standards in Table R905.9.2 or UL 55A.

TABLE R905.9.2BUILT-UP ROOFING MATERIAL STANDARDS

MATERIAL STANDARD	STANDARD
Acrylic coatings used in roofing	ASTM D6083
Aggregate surfacing	ASTM D1863
Asphalt adhesive used in roofing	ASTM D3747
Asphalt cements used in roofing	ASTM ~~D2822;~~ D3019; D4586
Asphalt-coated glass fiber base sheet	ASTM D4601
Asphalt coatings used in roofing	ASTM D1227; ~~D2823;~~ D2824; D4479
Asphalt glass felt	ASTM D2178
Asphalt primer used in roofing	ASTM D41
Asphalt-saturated and asphalt-coated organic felt base sheet	ASTM D2626
Asphalt-saturated organic felt (perforated)	ASTM D2626
Asphalt used in roofing	ASTM D312
Coal-tar cements used in roofing	ASTM D4022; D5643
Coal-tar primer used in roofing, dampproofing and waterproofing	ASTM D43
Coal-tar saturated organic felt	ASTM D227
Coal-tar used in roofing	ASTM D450, Type I or II
Glass mat, coal tar	ASTM D4990
Glass mat, venting type	ASTM D4897
Mineral-surfaced inorganic cap sheet	ASTM D3909
Thermoplastic fabrics used in roofing	ASTM D5665; D5726

TABLE R909.2 ROOF COATING MATERIAL STANDARDS

COATING MATERIAL	STANDARD
Acrylic coating	ASTM D6083
Asphaltic emulsion coating	ASTM D1227
~~Asphalt coating~~	~~ASTM D2823~~
Asphalt roof coating	ASTM D4479
Aluminum-pigmented asphalt coating	ASTM D2824
Silicone coating	ASTM D6694
Moisture-cured polyurethane coating	ASTM D6947

Delete without substitution:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

~~D2822/D2822M—2005(2011)e1~~	~~Specification for Asphalt Roof Cement, Asbestos Containing~~
~~D2823/D2823M—05(2011)e1~~	~~Specification for Asphalt Roof Coatings, Asbestos Containing~~

Reason: ASTM D2822 (Specification for Asphalt Roof Cement, Asbestos Containing) was withdrawn as an ASTM standard in 2016. ASTM D2823 (Specification for Asphalt Roof Coatings, Asbestos Containing) was withdrawn as an ASTM standard in 2014. No products complying with these standards are known, so the standards are proposed for removal from the IBC and the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed removal of standards representing materials no longer used will have no impact on cost of construction.

S30-25 Part II

S31-25

IBC: SECTION 202, SECTION 202 (New), SECTION 1510 (New), 1510.1 (New), 1510.2 (New), 1510.3 (New), 1510.4 (New), 1510.4.1 (New)

Proponents: Mike Fischer, Kellen Company, representing Protected Membrane Roofing Institute (mfischer@kellencompany.com)

2024 International Building Code

SECTION 202 DEFINITIONS

Add new definition as follows:

PROTECTED MEMBRANE ROOF ASSEMBLY. A *Roof Assembly* that includes insulation that is installed above a roofing membrane.

Add new text as follows:

SECTION 1510 PROTECTED MEMBRANE ROOF ASSEMBLIES

1510.1 General. *Protected membrane roof assemblies* shall comply with this Chapter. *Roof coverings* in *protected membrane roof assemblies* shall comply with Section 1507.

1510.2 Landscaped roofs and vegetative roofs. *Landscaped roofs* and *vegetative roofs* that include *protected membrane roof assemblies* shall comply with Sections 1505.10 and 1507.15.

1510.3 Foam plastics. Foam plastic insulation in *protected membrane roof assemblies* shall comply with the applicable requirements of Chapter 26.

1510.4 Installation. *Protected membrane roof assemblies* shall be installed in accordance with the manufacturer's *approved* installation instructions.

1510.4.1 Flashing. Flashing for *protected membrane roof assemblies* shall be installed in accordance with Section 1503.2 and the manufacturers *approved* installation instructions.

Reason: Protected membrane roof assemblies (also known as inverted roofs) include insulation that is above the roofing membrane. These assemblies are becoming increasingly popular, particularly as part of landscaped roofs and vegetative roofs. The IBC does not directly address these assemblies. For example, Section 1508 includes specific provisions for roof insulation that presume the insulation is protected by an approved roof covering.

This proposal provides a simple definition for protected membrane roof assemblies (PMRAs) and adds provisions to assist with code enforcement by ensuring that PMRAs meet the requirements for roofing- including wind, fire, weather protection- as well as the provisions for landscaped and vegetative roofs.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal contains no mandatory provisions.

S31-25

S32-25

IBC: [BG] 1511.2.4

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BG] 1511.2.4 Type of construction. *Penthouses* shall be constructed of *building element* materials as required for the type of construction of the *building*. Penthouse *exterior walls* and roof construction shall have a *fire-resistance rating* as required for the type of construction of the building. Supporting construction of such *exterior walls* and roof construction shall have a *fire-resistance rating* not less than required for the *exterior wall* or roof supported.

Exceptions:

1. On *buildings* of Type I construction, the *exterior walls* and roofs of *penthouses* with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour *fire-resistance rating*. The *exterior walls* and roofs of *penthouses* with a *fire separation distance* of 20 feet (6096 mm) or greater shall not be required to have a *fire-resistance rating*.
2. On *buildings* of Type I construction two *stories* or less in height above *grade plane* or of Type II construction, the *exterior walls* and roofs of *penthouses* with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour *fire-resistance rating* or a lesser *fire-resistance rating* as required by Table 705.5 and be constructed of *fire-retardant-treated wood*. The *exterior walls* and roofs of *penthouses* with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be constructed of *fire-retardant-treated wood* and shall not be required to have a *fire-resistance rating*. Interior framing and walls shall be permitted to be constructed of *fire-retardant-treated wood*.
3. On *buildings* of Type III, IV or V construction, the *exterior walls* <u>and roofs</u> of *penthouses* with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour *fire-resistance rating* or a lesser *fire-resistance rating* as required by Table 705.5. On *buildings* of Type III, IV or VA construction, the *exterior walls* <u>and roofs</u> of *penthouses* with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be of heavy timber construction complying with Sections 602.4 and 2304.11 or noncombustible construction or *fire-retardant-treated wood* and shall not be required to have a *fire-resistance rating*.

Reason: Penthouse exterior walls and roofs are required to meet material and fire-resistance rating requirements for the type of construction of the building. Exceptions to this requirement permit different materials or lesser fire-resistance ratings, with different allowances based on construction type. Exceptions 1 and 2 are for Type I and Type II construction and apply to exterior walls and roofs of penthouses; however, Exception 3 for Type III, IV or V construction only applies to exterior walls. It is believed this is an oversight since it doesn't make sense to give exceptions to the exterior walls without giving the same exceptions to the roofs, as is done in exceptions 1 and 2.

Furthermore, this creates a conflict in the code where an exterior bearing wall could be non-rated as allowed by Exception 3, while the roof is required to have a fire-resistance rating. In this case, the structural member supporting construction requirement of Section 704.1.1 is not met. There doesn't seem to be a reason to have a rated roof supported by a non-rated exterior bearing wall, while interior bearing walls would have to be rated per Sections 1511.2.4 and 704.1.1.

This proposal simply adds roofs to Exception 3 to be consistent with Exceptions 1 and 2, and to prevent a conflict in the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal corrects what is believed to be an oversight in the code for Exception 3, making Exception 3 consistent with Exceptions 1 and 2 and the intent of the code. Since this proposal is consistent with the intent of the code, it is considered to be a clarification with no cost impact.

S32-25

S33-25

IBC: [BG] 1511.2.4, [BG] 1511.3, 2304.11

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Revise as follows:

[BG] 1511.2.4 Type of construction. *Penthouses* shall be constructed of *building element* materials as required for the type of construction of the *building*. Penthouse *exterior walls* and roof construction shall have a *fire-resistance rating* as required for the type of construction of the building. Supporting construction of such *exterior walls* and roof construction shall have a *fire-resistance rating* not less than required for the *exterior wall* or roof supported.

Exceptions:

1. On *buildings* of Type I construction, the *exterior walls* and roofs of *penthouses* with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour *fire-resistance rating*. The *exterior walls* and roofs of *penthouses* with a *fire separation distance* of 20 feet (6096 mm) or greater shall not be required to have a *fire-resistance rating*.
2. On *buildings* of Type I construction two *stories* or less in height above *grade plane* or of Type II construction, the *exterior walls* and roofs of *penthouses* with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour *fire-resistance rating* or a lesser *fire-resistance rating* as required by Table 705.5 and be constructed of *fire-retardant-treated wood*. The *exterior walls* and roofs of *penthouses* with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be constructed of *fire-retardant-treated wood* and shall not be required to have a *fire-resistance rating*. Interior framing and walls shall be permitted to be constructed of *fire-retardant-treated wood*.
3. On *buildings* of Type III, IV or V construction, the *exterior walls* of *penthouses* with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour *fire-resistance rating* or a lesser *fire-resistance rating* as required by Table 705.5. On *buildings* of Type III, IV or VA construction, the *exterior walls* of *penthouses* with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be of heavy timber ~~construction~~ complying with ~~Sections 602.4 and~~ <u>the minimum dimensions and permitted materials in accordance with Section</u> 2304.11 or noncombustible construction or *fire-retardant-treated wood* and shall not be required to have a *fire-resistance rating*.

[BG] 1511.3 Tanks. Tanks having a capacity of more than 500 gallons (1893 L) located on the *roof deck* of a *building* shall be supported on *masonry*, reinforced concrete, steel or heavy timber ~~construction~~ complying with Section 2304.11 provided that, where such supports are located in the *building* above the lowest *story*, the support shall be fire-resistance rated as required for Type IA construction.

2304.11 Heavy timber ~~construction~~. Where a *structure*, portion thereof or individual structural elements are required by provisions of this code to be of heavy timber, the *building elements* therein shall comply with the applicable provisions of Sections 2304.11.1 through 2304.11.4. Minimum dimensions of heavy timber shall comply with the applicable requirements in Table 2304.11 based on roofs or floors supported and the configuration of each structural element, or in Sections 2304.11.2 through 2304.11.4. Lumber decking shall be in accordance with Section 2304.9.

Reason: "Heavy timber" refers to specific pieces of wood or wood products with large cross-sectional areas meeting the requirements of Table 2304.11. The term "heavy timber construction" refers to an architectural method utilizing heavy timber components for structural purposes. This proposal corrects three locations in the IBC where "heavy timber" more accurately describes the intent of how it's used in the section to be for wood member size requirements and not type of construction.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. The changes are proposed for consistency in the code.

S33-25

S34-25

IBC: [BG] 1511.7.6, 2703.1

Proponents: Amanda Hickman, The Hickman Group, representing Single-Ply Roofing Industry (SPRI) (amanda@thehickmangroup.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

[BG] 1511.7.6 Lightning protection systems. Where provided, lightning ~~Lightning~~ protection system components shall be installed in accordance with Sections 1511.7.6.1, 1511.7.6.2 and 2703.

2703.1 General. Where provided, lightning protection systems shall comply with Sections 1511.7.6 through 1511.7.6.2 and Sections 2703.2 through 2703.3.

Reason: The proposal clarifies the intent of these sections concerning Lightning Protection Systems. While such systems are not mandatory, when provided, they must comply with the applicable requirements outlined in both Chapter 15 and Chapter 27.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal only clarifies the intent of the section and provides a pointer to the other applicable section.

S34-25

S35-25

IBC: [BG] 1511.8

Proponents: John Taecker, Taecker Codes & Technical Services, representing Taecker Codes & Technical Services (john@taeckercodes.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

[BG] ~~1511.8~~ 1511.1.2 Structural fire resistance. The structural frame and roof construction supporting *loads* imposed upon the roof by any *rooftop structure* shall comply with the requirements of Table 601. The fire-resistance reduction permitted by Table 601, Note a, shall not apply to roofs containing *rooftop structures*.

Reason: The structural fire resistance requirements in Section 1511.8 applies to any rooftop structure. Thus, it should be relocated as a subsection to Section 1511.1 so that these requirements are not missed.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is already a requirement. This is an editorial relocation.

S35-25

S36-25

IBC: SECTION 1512 (New), 1512.1 (New), 1512.1.1 (New), 1512.1.2 (New), [BG] 1511.3, [BG] 1511.3.1, [BG] 1511.3.2, [BG] 1511.3.3, [BG] 1511.4, [BG] 1511.7.6, [BG] 1511.7.6.1, [BG] 1511.7.6.2, 1512.5 (New), 1512.6 (New), TABLE 1512.6 (New), 1512.7 (New), 1512.7.1 (New), 1512.7.2 (New), 1512.7.3 (New)

Proponents: John Taecker, Taecker Codes & Technical Services, representing Taecker Codes & Technical Services (john@taeckercodes.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Building Code

Add new text as follows:

SECTION 1512 ROOFTOP MOUNTED EQUIPMENT AND SYSTEMS

1512.1 General. Rooftop-mounted equipment and systems shall be installed in accordance with this section and the code applicable to the equipment or system. The installation shall not impact the integrity of the roof assembly or roof covering.

1512.1.1 Structural loads. The structural frame and roof construction supporting loads imposed upon the roof by any rooftop mounted equipment or system shall comply with Chapter 16.

1512.1.2 Flashing. Flashing shall be installed for rooftop-mounted equipment in accordance with Section 1503.2 and 1503.2.1.

Revise as follows:

[BG] ~~1511.3~~ 1512.2 Tanks. Tanks having a capacity of more than 500 gallons (1893 L) located on the *roof deck* of a *building* shall be supported on *masonry*, reinforced concrete, steel or heavy timber construction complying with Section 2304.11 provided that, where such supports are located in the *building* above the lowest *story*, the support shall be fire-resistance rated as required for Type IA construction.

[BG] ~~1511.3.1~~ 1512.2.1 Valve and drain. In the bottom or on the side near the bottom of the tank, a pipe or outlet, fitted with a suitable quick-opening valve for discharging the contents into a drain in an emergency shall be provided.

[BG] ~~1511.3.2~~ 1512.2.2 Location. Tanks shall not be placed over or near a *stairway* or an elevator *shaft*, unless there is a solid roof or floor underneath the tank.

[BG] ~~1511.3.3~~ 1512.2.3 Tank cover. Unenclosed roof tanks shall have covers sloping toward the perimeter of the tanks.

[BG] ~~1511.4~~ 1512.3 Cooling towers. Cooling towers located on the *roof deck* of a *building* and greater than 250 square feet (23.2 m^2) in base area or greater than 15 feet (4572 mm) in height above the *roof deck*, as measured to the highest point on the cooling tower, where the roof is greater than 50 feet (15 240 mm) in height above *grade plane* shall be constructed of noncombustible materials. The base area of cooling towers shall not exceed one-third the area of the supporting *roof deck*.

> **Exception:** Drip boards and the enclosing construction shall be permitted to be of wood not less than 1 inch (25 mm) nominal thickness, provided that the wood is covered on the exterior of the tower with noncombustible material.

[BG] ~~1511.7.6~~ 1512.4 Lightning protection systems. Lightning protection system components shall be installed in accordance with Sections ~~1511.7.6.1, 1511.7.6.2~~ 1512.4.1, 1512.4.2 and 2703.

[BG] ~~1511.7.6.1~~ 1512.4.1 Installation on metal edge systems or gutters. Lightning protection system components attached to

ANSI/SPRI/FM 4435/ES-1 or ANSI/SPRI GT-1 tested metal edge systems or gutters shall be installed with compatible brackets, fasteners or adhesives, in accordance with the metal edge systems or gutter manufacturer's installation instructions. Where the metal edge system or gutter manufacturer is unknown, installation shall be as directed by a *registered design professional*.

[BG] ~~1511.7.6.2~~ 1512.4.2 Installation on roof coverings. Lightning protection system components directly attached to or through the *roof covering* shall be installed in accordance with this chapter and the *roof covering* manufacturer's installation instructions. Flashing shall be installed in accordance with the *roof assembly* manufacturer's installation instructions and Sections 1503.2 and 1507 where the lightning protection system installation results in a penetration through the *roof covering*. Where the *roof covering* manufacturer is unknown, installation shall be as directed by a *registered design professional*.

Add new text as follows:

1512.5 Solar energy systems.. Rooftop-mounted photovoltaic panel systems and solar thermal systems shall be installed in accordance with Section 3111.

1512.6 Mechanical equipment.. Rooftop mounted mechanical equipment shall be mounted on curbs raised a minimum of 8 inches (203 mm) above the roof surface, or where roofing materials extend beneath the equipment, on raised equipment supports providing a minimum clearance height in accordance with Table 1512.6.

Exception: Where the existing rooftop equipment provides sufficient clearance to repair, recover, replace or maintain the roofing system or any of its components, and where approved, such existing equipment need not comply with Table 1512.6.

TABLE 1512.6 CLEARNCE BELOW RAISED ROOFTOP-MOUNTED MECHANICAL EQUIPMENT

Width of Mechanical Equipment	Minimum clearance above roof surface
< 24 inches (610 mm)	14 inches (356 mm)
24 inches (610 mm) < 36 inches (914 mm)	18 inches (457 mm)
36 inches (914 mm) < 48 inches (1219 mm)	24 inches (610 mm)
48 inches (1219 mm) < 60 inches (1525 mm)	30 inches (762 mm)
> 60 inches (1525 mm)	48 inches (1219 mm)

1512.7 Electrical, plumbing and mechanical systems. Electrical, plumbing and mechanical systems shall be installed in accordance with Sections 1512.7.1 through 1512.7.3, and this code.

1512.7.1 Electrical wiring methods. Electrical wiring methods installed on rooftops and not encased in structural concrete shall be installed above the roof system in accordance with all of the following:

1. Electrical wiring methods installed in locations under metal-corrugated sheet roof decking shall be supported so there is not less than 1 ½ inch (38 mm) clearance measured from the lowest surface of the roof covering to the top of the cable or raceway.
2. A cable or raceway shall not be installed in concealed locations in roofs with metal-corrugated sheet roof decks.
3. Support systems for electrical wiring shall not diminish the fire classification of the roofassembly
4. A minimum of 1 ½ inch (38 mm) of clearance shall be provided between the roofassembly and the cable or raceway, or other clearance as required by other sections of this code and NFPA 70.
5. All penetrations of the roof covering shall be flashed in accordance with one of the following methods:
   - 5.1. The roof covering manufacturer's installation instructions.
   - 5.2. Where the roof covering manufacturer is unknown, installation shall be as directed by a registered design professional.
   - 5.3. Listed and labeled flashing materials or systems specific for what is penetrating the roof covering.

1512.7.2 Mechanical and plumbing systems. Mechanical and plumbing system piping and tubing installed on rooftops and not encased in structural concrete shall be supported above the roof system and covering, in accordance with the following:

1. A pipe or tube shall not be installed in concealed locations in roofs with metal-corrugated sheet roof decks.
2 Support systems for piping and tubing shall not diminish the fire classification of the roof assembly
3 A minimum of 1 ½ inch (38 mm) of clearance shall be provided between the roof assembly and the pipe or tube or other clearance as required by other sections of this code and the *International Mechanical Code*, *International Plumbing Code*, or *International Fuel Gas Code*, as applicable.
4 All penetrations of the roof covering shall be flashed in accordance with one of the following methods:
   4.1. The roof covering manufacturer's installation instructions.
   4.2. Where the roof covering manufacturer is unknown, installation shall be as directed by a registered design professional.
   4.3. Listed and labeled flashing materials or systems specific for what is penetrating the roof covering.

1512.7.3 Line sets, piping, tubing, raceways and cables under roof decks. Line sets, piping, tubing, raceways and cables installed below the roof deck shall have a minimum clearance of 1 ½ inch (38 mm) from the lowest surface of the roof deck except where they penetrate the roof deck.

Exception: Line sets, pipes, conduit and cables installed under structural concrete decks.

Reason: A new dedicated section is proposed to address the ever-increasing installation of rooftop-mounted electrical, mechanical and plumbing equipment and systems.

There are no specific requirements in the code to:

1. Ensure that these installations do not impact the integrity of the roof,
2. Provide clearance of obstacles above the finished roof for maintenance or replacement of the roofing materials,
3. Address the potential impact of these installations on firefighting operations, or
4. Address the potential damage to the fire classification of the roof assemblies and roof coverings.

Requirements for clearance of rooftop mounted electrical wiring exist in NFPA 70, however, these requirements are related to temperature and heating of the conductors. There are requirements for some equipment and systems (tanks, cooling towers and lightning protection systems) that are currently located under the section for rooftop structures (Section 1511), even though they are not structures.

This proposal does the following:

- Relocate sections for equipment and systems that are currently within Section 1511, Rooftop Structures
- Use requirements taken from the current edition of the Florida Building code which has had this wording for several code cycles and has been field-proven to be effective and usable.
- Provide additional direction for other equipment and systems mounted on the rooftop not covered by the Florida Building Code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Good construction practices would address proper installation of rooftop-mounted equipment and systems to not impact the integrity of the roof, so the increase has the potential to be minimal, if at all. There may be a slight increase for those installers who have not done this practice. Calculating what, if any, additional cost is very difficult due to the location and the environment. For most of the country the cost would be minimal, if at all. Where there might be an increase in cost would be in high wind areas for the additional engineering involved, however engineering is already required in those situations, so the increase in cost would be negligible.

S36-25

S37-25 Part I

IBC: 1512.1; IEBC: [BS] 705.1

Proponents: Daniel Cupit, Professional Construction Services, representing Colorado Chapter International Code Council (dan.c@pcsden.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1512.1 General. Materials and methods of application used for recovering or replacing an existing *roof covering* shall comply with the requirements of Chapter 15 <u>and Section 1202.2.</u>

Exceptions:

1. *Roof replacement* or *roof recover* of existing *low-slope roof coverings* shall not be required to meet the minimum design slope requirement of $^{1}/_{4}$ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2.
2. Recovering or replacing an existing *roof covering* shall not be required to meet the requirement for secondary (emergency overflow) drains or *scuppers* in Section 1502.2 for roofs that provide for *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2. For the purposes of this exception, existing secondary drainage or *scupper* systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or *scuppers* designed and installed in accordance with Section 1502.2.

2024 International Existing Building Code

Revise as follows:

[BS] 705.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 <u>and Section 1202.2</u> of the *International Building Code*.

Exceptions:

1. *Roof replacement* or *roof recover* of existing low-slope roof coverings shall not be required to meet the minimum design slope requirement of $^{1}/_{4}$ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the *International Building Code* for roofs that provide positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code* .
2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1502 of the *International Building Code* for roofs that provide for positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code* . For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1502 of the *International Building Code*.

S37-25 Part II

IRC: R908.1

Proponents: Daniel Cupit, Professional Construction Services, representing Colorado Chapter International Code Council (dan.c@pcsden.com)

2024 International Residential Code

Revise as follows:

R908.1 General. Materials and methods of application used for recovering or replacing an existing *roof covering* shall comply with the requirements of this chapter <u>and Section R806.</u>

Exceptions:

1. *Reroofing* shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section R905 for roofs that provide *positive roof drainage*.
2. For roofs that provide positive drainage, recovering or replacing an existing *roof covering* shall not require the secondary (emergency overflow) drains or *scuppers* of Section R903.4.1 to be added to an existing roof.

Reason: Roof Ventilation Requirement for Reroofs

There is a strong need for adequate through roof ventilation on new roof structures and even more so on reroofs. Inadequate roof ventilation can lead to condensation at the sheathing and within the roof cavities. It can also lead to ice dams, and premature aging of the roof covering as with asphalt shingles.

Property damage due to inadequate steep slope roof ventilation has increased in recent years as construction materials have changed. This includes reflective "cool roofs", air barriers, and synthetic felt underlayments. The unintended consequences of these changes in construction have caused a considerable amount of property damage in recent years.

The condensation issue occurs In cold climates when the warm moist air inside structures comes into contact with the cool dry air outside. This warm moist air often occurs in the form of vapor drive in and around kitchen and bathroom areas. It also occurs around breaks in air barriers at penetrations, walls and framing structures due to imperfect construction. The condensation issue in under vented steep slope roof systems is not limited to cold climates in the winter as the opposite occurs in warm moist climates in the warm summer months when cool dry conditioned air in the interior of the structure comes into contact with the warm moist air outside.

The problem with reroofing is that less than 5% of all reroofs are designed by experienced design professionals. Most are replaced as is with similar or new materials with no accounting for existing conditions and no dew point calculations being performed as with new construction.

The roofing industry is well informed on the roof condensation issues and there are many types of ventilation materials to allow for the adequate intake and exhaust ventilation of any roof system or other means of moisture mitigation. Most contractors already know how to install new or additional intake and exhaust ventilation as inadequate roof ventilation is a common cause for roof repairs. Manufacturers have made it easy for contractors by providing education literature and online roof venting calculators. Installing the vents themselves is often easier than some roof flashing details.

The roofing industry has been active in dealing with the steep slope roof ventilation issue for many years, however the building codes have lagged behind in dealing with this issue. There are numerous articles and publications by industry professionals on this subject.

Passage of this proposed roof ventilation code change, as will significantly reduce the number of property damage claims from roof condensation.<u> Which is currently the number one cause of steep slope roofing-related defect claims. Once an issue with inadequate steep slope roof ventilation is corrected, there is no need to do so again. Adequate roof ventilation also increases the functional life of the roof system which far outweighs the minimal costs involved.</u>

Most AHJ’s already enforce the roof ventilation requirements for new construction and others also do so for reroofs. These AHJ’s have methods in place verify compliance. For those that do not, contractors already agree to meet the building code requirements when they pull their permit. There are also building guides available to assist with the installation and verification of roof intake and exhaust ventilation.

<u>This proposed code change is being introduced by the Colorado Chapter of the International Code Council.</u>

- **Articles on Steep Slope Roof Ventilation 2025.01.03.pdf**
  https://www.cdpaccess.com/proposal/12199/35307/documentation/182389/attachments/download/9010/

- **Roof Ventilation For Reroofs 2025.01.07.pdf**
  https://www.cdpaccess.com/proposal/12199/35307/documentation/182389/attachments/download/9230/

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Cost Impact: Decrease

Estimated Immediate Cost Impact:

The proposed code change would result in a minor increase in the cost of construction that would diminish over time as there is only a need to correct the inadequate ventilation issue once. The cost to bring steep slope roof ventilation to meet the referenced code in section R806 is roughly $810 to install on average 6 additional intake and/or exhaust vents on an average sized 25 square residential roof. Or roughly 5.4% of the average $15,000 cost for that 25 square roof. This cost is reduced with each roof replacement as the correction only needs to be installed once. The average addition of 6 additional roof vents per 25 square roof and the associated cost is based on my experience as a Roofing Consultant and Expert having designed, specified, managed, or supervised the installation of over 2,300 reroof projects over the last 24 years. I also put multiple roofing projects out to bid each year and am a roofing cost expert on roof construction, defect claims, and insurance damage claims.

There is no additional cost to the authority having jurisdiction (AHJ) if they rely in the contractors licensing, experience, and guarantee to follow the building codes adopted by the AHJ. There is a minimal cost the AHJ if they choose to verify installation of the required roof ventilation. There are multiple roof ventilation calculators available to the contractor and/or building official to assist with the required ventilation should the AHJ choose to require this. As a member of the Colorado Chapter of the ICC (CCICC) Standardization Committee we publish building guides including one for reroofing. The 2024 edit is to include a diagram for roof ventilation that will allow for the contractor to calculate and fill in the existing and additional roof intake and exhaust vents required to meet section R806. There are jurisdictions already have something similar to this.

Estimated Immediate Cost Impact Justification (methodology and variables):

This code change will correct roof ventilation issues with current single family residential structures that do not meet the requirements for new construction in R806. It will increase the service life of the roofs being adequately vented while reducing the risk of damage to existing structures from condensation, ice dams, and excessive heat and moisture in the roof cavity. This incidence of this type of damage has greatly increased in frequency and cost with recent iterations of the energy code and the use of synthetic felt underlayments. The cost to replace the damage caused to the roof sheathing, structural members, and interior surfaces due to condensation and/or ice dams can range from $1,200 on the low end to over $24,000 for the 25 square roof example. The cost to replace an average 25 square roof with damaged asphalt shingles due to excessive heat and moisture within the roof cavity or attic space from inadequate roof ventilation is the $15,000 for an average reroof.

This increase in the cost of construction is offset by a decrease in the annualized cost of the roof system as the useful or functional life of the roof covering is increased by 10% or more with adequate roof ventilation. This value is greater for asphalt shingles which are negatively affected more by excessive heat and moisture within the roof cavity.

Estimated Life Cycle Cost Impact:

The average useful or functional life of a steep slope roof system varies by region and type of roof covering. This life cycle ranges from as low as 7.8 years in severe hail regions to up to 30years in kore moderate climates for asphalt shingles with an average of roughly 15-years on average which is less than the standard shingle warranty periods currently available. The $810 average cost to bring the roof ventilation to meet the code requirement for new construction is roughly $54 per year. However, this cost also increases the service life of the roof system resulting in no cost or actual savings. An increase of the life of the roof covering by 10% due to adequate roof ventilation would result in a savings of $1,500 which exceeds that of the cost for the added ventilation.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

The methods used to determine the life cycle of a steep slope roof system are based on average values as observed in the extreme climate of Colorado where I have assessed over 1,400 roof systems over the last 24-years. The variables associated with the values provided are as follows: geographic and climatic conditions of the local region, local market conditions, type of roof covering installed, type of construction of the existing structure, existence of an air barrier, insulation inside or the roof cavity or attached to the bottom of the sheathing, internal mechanical systems and airflow, average relative humidity inside the structure, dew point relative to the roof deck, exhaust ventilation in bathrooms and kitchens.

Staff Analysis: Section 1512 or the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC CC # S37-25 Part I and CC # S46-25 addresses requirements in a different or contradicting manner related to Section 1512. The committee is urged to make their intensions clear with their actions on these proposals.

S37-25 Part II

S38-25

IBC: 1512.1; IEBC: [BS] 705.1

Proponents: Daniel Cupit, Professional Construction Services, representing Colorado Chapter International Code Council (dan.c@pcsden.com); Stephen Patterson, representing Rooftech (spatterson@rooftechusa.com)

2024 International Building Code

Revise as follows:

1512.1 General. Materials and methods of application used for recovering or replacing an existing *roof covering* shall comply with the requirements of Chapter 15.

Exceptions:

1. *Roof replacement* or *roof recover* of existing *low-slope roof coverings* shall not be required to meet the minimum design slope requirement of $^1/_4$ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2.
2. Recovering ~~or replacing~~ an existing *roof covering* shall not be required to meet the requirement for secondary (emergency overflow) drains or *scuppers* in Section 1502.2 for roofs that provide for *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2. For the purposes of this exception, existing secondary drainage or *scupper* systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or *scuppers* designed and installed in accordance with Section 1502.2.

2024 International Existing Building Code

Revise as follows:

[BS] 705.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the *International Building Code*.

Exceptions:

1. *Roof replacement* or *roof recover* of existing low-slope roof coverings shall not be required to meet the minimum design slope requirement of $^1/_4$ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the *International Building Code* for roofs that provide positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code* .
2. Recovering ~~or replacing~~ an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1502 of the *International Building Code* for roofs that provide for positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code* . For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1502 of the *International Building Code*.

Reason: There is often a need for overflow drains on reroofs as many existing structures do not have adequate roof drainage. The lack of overflow drains possesses a life safety risk from roof collapse especially on older roofs constructed prior to the adoption of the 2009 IBC that required roof overflow drains of structures without adequate roof drainage and the 2015 IPC that greatly increased the roof drainage requirement by increasing drain sizing. These changes were made to better account for actual roof runoff calculations and prevent the buildup of water on roof sections surrounded by parapet walls or other structures.

Water weighs 62.4 lbs. per cubic foot. A low slope roof with just 12-inch parapet walls and curbs can accumulate water up to 1-foot deep before flowing over the edges or through curbs if the existing drains are backed up or clogged. That load is equivalent to 62.4 psf and is more than double the amount of a common 30-lb snow load or a 20-lb rain load on an older building. This does not account for the dead load of the roof system and roof structure itself. Roofs with perimeter walls higher than 12-inches are common and pose an even greater risk of collapse if undersized roof drains become backed up or clogged.

Replacing a roof membrane requires compliance with the IECC and other energy codes in a large percentage of jurisdictions. The additional insulation and cover board required to meet the energy codes increases the weight of the roof system even if by only a few lbs. per square foot (psf). The requirement to add additional roof insulation is not a life safety issue while inadequate roof drainage and/or the lack of overflow drains is. If the building codes are going to require additional roof insulation it does not make sense to ignore the roof drainage required to ensure a roof system allows for proper drainage to avoid the risk of accumulation that can pose a safety hazard. Especially when this risk is greater on older buildings that were constructed prior to the roof drainage requirements. What is the value of human life put at risk because an existing roof structure does not have adequate roof drainage?

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Cost Impact: Increase

Estimated Immediate Cost Impact:

The average cost for installation of a roof overflow drain is roughly $1,500. The cost to install an overflow scupper is significantly less. For an average 100 Square roof requiring 3 to 4 overflow drains or scuppers that cost would be approximately $4,500 to $6,000 or $5,250 0n average. Whereas the cost for an average reroof is anywhere from $800 to over $1,600 per square or more depending on the region, the existing structure, and other circumstances. That averages out to approximately $1,200 per square which is a fair price to reroof an existing low slope roof with 1 or 2-inches of existing insulation to meet the current energy code requirements. At $1,200 per square the cost to replace a 100 Square roof is $120,000. $5,250 to install overflow drains is equal to only 34.4 % of the cost of the reroof.

Estimated Immediate Cost Impact Justification (methodology and variables):

Many roofs only require existing drains or scuppers to be enlarged or for a smaller portion of additional drains to be added if there are already existing overflow drains in place. The previous example assumes all new overflow drains ae required. Even so at 4.4 % of the cost of the reroof that cost is fairly reasonable compared to the reduction in risk achieved by meeting the drainage requirements in the 2024 IBC. In contrast the portion of the reroof cost to bring this sample roof into compliance with the 2021 IECC energy codes is roughly 35% of the reroof costs or $35,000.

Estimated Life Cycle Cost Impact:

If the typical lifecycle of a commercial building is 60 years and the average life of a low slope membrane is 20-years then the roof would be replaced at least twice before the building is fully remodeled or replaced. If you extend the cost of the additional drains over 2 lifecycles that is roughly 40-years at a cost of $131.25 per year or $262.50 per year over one roof lifecycle of 20-years.

Staff Analysis: Section 1512 or the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC

CC # S38-25 and CC #S46-25 addresses requirements in a different or contradicting manner related to Section 1512. The committee is urged to make their intensions clear with their actions on these proposals.

S38-25

S39-25

IBC: SECTION 1512, 1512.1; IEBC: SECTION 705, [BS] 705.1

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

Revise as follows:

SECTION 1512 REROOFING

1512.1 General. Materials and methods of application used for recovering or replacing an existing *roof covering* shall comply with the requirements of Chapter 15.

Exceptions:

1. *Roof replacement* or *roof recover* of existing ~~low-slope~~ asphalt built-up, modified bitumen, single-ply, sprayed polyurethane foam or liquid-applied *roof coverings* shall not be required to meet the minimum design slope requirement of ¼ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2.
2. Recovering or replacing an existing *roof covering* shall not be required to meet the requirement for secondary (emergency overflow) drains or *scuppers* in Section 1502.2 for roofs that provide for *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2. For the purposes of this exception, existing secondary drainage or *scupper* systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or *scuppers* designed and installed in accordance with Section 1502.2.

2024 International Existing Building Code

Revise as follows:

SECTION 705 REROOFING

[BS] 705.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the *International Building Code*.

Exceptions:

1. *Roof replacement* or *roof recover* of existing ~~low-slope~~ asphalt built-up, modified bitumen, single-ply, sprayed polyurethane foam or liquid-applied roof coverings shall not be required to meet the minimum design slope requirement of ¼ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the *International Building Code* for roofs that provide positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code* .
2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1502 of the *International Building Code* for roofs that provide for positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code*. For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1502 of the *International Building Code*.

Reason: This proposed code change is intended to clarify the code's existing requirements by specifically indicating those roof covering types that have a prescriptive minimum ¼ unit vertical in 12 units horizontal (2-percent) slope in new construciton, where IBC Section

1512-Reroofing's and IEBC Section 705-Reroofing's positve roof drainage exception can apply in reroofing with the indicated additional requirements.

This proposed code change is intended to be clarifying in nature and not change the code's technical requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposed code change is intended to be clarifying in nature and not change the code's technical requirements. Therefore, the cost of construction is not increased or decreased.

Staff Analysis: Section 1512 of the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC

S39-25

S40-25

IBC: SECTION 1512, 1512.1; IEBC: SECTION 705, [BS] 705.1

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

Revise as follows:

SECTION 1512
REROOFING

1512.1 General. Materials and methods of application used for recovering or replacing an existing *roof covering* shall comply with the requirements of Chapter 15.

Exceptions:

1. *Roof replacement* or *roof recover* of existing *low-slope roof coverings* shall not be required to meet the minimum design slope requirement of ¼ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2.
2. Recovering or replacing an existing *roof covering* shall not be required to meet the requirement for secondary (emergency overflow) drains or *scuppers* in Section 1502.2 for roofs <u>that meet the minimum design slope requirement in Section 1507 or for roofs </u>that provide for *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2. For the purposes of this exception, existing secondary drainage or *scupper* systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or *scuppers* designed and installed in accordance with Section 1502.2.

2024 International Existing Building Code

Revise as follows:

SECTION 705
REROOFING

[BS] 705.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the *International Building Code*.

Exceptions:

1. *Roof replacement* or *roof recover* of existing low-slope roof coverings shall not be required to meet the minimum design slope requirement of ¼ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the *International Building Code* for roofs that provide positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code* .
2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1502 of the *International Building Code* for roofs <u>that meet the minimum design slope requirement in Section 1507 of the *International Building Code* or for roofs </u>that provide for positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code*. For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1502 of the *International Building Code*.

Reason: This proposed code change is intended to clarify existing langauge in the IBC and IEBC relateing to reroofing.

IBC Section 1512.1, Exception 2, and similalry IEBC Section 705, Exception 2, address an exception where the codes' existing secondary drainage provisions are permitted to be re-used. As currently worded, Exception 2 could be interepreted to only apply to reroofing of low-slope roofs with *postive roof drainage* (as defined in IBC Sec. 202)--that is when Exception 1 specificly applies. Exception 2 can also apply when Excpetion 1 is not applicable--that is for existing roofs where roof slope greater than the minimium design roof slope from Section 1507 is provided.

The added language in IBC Section 1512.1, Exception 2, and IEBC Section 705.1, Exception 2 clarifies this.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed code clarifies the codes' existing requirements and does not increase or decrease the stringency of the codes. As a result, there is no cost impact associated with this proposed code change.

Staff Analysis: Section 1512 of the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC

S40-25

S41-25

IBC: 1512.3; IEBC: [BS] 705.3

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

Revise as follows:

1512.3 Roof recover. The installation of a new *roof covering* over an existing *roof covering* shall be permitted where any of the following conditions occur:

1. Where the new *roof covering* is installed in accordance with the *roof covering* manufacturer's approved instructions.
2. Complete and separate roofing systems, such as standing-seam *metal roof panel* systems, that are designed to transmit the roof *loads* directly to the *building*'s structural system and that do not rely on existing roofs and *roof coverings* for support, shall not require the removal of existing *roof coverings*.
3. Metal panel, metal shingle and concrete and clay tile *roof coverings* shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1512.3.1.
4. The application of a new ~~protective~~ *roof coating* over an existing ~~protective~~ *roof coating*, *metal roof panel*, built-up roof, spray polyurethane foam roofing system, *metal roof shingles*, mineral-surfaced roll roofing, modified bitumen roofing or *thermoset* and *thermoplastic* single-ply roofing shall be permitted without tear off of existing *roof coverings*.

Exception: A roof recover shall not be permitted where any of the following conditions occur:

1. The existing roof or *roof covering* is water-soaked or has deteriorated to the point that the existing roof or *roof covering* is not adequate as a base for additional roofing.
2. The existing *roof covering* is slate, clay, cement or asbestos-cement tile.
3. The existing roof has two or more applications of any type of *roof covering*.

2024 International Existing Building Code

Revise as follows:

[BS] 705.3 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. The new roof covering is installed in accordance with the roof covering manufacturer's *approved* instructions.
2. Complete and separate roofing systems, such as standing-seam metal roof panel systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. Metal panel, metal shingle and concrete and clay tile roof coverings shall be peritted to be installed over existing wood shake roofs when applied in accordance with Section 705.3.1.
4. The application of a new ~~protective~~ roof coating over an existing ~~protective~~ *roof coating*, a metal roof panel, built-up roof, spray polyurethane foam roofing system, metal roof shingles, mineral-surfaced roll roofing, modified bitumen roofing or thermoset and thermoplastic single-ply roofing shall be permitted without tear off of existing roof coverings.

Exception: A *roof recover* shall not be permitted where any of the following conditions occur:

1. Where the existing roof or roof covering is water-soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

Reason: This code change proposal is intended to clarify the existing code.

This code change proposal strikes the word "protective" from references to the term "roof coating" in Section 1512.3.4. The word "protective" is unnecessary as the term "roof coating" is already defined in Section 202-Definitions and specific requirements for roof coatings are provided in Section 1509-Roof Coatings. This change will not have an impact on the stringency of the building code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is editorial in nature and will not increase or decrease the cost of cosnstruction.

Staff Analysis: Section 1512 of the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC

S41-25

S42-25

IBC: 1512.3; IEBC: [BS] 705.3

Proponents: Bill McHugh, CM Services, Inc., representing Chicago Roofing Contractors Association (bill@mc-hugh.us)

2024 International Building Code

Revise as follows:

1512.3 Roof recover. The installation of a new *roof covering* over an existing *roof covering*,exposed insulation or roof deck shall be permitted where any of the following conditions occur:

1. Where the new *roof covering* is installed in accordance with the *roof covering* manufacturer's approved instructions.
2. Complete and separate roofing systems, such as standing-seam *metal roof panel* systems, that are designed to transmit the roof *loads* directly to the *building*'s structural system and that do not rely on existing roofs and *roof coverings* for support, shall not require the removal of existing *roof coverings*.
3. Metal panel, metal shingle and concrete and clay tile *roof coverings* shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1512.3.1.
4. The application of a new protective *roof coating* over an existing protective *roof coating*, *metal roof panel*, built-up roof, spray polyurethane foam roofing system, *metal roof shingles*, mineral-surfaced roll roofing, modified bitumen roofing or *thermoset* and *thermoplastic* single-ply roofing shall be permitted without tear off of existing *roof coverings*.

Exception: A roof recover shall not be permitted where any of the following conditions occur:

1. The existing roof or *roof covering* is water-soaked or has deteriorated to the point that the existing roof or *roof covering* is not adequate as a base for additional roofing.
2. The existing *roof covering* is slate, clay, cement or asbestos-cement tile.
3. The existing roof has two or more applications of any type of *roof covering*.

2024 International Existing Building Code

Revise as follows:

[BS] 705.3 Roof recover. The installation of a new roof covering over an existing roof covering, exposed insulation or roof deck shall be permitted where any of the following conditions occur:

1. The new roof covering is installed in accordance with the roof covering manufacturer's *approved* instructions.
2. Complete and separate roofing systems, such as standing-seam metal roof panel systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. Metal panel, metal shingle and concrete and clay tile roof coverings shall be peritted to be installed over existing wood shake roofs when applied in accordance with Section 705.3.1.
4. The application of a new protective roof coating over an existing protective *roof coating*, a metal roof panel, built-up roof, spray polyurethane foam roofing system, metal roof shingles, mineral-surfaced roll roofing, modified bitumen roofing or thermoset and thermoplastic single-ply roofing shall be permitted without tear off of existing roof coverings.

Exception: A *roof recover* shall not be permitted where any of the following conditions occur:

1. Where the existing roof or roof covering is water-soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

Reason: The reason for this proposal is to provide code officials crystal clear language for what is an important operation for reroofing applications. This roof recover operation takes place frequently, and should be included in the roof recover.

As can be seen from the definition, *roof replacement* indicates the complete *roof covering* is removed down to the roof deck. This assumes the roof vapor retarder, roof insulation, roofing and insulation adhesives or fasteners, roof membrane and roof overburdens such as ballast, pavers or vegetative covering are removed entirely.

The *roof recover* operation assumes the insulation is not wet, a suitable substrate, and not have two or more roofs on the building. See below for full definitions when working on existing buildings.

[BS] ROOF COVERING. The covering applied to the roof deck for weather resistance, fire classification or appearance.
[BS] ROOF REPLACEMENT. The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

[BS] ROOF RECOVER. The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

In a roof recover, there is surface preparation performed prior to application of a recover board, or application of a membrane directly to the existing roof membrane. Gravel and loose debris is swept, vacuumed and removed. Blisters are cut, possibly removed, and repaired.

The operation described in this proposal does exactly what a roof recover intends -- removes the existing membrane completely, prepares the underlying insulation surface to receive a new roof membrane just like a roof recover operation. This might include removing any wet insulation, then reinstalling insulation thickness to match, and then recover with the roof membrane over the prepared insulation surface.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This type of language does not increase or decrease the cost of a roof recover application.

Staff Analysis: Section 1512 or the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC

CC # S42-25 and CC # S46-25 addresses requirements in a different or contradicting manner related to Section 1512. The committee is urged to make their intensions clear with their actions on these proposals.

S42-25

S43-25

IBC: 1512.3; IEBC: [BS] 705.3

Proponents: Mellisa Mooren, representing Self (mmooren@skyeenv.com); Emily Lorenz, representing International Institute of Building Enclosure Consultants (IIBEC) (emilyblorenz@gmail.com)

2024 International Building Code

Revise as follows:

1512.3 Roof recover. The installation of a new *roof covering* over an existing *roof covering* shall be permitted where any of the following conditions occur:

1. Where the new *roof covering* is installed in accordance with the *roof covering* manufacturer's approved instructions.
2. Complete and separate roofing systems, such as standing-seam *metal roof panel* systems, that are designed to transmit the roof *loads* directly to the *building*'s structural system and that do not rely on existing roofs and *roof coverings* for support, shall not require the removal of existing *roof coverings*.
3. Metal panel, metal shingle and concrete and clay tile *roof coverings* shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1512.3.1.
4. The application of a new protective *roof coating* over an existing protective *roof coating*, *metal roof panel*, built-up roof, spray polyurethane foam roofing system, *metal roof shingles*, mineral-surfaced roll roofing, modified bitumen roofing or *thermoset* and *thermoplastic* single-ply roofing shall be permitted without tear off of existing *roof coverings*.

Exception: A roof recover shall not be permitted where any of the following conditions occur:

1. The existing roof or *roof covering* has been ~~is~~ water damaged ~~soaked~~ or has deteriorated to the point that the existing roof or *roof covering* is not adequate as a base for additional roofing. Where required by the manufacturer of the proposed new roof system used for a *roof recovering*, the existing conditions shall comply with the manufacturer's *approved* instructions.
2. The existing *roof covering* is slate, clay, cement or asbestos-cement tile.
3. The existing roof has two or more applications of any type of *roof covering*.

2024 International Existing Building Code

Revise as follows:

[BS] 705.3 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. The new roof covering is installed in accordance with the roof covering manufacturer's *approved* instructions.
2. Complete and separate roofing systems, such as standing-seam metal roof panel systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. Metal panel, metal shingle and concrete and clay tile roof coverings shall be peritted to be installed over existing wood shake roofs when applied in accordance with Section 705.3.1.
4. The application of a new protective roof coating over an existing protective *roof coating*, a metal roof panel, built-up roof, spray polyurethane foam roofing system, metal roof shingles, mineral-surfaced roll roofing, modified bitumen roofing or thermoset and thermoplastic single-ply roofing shall be permitted without tear off of existing roof coverings.

Exception: A *roof recover* shall not be permitted where any of the following conditions occur:

1. Where the existing roof or roof covering has been ~~is~~ water damaged ~~soaked~~ or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing. Where required by the manufacturer of the proposed new roof system used for a *roof recovering*, the existing conditions shall comply with the manufacturer's *approved* instructions.
2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

Reason: The term "water soaked" is not clearly defined. If the roof or roof covering has been water damaged or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing, roof recover shall not be allowed.

Existing roof coverings such as wood shake, slate, clay, cement or asbestos-cement tile historically do not provide an adequate base for new roof coverings and could prevent the new covering from achieving a weather-tight seal. They could also allow penetration of waste, snow, etc. These types of existing coverings must always be removed.

When the existing roof has two or more layers of any type of covering system, all layers need to be removed to enable the inspector and contractor to verify that the existing roof deck or sheathing is not water damaged and still capable of providing an adequate support or basis for fastening new material.

Potential revision to commentary on Section 1512.2.1.1: This section identifies the conditions where a recover is not permitted, and all layers of previously installed roof covering systems must be removed prior to the installation of the new roof covering system. When the existing roof or roof covering ~~is water soaked, it must be allowed to dry completely so as not to trap moisture beneath the new layer of covering. This could cause a rapid deterioration of the new covering material, as well as the existing sheathing. The existing covering is required to be removed if it cannot adequately dry out~~ has been water damaged or deteriorated to the apoint that the existing roof or roof covering is not adequate as a base for additional roofing. If it is still wet or if its physical properties have been permanently altered. Existing roof coverings such as wood shake, slate, clay, cement or asbestos-cement tile historically do not provide an adequate base for new roof coverings and could prevent the new covering from achieving a weather-tight seal. They could also allow penetration of water, snow, etc. These types of existing coverings must always be removed. When the existing roof has two or more layers of any type of covering system, all layers need to be removed to enable the inspector and contractor to verify that the existing sheathing is not water damaged and still capable of providing an adequate nailing base. Guidance on determining substrate material suitability and the physical properties condition can be found in the following consensus standards as follows:

For substrate conditions:

- Infrared testing in accordance with ASTM C1153
- Electrical impedance testing in accordance with ASTM D7954/D7954M-21
- Nuclear testing in accordance with ANSI/SPRI/IIBEC NT-1 2012 (R2022)

For physical properties:

- ANSI/SPRI IA-1 2021 - Standard Field Test Procedure for Verifying the Suitability of Roof Substrates and Adhesives
- ANSI/SPRI FX-1 2021 - Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners

Bibliography: ASTM International. 2015. *Standard Practice for Location of Wet Insulation in Roofing Systems Using Infrared Imaging*. ASTM C1153-10(2015), West Conshohocken, PA: ASTM International.

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Single Ply Roofing Industry (SPRI). 2006 (R2021). *Standard Field Test Procedure for Verifying the Suitability of Roof Substrates and Adhesives.* ANSI/SPRI IA-1 2021, Waltham, MA: SPRI.

Single Ply Roofing Industry (SPRI). 2010 (R2021). *Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners.* ANSI/SPRI FX-1 2021, Waltham, MA: SPRI.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal will not increase the cost of construction. The approval of roof recover project is already required in writing by manufacturers and, while not specific to system or installation, by the National Roof Contractors Association (NRCA).

Staff Analysis: Section 1512 or the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC

CC # S43-25 and CC # S46-25 addresses requirements in a different or contradicting manner related to Section 1512. The committee is urged to make their intensions clear with their actions on these proposals.

S43-25

S44-25

IBC: 1512.4, 1512.4.1 (New); IEBC: [BS] 705.4, 705.4.1 (New)

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

1512.4 Reinstallation of materials. Existing slate, clay or cement tile shall be permitted for reinstallation, except that damaged, cracked or broken slate or tile shall not be reinstalled. Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Existing *ballast* that is damaged, cracked or broken shall not be reinstalled. Existing aggregate surfacing materials from built-up roofs shall not be reinstalled.

Add new text as follows:

<u>**1512.4.1** **Above-deck roof insulation.** Above-deck thermal roof insulation shall be permitted to be re-used provided it is *approved*, in accordance with Section 1508, not water-soaked and not deteriorated to the point it is not adequate as a base for additional roofing.</u>

2024 International Existing Building Code

[BS] 705.4 Reinstallation of materials. Existing slate, clay or cement tile shall be permitted for reinstallation, except that damaged, cracked or broken slate or tile shall not be reinstalled. Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Existing ballast that is damaged, cracked or broken shall not be reinstalled. Existing aggregate surfacing materials from built-up roofs shall not be reinstalled.

Add new text as follows:

<u>**705.4.1** **Above-deck roof insulation.** Above-deck thermal roof insulation shall be permitted to be re-used provided it is *approved*, in accordance with Section 1508 of the *International Building Code*, not water-soaked and not deteriorated to the point it is not adequate as a base for additional roofing.</u>

Reason: This proposed code change adds a provision to Section 1512.4-Reinstallation of Materials allowing above-deck thermal roof insulation to be re-used when it meets certain specific conditions.

Large amounts of above-deck roof insulation are currently disposed of unnecessarily because of strict interpretation of IBC Section 1512.2 and IEBC Section 705.4. Allowing the building official to approve insulation re-use can prevent re-usable insulation material from unnecessarily ending up in landfills.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposed code change can result in construction cost savings on specific reroofing projects where all or a portion of the existing above-deck roof insulation can be re-used. Actual savings will vary greatly based on specific project conditions, insulation type and thickness, and the amount of insulation that can be re-used. See cost impact justification for decrease $ amount.

Estimated Immediate Cost Impact Justification (methodology and variables):

Cost savings in the range of $0.25 per square foot to about $1 per square foot of roof area are possible for specific reroofing projects where all or a portion of the existing above-deck roof insulation can be re-used. Savings in material cost only is calculated in this estimate. The cost savings figures are based on manufacturers' published cost lists for various above-deck roof insulation products applicable at the time of submission. Some minimal labor savings may also be realized on specific projects but are not inlcuded in this estimate range.

Estimated Life Cycle Cost Impact:

NA

Estimated Life Cycle Cost Impact Justification (methodology and variables):

NA

Staff Analysis: Section 1512 or the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC

S44-25

S45-25 Part I

IBC: 1512.5 (New); IEBC: 705.5 (New)

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing NASFM (phil@browning.red)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new text as follows:

1512.5 Reinstallation of PV panel systems. Existing installations of rooftop-mounted *PV panel systems approved* under previous code requirements shall be permitted to be reinstalled after *roof repair* or *roof replacement*, provided all of the following conditions are met:

1. Existing rooftop-mounted *PV panel system*s shall be reinstalled in accordance with the manufacturer's installation instructions and the minimum requirements of the edition of the codes to which it was originally installed.
2. The system shall be reinstalled in the previous location or in an *approved* location.
3. Components of the rooftop mounted *PV panel system* shall not be reused unless such components are in good working condition and *approved*.
4. All single-use components of the PV mounting system shall be replaced in accordance with the manufacturer's installation instructions.

2024 International Existing Building Code

Add new text as follows:

705.5 Reinstallation of PV panel systems. Existing installations of rooftop-mounted *PV panel systems approved* under previous code requirements shall be permitted to be reinstalled after *roof repair* or *roof replacement*, provided all of the following conditions are met:

1. Existing rooftop-mounted *PV panel system*s shall be reinstalled in accordance with the manufacturer's installation instructions and the minimum requirements of the edition of the codes to which it was originally installed.
2. The system shall be reinstalled in the previous location or in an *approved* location
3. Components of the rooftop mounted *PV panel system* shall not be reused unless such components are in good working condition and *approved*.
4. All single-use components of the rack mounting system shall be replaced in accordance with the manufacturer's installation instructions.

S45-25 Part II

IRC: R908.6 (New)

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing NASFM (phil@browning.red)

2024 International Residential Code

Add new text as follows:

R908.6 Reinstallation of PV panel systems. Existing installations of rooftop-mounted *PV panel systems approved* under previous code requirements shall be permitted to be reinstalled after *roof repair* or *roof replacement*, provided all of the following conditions are met:

1. Existing rooftop-mounted *PV panel system*s shall be reinstalled in accordance with the manufacturer's installation instructions and the minimum requirements of the edition of the codes to which it was originally installed.
2. The system shall be reinstalled in the previous location or in an *approved* location.
3. Components of the rooftop mounted *PV panel system* shall not be reused unless such components are in good working condition and *approved*.
4. All single-use components of the PV mounting system shall be replaced in accordance with the manufacturer's installation instructions.

Reason: The growing number of re-roofing projects on buildings that have rooftop-mounted photovoltaic panel systems previously installed is prompting code officials to search for sensible guidelines to ensure safety codes are followed. These PV systems often continue to have a useful life after the time that a roof covering or roof assembly is in need of repair or replacement.

This proposal provides direction and reasonable guardrails for the safe reinstallation of the rooftop-mounted PV panel system after reroofing is completed.

1. Condition 1 - If the existing installation of the rooftop mounted PV panel system is considered acceptable, then the system should be able to be returned to the rooftop after the reroofing is completed.
2. Condition 2 – If the system is not reinstalled in its original position, then the code official should determine if the change in location is acceptable.
3. Condition 3 – This correlates with Section 104.9.1 regarding the reuse of materials, equipment and devices.
4. Condition 4 – There are components within some rooftop mounted PV panel systems which can only be used once. Typically, those components are in the rack mounting system, which could include a flashing system or a ground clamp.

The Sustainable Energy Action Committee (SEAC) has prepared a guidance document to address this concern. The following is a link to the document for jurisdictions to use: https://sustainableenergyaction.org/resources/reinstallation-of-pv-system/

This document provides permitting and inspection guidelines in an effort to support the inspection community and the growing number of re-roofing projects that involve an existing photovoltaic panel system. This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal simply clarifies the ongoing use of previously approved equipment after roof repair or replacement, so it does not impact the cost of construction.

Staff Analysis: Section 1512 or the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC CC # S45-25 Part I and CC # S46-25 addresses requirements in a different or contradicting manner related to Section 1512. The committee is urged to make their intensions clear with their actions on these proposals.

S45-25 Part II

S46-25

IBC: SECTION 1512, 1512.1, 1512.2, 1512.3, 1512.3.1, 1512.4, 1512.5

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Building Code

SECTION 1512
REROOFING

Revise as follows:

1512.1 General. Materials and methods of application used for recovering or replacing an existing *roof covering* shall comply with ~~the requirements of Chapter 15~~ Chapter 7 of the *International Existing Building Code*.

~~**Exceptions:**~~

1. ~~*Roof replacement* or *roof recover* of existing *low-slope roof coverings* shall not be required to meet the minimum design slope requirement of $^1/_4$ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2.~~
2. ~~Recovering or replacing an existing *roof covering* shall not be required to meet the requirement for secondary (emergency overflow) drains or *scuppers* in Section 1502.2 for roofs that provide for *positive roof drainage* and meet the requirements of Sections 1608.3 and 1611.2. For the purposes of this exception, existing secondary drainage or *scupper* systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or *scuppers* designed and installed in accordance with Section 1502.2.~~

Delete without substitution:

~~**1512.2 Roof replacement.** *Roof replacement* shall include the removal of all existing layers of *roof assembly* materials down to the *roof deck*.~~

~~**Exceptions:**~~

1. ~~Where the existing *roof assembly* includes an ice barrier membrane that is adhered to the *roof deck* and the existing sheathing is not water-soaked or deteriorated to the point that it is not adequate as a base for additional roofing, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507 where permitted by the *roof covering* manufacturer and new ice barrier *underlayment* manufacturer.~~
2. ~~Where the existing roof includes a self-adhered *underlayment* and the existing sheathing is not water-soaked or deteriorated to the point that it is not adequate as a base for additional roofing, the existing self-adhered *underlayment* shall be permitted to remain in place and covered with an *underlayment* complying with Tables 1507.1.1(1), 1507.1.1(2) and 1507.1.1(3).~~
3. ~~Where the existing roof includes one layer of self-adhered *underlayment* and the existing layer cannot be removed without damaging the *roof deck*, a second layer of self-adhered *underlayment* is permitted to be installed over the existing self-adhered *underlayment* provided that the following conditions are met:~~
   - ~~3.1. It is permitted by the *roof covering* manufacturer and self-adhered *underlayment* manufacturer.~~
   - ~~3.2. The existing sheathing is not water-soaked or deteriorated to the point that it is not adequate as a base for additional roofing.~~
   - ~~3.3. The second layer of self-adhered *underlayment* is installed such that buildup of material at walls, valleys, roof edges, end laps and side laps does not exceed two layers.~~

~~**1512.3 Roof recover.** The installation of a new *roof covering* over an existing *roof covering* shall be permitted where any of the following conditions occur:~~

1. ~~Where the new *roof covering* is installed in accordance with the *roof covering* manufacturer's approved instructions.~~
2. ~~Complete and separate roofing systems, such as standing-seam *metal roof panel* systems, that are designed to transmit the roof *loads* directly to the *building*'s structural system and that do not rely on existing roofs and *roof coverings* for support, shall not require the removal of existing *roof coverings*.~~
3. ~~Metal panel, metal shingle and concrete and clay tile *roof coverings* shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1512.3.1.~~
4. ~~The application of a new protective *roof coating* over an existing protective *roof coating*, *metal roof panel*, built-up roof, spray polyurethane foam roofing system, *metal roof shingles*, mineral-surfaced roll roofing, modified bitumen roofing or *thermoset* and *thermoplastic* single-ply roofing shall be permitted without tear off of existing *roof coverings*.~~

~~**Exception:** A roof recover shall not be permitted where any of the following conditions occur:~~

1. ~~The existing roof or *roof covering* is water-soaked or has deteriorated to the point that the existing roof or *roof covering* is not adequate as a base for additional roofing.~~
2. ~~The existing *roof covering* is slate, clay, cement or asbestos-cement tile.~~
3. ~~The existing roof has two or more applications of any type of *roof covering*.~~

~~**1512.3.1 Roof recovering over wood shingles or shakes.** Where the application of a new *roof covering* over wood shingle or shake roofs creates a combustible concealed space, the entire existing surface shall be covered with *gypsum panel products* , *mineral fiber*, glass fiber or other *approved* materials securely fastened in place.~~

~~**1512.4 Reinstallation of materials.** Existing slate, clay or cement tile shall be permitted for reinstallation, except that damaged, cracked or broken slate or tile shall not be reinstalled. Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Existing *ballast* that is damaged, cracked or broken shall not be reinstalled. Existing aggregate surfacing materials from built-up roofs shall not be reinstalled.~~

~~**1512.5 Flashings**. Flashings shall be reconstructed in accordance with *approved* manufacturer's installation instructions. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.~~

Reason: IBC Section 1512-Reroofing is identical to IEBC Section 705-Reroofing. In the IEBC, reroofing operations, including re-covering or replacing an existing roof covering, are considered Level 1 alterations.

This proposed code change strikes the specific reroofing requirements from IBC Section 1512-Reroofing and replaces these with a pointer to the identical requirements in IEBC Section 705-Reroofing. This proposed change eliminates redundancy in the I-codes and does not change the codes' technical requirements for reroofing.

Similar uses of pointers, instead of redundant requirements, already occur in IBC Chapter 15 in Section 1502.1, where Chapter 11 of the *International Plumbing Code* is referenced and in Section 1507.15 where the *International Fire Code* is referenced.

NOTE: Modifications made by this proponent for 4 other code change proposals related to IBC Section 1512.1 Exception 1, 1512.1 Exception 2, 1512.3, & 1512.4.1, are not required if this proposal is accepted (modifications to the IEBC Section 705.1 Exception 1, 705.1 Exception 2, 705.3, & 705.4.1 are still applicable if this proposal is accepted).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal strikes redundant text and requirements in the I-codes; it does not change technical requirements. As a result, there is no increase or decrease in the cost of construction as a result of this change.

Staff Analysis: Section 1512 of the IBC and Section 705 of the IEBC are currently specifically duplicated and maintained as such between the IBC and IEBC

CC # S46-25 and CC # S45-25 Part I/ CC # S42-25/CC #S43-25/CC #S38-25/CC #S37-25 Part I addresses requirements in a different or contradicting manner related to Section 1512. The committee is urged to make their intensions clear with their actions on these proposals.

S46-25

S47-25

IBC: CHAPTER 15, SECTION 1501, 1501.1, SECTION 1805, 1805.1, 1805.1.1, 1805.1.2, 1805.1.2.1, 1805.2, 1805.2.1, 1805.2.2, 1805.2.2.1, 1805.3, 1805.3.1, 1805.3.2, 1805.3.2.1, 1805.3.3, 1805.4, 1805.4.1, 1805.4.2, 1805.4.3, 1805.1.3, SECTION 1513 (New), 1513.1 (New), 1513.2 (New), 1513.2.1 (New), 1513.2.2 (New), 1513.2.2.1 (New), 1513.3 (New), 1513.3.1 (New), 1513.3.2 (New), 1513.3.2.1 (New), 1513.3.3 (New)

Proponents: Bill McHugh, CM Services, Inc., representing Chicago Roofing Contractors Association (bill@mc-hugh.us)

2024 International Building Code

Revise as follows:

CHAPTER 15
ROOF ASSEMBLIES~~,~~ ~~AND~~ ROOFTOP STRUCTURES AND BELOW GRADE WATERPROOFING AND DAMPPROOFING

SECTION 1501
GENERAL

1501.1 Scope. The provisions of this chapter shall govern the design, materials, construction and quality of *roof assemblies*, ~~and~~ *rooftop structures* *and below grade waterproofing and dampproofing.*

SECTION 1805
~~DAMPPROOFING AND WATERPROOFING~~ DRAINAGE SYSTEMS

1805.1 General. Walls or portions thereof that retain earth and enclose interior spaces and floors below grade shall ~~be waterproofed and dampproofed~~ be provided with drainage systems in accordance with this section, with the exception of those spaces containing groups other than residential and institutional where such omission is not detrimental to the *building* or occupancy.

Ventilation for crawl spaces shall comply with Section 1202.4.

1805.1.1 Story above grade plane. Where a *basement* is considered a *story above grade plane* and the finished ground level adjacent to the basement wall is below the basement floor elevation for 25 percent or more of the perimeter, ~~the floor and walls shall be dampproofed in accordance with Section 1805.2 and~~ a foundation drain shall be installed in accordance with Section 1805.4.2. The foundation drain shall be installed around the portion of the perimeter where the basement floor is below ground level. The provisions of Sections 1803.5.4, 1805.3 and 1805.4.1 shall not apply in this case.

1805.1.2 Under-floor space. The finished ground level of an under-floor space such as a crawl space shall not be located below the bottom of the footings. Where there is evidence that the ground-water table rises to within 6 inches (152 mm) of the ground level at the outside *building* perimeter, or that the surface water does not readily drain from the *building* site, the ground level of the under-floor space shall be as high as the outside finished ground level, unless an *approved* drainage system is provided. The provisions of Sections 1803.5.4, 1805.2, 1805.3 and 1805.4 shall not apply in this case.

1805.1.2.1 Flood hazard areas. For *buildings* and *structures* in *flood hazard areas* as established in Section 1612.3, the finished ground level of an under-floor space such as a crawl space shall be equal to or higher than the outside finished ground level on one side or more.

Exception: Under-floor spaces of Group R-3 *buildings* that meet the requirements of FEMA TB 11.

Delete without substitution:

~~**1805.2 Dampproofing.** Where hydrostatic pressure will not occur as determined by Section 1803.5.4, floors and walls for other than~~

~~**1805.2 Dampproofing.** Where hydrostatic pressure will not occur as determined by Section 1805.1.1, floors and walls for other than wood foundation systems shall be dampproofed in accordance with this section. Wood foundation systems shall be constructed in accordance with AWC PWF.~~

~~**1805.2.1 Floors.** Dampproofing materials for floors shall be installed between the floor and the base course required by Section 1805.4.1, except where a separate floor is provided above a concrete slab.~~

~~Where installed beneath the slab, dampproofing shall consist of not less than 6-mil (0.006 inch; 0.152 mm) polyethylene with joints lapped not less than 6 inches (152 mm), or other *approved* methods or materials. Where permitted to be installed on top of the slab, dampproofing shall consist of mopped-on bitumen, not less than 4-mil (0.004 inch; 0.102 mm) polyethylene, or other *approved* methods or materials. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.~~

~~**1805.2.2 Walls.** Dampproofing materials for walls shall be installed on the exterior surface of the wall, and shall extend from the top of the footing to above ground level.~~

~~Dampproofing shall consist of a bituminous material, 3 pounds per square *yard* (16 N/m^2) of acrylic modified cement, $^1/_8$ inch (3.2 mm) coat of *surface-bonding mortar* complying with ASTM C887, any of the materials permitted for waterproofing by Section 1805.3.2 or other *approved* methods or materials.~~

~~**1805.2.2.1 Surface preparation of walls.** Prior to application of dampproofing materials on concrete walls, holes and recesses resulting from the removal of form ties shall be sealed with a bituminous material or other *approved* methods or materials. Unit *masonry* walls shall be parged on the exterior surface below ground level with not less than $^3/_8$ inch (9.5 mm) of Portland cement *mortar*. The parging shall be coved at the footing.~~

~~**Exception:** Parging of unit *masonry* walls is not required where a material is *approved* for direct application to the *masonry*.~~

~~**1805.3 Waterproofing.** Where the ground-water investigation required by Section 1803.5.4 indicates that a hydrostatic pressure condition exists, and the design does not include a ground-water control system as described in Section 1805.1.3, walls and floors shall be waterproofed in accordance with this section.~~

~~**1805.3.1 Floors.** Floors required to be waterproofed shall be of concrete and designed and constructed to withstand the hydrostatic pressures to which the floors will be subjected.~~

~~Waterproofing shall be accomplished by placing a membrane of rubberized asphalt, butyl rubber, fully adhered/fully bonded HDPE or polyolefin composite membrane or not less than 6-mil [0.006 inch (0.152 mm)] polyvinyl chloride with joints lapped not less than 6 inches (152 mm) or other *approved* materials under the slab. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.~~

~~**1805.3.2 Walls.** Walls required to be waterproofed shall be of concrete or *masonry* and shall be designed and constructed to withstand the hydrostatic pressures and other lateral *loads* to which the walls will be subjected.~~

~~Waterproofing shall be applied from the bottom of the wall to not less than 12 inches (305 mm) above the maximum elevation of the ground-water table. The remainder of the wall shall be dampproofed in accordance with Section 1805.2.2. Waterproofing shall consist of two-ply hot-mopped felts, not less than 6-mil (0.006 inch; 0.152 mm) polyvinyl chloride, 40-mil (0.040 inch; 1.02 mm) polymer-modified asphalt, 6-mil (0.006 inch; 0.152 mm) polyethylene or other *approved* methods or materials capable of bridging nonstructural cracks. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.~~

~~**1805.3.2.1 Surface preparation of walls.** Prior to the application of waterproofing materials on concrete or *masonry* walls, the walls shall be prepared in accordance with Section 1805.2.2.1.~~

~~**1805.3.3 Joints and penetrations.** *Joints* in walls and floors, *joints* between the wall and floor and penetrations of the wall and floor~~

~~shall be made watertight utilizing *approved* methods and materials.~~

Revise as follows:

~~**1805.4**~~ **1805.1.3** **Subsoil drainage system.** Where a hydrostatic pressure condition does not exist, dampproofing shall be provided and a base shall be installed under the floor and a drain installed around the foundation perimeter. A subsoil drainage system designed and constructed in accordance with Section 1805.1.4.3 ~~1805.1.3~~ shall be deemed adequate for lowering the ground-water table.

~~**1805.4.1**~~ **1805.1.4** **Floor base course.** Floors of basements, except as provided for in Section 1513.1.1 ~~1805.1.1,~~ shall be placed over a floor base course not less than 4 inches (102 mm) in thickness that consists of gravel or crushed stone containing not more than 10 percent of material that passes through a No. 4 (4.75 mm) sieve.

Exception: Where a site is located in well-drained gravel or sand/gravel mixture soils, a floor base course is not required.

~~**1805.4.2**~~ **1805.1.4.1** **Foundation drain.** A drain shall be placed around the perimeter of a foundation that consists of gravel or crushed stone containing not more than 10-percent material that passes through a No. 4 (4.75 mm) sieve. The drain shall extend not less than 12 inches (305 mm) beyond the outside edge of the footing. The thickness shall be such that the bottom of the drain is not higher than the bottom of the base under the floor, and that the top of the drain is not less than 6 inches (152 mm) above the top of the footing. The top of the drain shall be covered with an *approved* filter membrane material. Where a drain tile or perforated pipe is used, the invert of the pipe or tile shall not be higher than the floor elevation. The top of joints or the top of perforations shall be protected with an *approved* filter membrane material. The pipe or tile shall be placed on not less than 2 inches (51 mm) of gravel or crushed stone complying with Section 1805.4.1, and shall be covered with not less than 6 inches (152 mm) of the same material.

~~**1805.4.3**~~ **1805.1.4.2** **Drainage discharge.** The floor base and foundation perimeter drain shall discharge by gravity or mechanical means into an *approved* drainage system that complies with the *International Plumbing Code*.

Exception: Where a site is located in well-drained gravel or sand/gravel mixture soils, a dedicated drainage system is not required.

~~**1805.1.3**~~ **1805.1.4.3** **Ground-water control.** Where the ground-water table is lowered and maintained at an elevation not less than 6 inches (152 mm) below the bottom of the *lowest floor*, the floor and walls shall be dampproofed in accordance with Section 1513.2 ~~1805.2~~. The design of the system to lower the ground-water table shall be based on accepted principles of engineering that shall consider, but not necessarily be limited to, permeability of the soil, rate at which water enters the drainage system, rated capacity of pumps, head against which pumps are to operate and the rated capacity of the disposal area of the system.

Add new text as follows:

SECTION 1513
DAMPPROOFING AND WATERPROOFING

1513.1 General. Walls or portions thereof that retain earth and enclose interior spaces and floors below grade shall be waterproofed and dampproofed in accordance with this section, with the exception of those spaces containing groups other than residential and institutional where such omission is not detrimental to the building or occupancy. Wind and fire rating requirements referenced in this chapter do not apply to dampproofing and waterproofing unless part of a *roof assembly*. Ventilation for crawl spaces shall comply with Section 1202.4.

1513.2 Dampproofing. Where hydrostatic pressure will not occur as determined by Section 1803.5.4, floors and walls for other than wood foundation systems shall be dampproofed in accordance with this section. Wood foundation systems shall be constructed in accordance with AWC PWF.

1513.2.1 Floors. Dampproofing materials for floors shall be installed between the floor and the base course required by Section 1805.1.4, except where a separate floor is provided above a concrete slab.
Where installed beneath the slab, dampproofing shall consist of not less than 6-mil (0.006 inch; 0.152 mm) polyethylene with joints lapped not less than 6 inches (152 mm), or other approved methods or materials. Where permitted to be installed on top of the slab,

dampproofing shall consist of mopped-on bitumen, not less than 4-mil (0.004 inch; 0.102 mm) polyethylene, or other approved methods or materials. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.

1513.2.2 Walls. Dampproofing materials for walls shall be installed on the exterior surface of the wall, and shall extend from the top of the footing to above ground level. Dampproofing shall consist of a bituminous material, 3 pounds per square yard (16 N/m2) of acrylic modified cement, 1/8 inch (3.2 mm) coat of surface-bonding mortar complying with ASTM C887, any of the materials permitted for waterproofing by Section 1513 or other approved methods or materials.

1513.2.2.1 Surface preparation of walls. Prior to application of dampproofing materials on concrete walls, holes and recesses resulting from the removal of form ties shall be sealed with a bituminous material or other approved methods or materials. Unit masonry walls shall be parged on the exterior surface below ground level with not less than 3/8 inch (9.5 mm) of Portland cement mortar. The parging shall be coved at the footing.

Exception: Parging of unit masonry walls is not required where a material is approved for direct application to the masonry.

1513.3 Waterproofing.. Where the ground-water investigation required by Section 1803.5.4 indicates that a hydrostatic pressure condition exists, and the design does not include a ground-water control system as described in Section 1805.1.3, walls and floors shall be waterproofed in accordance with this section.

1513.3.1 Floors. Floors required to be waterproofed shall be of concrete and designed and constructed to withstand the hydrostatic pressures to which the floors will be subjected. Waterproofing shall be accomplished by placing a membrane of rubberized asphalt, butyl rubber, fully adhered/fully bonded HDPE or polyolefin composite membrane or not less than 6-mil [0.006 inch (0.152 mm)] polyvinyl chloride with joints lapped not less than 6 inches (152 mm) or other approved materials under the slab. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.

1513.3.2 Walls.. Walls required to be waterproofed shall be of concrete or masonry and shall be designed and constructed to withstand the hydrostatic pressures and other lateral loads to which the walls will be subjected. Waterproofing shall be applied from the bottom of the wall to not less than 12 inches (305 mm) above the maximum elevation of the ground-water table. The remainder of the wall shall be dampproofed in accordance with Section 1513.2.2. Waterproofing shall consist of two-ply hot-mopped felts, not less than 6-mil (0.006 inch; 0.152 mm) polyvinyl chloride, 40-mil (0.040 inch; 1.02 mm) polymer-modified asphalt, 6-mil (0.006 inch; 0.152 mm) polyethylene or other approved methods or materials capable of bridging nonstructural cracks. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.

1513.3.2.1 Surface preparation of walls.. Prior to the application of waterproofing materials on concrete or masonry walls, the walls shall be prepared in accordance with Section 1513.2.2.1.

1513.3.3 Joints and penetrations.. *Joints* in walls and floors, *joints* between the wall and floor and penetrations of the wall and floor shall be made watertight utilizing *approved* methods and materials.

Reason: The purpose of this proposal is to separate Chapter 18's wall and foundation drainage systems from the dampproofing and waterproofing sections of Chapter 19, and move it to Chapter 15. Since dampproofing and waterproofing materials are described in detail in Chapter 15, the location of these disciplines belongs with in Chapter 15. Also, roofing, waterproofing and dampproofing are very similar disciplines. The materials, contractors, inspection agencies, manufacturers, distribution are all similar.

This proposal leaves important foundation wall drainage design in Ch. 18, and intact in the code. The only change is to separate the two disciplines - waterproofing and dampproofing from drainage design in the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not increase the use of dampproofing or waterproofing in buildings, nor does it reduce usage. It is reorganizing the IBC to recognize the correct location of dampproofing and waterproofing.

S48-25

IBC: SECTION 202, 1602.1

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

[BS] WIND DESIGN GEODATABASE. The ASCE database (version 2022-1.0) of geocoded wind speed design data. The ASCE Wind Design Geodatabase of geocoded wind speed design data is available at ~~https://asce7hazardtool.online/~~ https://ascehazardtool.org/.

[BS] WINDBORNE DEBRIS REGION. Areas within *hurricane-prone regions* located:

1. Within 1 mile (1.61 km) of the mean high-water line where an Exposure D condition exists upwind at the waterline and the basic wind speed, *V*, is 130 mph (58 m/s) or greater; or
2. In areas where the basic wind speed, *V*, is 140 mph (63 m/s) or greater.

For *Risk Category* II buildings and other structures and Risk Category III buildings and other structures, except health care facilities, the windborne debris region shall be based on ~~Figure 1609.3.(1)~~ Figure 1609.3(2). For *Risk Category* III health care facilities, the windborne debris region shall be based on Figure 1609.3(3). For *Risk Category* IV buildings and other structures ~~and *Risk Category* III health care facilities~~ , the windborne debris region shall be based on ~~Figure 1609.3(2)~~ Figure 1609.3(4).

1602.1 Notations. The following notations are used in this chapter:

D	=	*Dead load.*
D_i	=	Weight of ice in accordance with Chapter 10 of ASCE 7.
E	=	Combined effect of horizontal and vertical earthquake induced forces as defined in Section 12.4 of ASCE 7.
F	=	Load due to fluids with well-defined pressures and maximum heights.
F_a	=	Flood load in accordance with Chapter 5 of ASCE 7.
H	=	Load due to lateral earth pressures, ground water pressure or pressure of bulk materials.
L	=	*Live load.*
L_r	=	*Roof live load.*
$p_{g(asd)}$	=	*Allowable stress design* ground snow load.
p_g	=	Ground snow load determined from Figures 1608.2(1) through 1608.2(4) and Table 1608.2.
R	=	Rain load.
S	=	Snow load.
T	=	Cumulative effects of self-straining load forces and effects.
V_{asd}	=	*Allowable stress design wind speed*, mph (m/s) where applicable.
V	=	Basic wind speed, V, mph (m/s) determined from Figures 1609.3(1) through 1609.3(4) or ~~ASCE 7~~ the *Wind Design Geodatabase*.
V_T	=	Tornado speed, mph (m/s) determined from Chapter 32 of ASCE 7.
W	=	Load due to wind pressure.
W_i	=	Wind-on-ice in accordance with Chapter 10 of ASCE 7.

Reason: The proposal includes two changes: i) revises the URL for the ASCE Hazard Tool website; and ii) revises the definition of windborne debris region to align with ASCE/SEI 7-22 Section 26.12.3.1. Further reasoning is below:

For item (i), the ASCE Hazard Tool URL changed from https://asce7hazardtool.online to https://ascehazardtool.org/.

For item (ii), the proposed change revises the windborne debris definition to align with ASCE/SEI 7-22 Section 26.12.3.1. ASCE/SEI 7 Section 26.12.3.1 changed in ASCE/SEI 7-16 and was not incorporated in prior versions of IBC. The changes also include the word "other" in front of the word "structures" to align with the scope and standard title for ASCE/SEI 7.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposed IBC code changes are editorial clarifications that improve the conciseness of IBC for alignment to ASCE/SEI 7.

S49-25 Part I

IBC: 1603.1, 1608.3 (New)

Proponents: John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE ADMINISTRATIVE (IADMIN) CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1603.1 General. *Construction documents* shall show the material, size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design *loads* and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.9 shall be indicated on the *construction documents*.

Exception: *Construction documents* for *buildings* constructed in accordance with the *conventional light-frame construction* provisions of Section 2308 shall indicate the following structural design information:

1. Floor and roof dead and *live loads*.
2. Ground snow load, p_g , and *allowable stress design* ground snow load, $p_{g(asd)}$.
3. Basic *wind speed* , *V*, mph (m/s), and *allowable stress design* wind speed, V_{asd}, as determined in accordance with Section 1609.3.1 and wind exposure.
4. *Seismic design category* and *site class*.
5. Flood design data, if located in *flood hazard areas* established in Section 1612.3.
6. Design load-bearing values of soils.
7. Rain load data.
8. Designated snow storage area locations, design loads, and maximum design stored snow height.

Add new text as follows:

1608.4 Posting designated snow storage areas. For designated snow storage areas, maximum design loads and maximum design stored snow height shall be posted by the owner or owner's authorized agent in accordance with Section 106.1.

S49-25 Part I

S49-25 Part II

IBC: [A] 106.1

Proponents: John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

[A] 106.1 ~~Live loads posted~~ Posting of loads. ~~In commercial or industrial *buildings*, for each floor or portion thereof designed for *live loads* exceeding 50 psf (2.40 kN/m^2), such design *live loads* shall be conspicuously posted by the *owner* or the *owner's* authorized agent in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.~~The following live loading conditions shall have the loading conditions posted. Loads shall be conspicuously posted by the owner or owner's authorized agent , using durable signs. It shall be unlawful to remove or deface such notices.

1. *Live Loads* in commercial or industrial buildings, for each floor or portion thereof designed for live loads exceeding 50 psf (2.40 kN/m2)
2. At designated snow storage areas, the snow storage area shall be clearly demarcated, and signs shall indicate the allowed maximum stored snow height within the designated snow storage area.

Reason: Large snow loads in excess of roof snow load requirements have resulted in catastrophic collapses. Especially in parking structures in cold climates, where snow removal is required for occupancy during winter months, snow is often moved to a small portion of the structure. Parapet walls can make removing the snow from the elevated portion of the structure challenging and time consuming. Providing a methodology for communicating snow storage area designs and posting requirements in the building code can improve the maintenance operations of structures requiring snow removal and improve public safety where designers elect to consider these additional design load conditions.


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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not require that snow storage areas be provided, it only provides a methodology for documenting and communicating the design loads if snow storage is elected by the owner. Therefore, there is no cost impact.

Staff Analysis: S49-25 Part II and ADM41-25 Part I address requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S49-25 Part II

S50-25

IBC: 1603.1.5, 1603.1.6

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Seth Thomas, KPFF Consulting Engineers, representing Self (seth.thomas@kpff.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

1603.1.5 Earthquake design data. The following information related to seismic *loads* shall be shown, regardless of whether seismic *loads* govern the design of the lateral force-resisting system of the *structure*:

1. Project location (latitude/ longitude)

~~1.~~ 2. *Risk category*.

~~2.~~ 3. Seismic importance factor, I_e.

~~3.~~ 4. Spectral response acceleration parameters, S_S and S_1.

~~4.~~ 5. *Site class*.

~~5.~~ 6. Design spectral response acceleration parameters, S_{DS} and S_{D1}, MPRS spectrum or Site-specific response spectrum.

7. Design spectral response acceleration, S_{DS}, for non-structural component bracing.

~~6.~~ 8. *Seismic design category*.

~~7.~~ 9. Basic seismic force-resisting system~~(s).~~ in each direction.

~~8. Design base shear(s).~~

~~9. Seismic response coefficient(s), *CS*.~~

10. ~~Response modification coefficient(s), *R*.~~ Seismic force-resisting system factors R, C_d, and Ω_0 in each direction.

11. Seismic response coefficient, C_s, in each direction.

12. Design base shear, V, in each direction.

13. Design earthquake displacement, δ_{DE}, in each direction.

14. Redundancy factor, ρ, in each direction.

~~11.~~ 15. Analysis procedure used.

16. Fundamental period, T, in each direction.

17. Approximate fundamental period, T_a, in each direction.

1603.1.6 Geotechnical information. ~~The design load-bearing values of soils shall be shown on the *construction documents*.~~ The construction documents shall provide a description of the foundation system and the design load-bearing values of soils and/or deep foundations elements. In *Seismic Design Categories* C through F, the capacity of the soil/foundation for seismic load cases shall be included..

Reason: ASCE 7-22 updated the non-structural bracing provisions for equipment and other non-structural components (ASCE 7-22 Equation 13.3-1 though 13.3-6). This equation now requires the building fundamental period of the structure to determine the non-structural component forces. The non-structural equipment designer (either at the time of construction or after) should not have to determine the period of the building, thus this information should be included in the drawings and has been added as item #17. The engineer or record (EOR) will already have this information when they design the structure so there is no additional effort. While reviewing this list several other items were determined to be missing that would be important to document for both future use in an evaluation or renovation or by review of a peer reviewer or plans examiner/building official. A summary of all items and the rationale is provided below.

Item 1: Project location – the exact location of the project is helpful in comparing design forces to those listed on the drawings. This could be an address, but common practice is to list latitude and longitude

Item 2: Risk Category – [Existing requirement #1] and is important item to understand the initial occupancy of the building and influences the seismic design forces selected.

Item 3: Seismic importance factor – [Existing code requirement #2]

Item 4: Site class – [existing requirement #4]

Item 5: Spectral response parameters Ss and S1 [Existing requirement #3]

Item 6: Design spectral response parameters – the existing code requirement notes the SDS and SD1 values used to generate the historical 2-point spectra [Existing requirement #5], however ASCE 7-22 now provides the option for the Multi period response spectra which would be more appropriate to provide in the drawings if used. Additionally, some projects have site specific response spectra which would also be relevant to provide if that is what was used for design.

Item 7: Design spectral response parameters for non-structural bracing. If the multi period or site specific response spectra is used it is not obvious what the SDs value that should be used for non-structural bracing is. This is important for historical documentation and for the delegated designers use.

Item 8: Seismic Design Category [Existing requirement #6]

Item 9: Description of seismic force resisting system – this is an existing requirement, however it has been clarified that it should be listed for each direction as it is common to have different SFRS in each primary direction [Existing requirement #7]

Item 10: Seismic force resisting system factors. This requires the designer to provide the R, Cd, and Ω for each system in each direction used for design. This an expansion of item 10 and Existing requirement #10.

Item 11: Seismic response coefficients [Existing requirement #9] with the clarification to provide in each direction.

Item 12: Design base shear [Existing requirement # 8] with the clarification to provide in each direction.

Item 13: Design earthquake displacement is a new requirement to provide the displacement which is often used for the design of non-structural components. This is also valuable information if a new structure is built adjacent and a building separation joint needs to be sized.

Item 14: Redundancy factor used. This adds a new requirement to provide if the system in each direction was designed using a r = 1.3 or not.

Item 15: Description of analysis procedure used [Existing requirement #11]

Item 16: Fundamental Period of structure in each direction. This is a new requirement providing the fundamental period of the building.

Item 17: Approximate fundamental period of structure in each direction. This value is used by engineers to determine the seismic forces for non-structural anchorage of equipment based on the revisions of ASCE 7-22.
It should be noted that the existing requirements have also been reorganized to a more logical order as well as minor editorial cleanup to use more consistent language as well as matching the symbols used in ASCE 7-22. This change proposals makes zero changes to the design of structures and only expands the required information put on the drawings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal does not result in any changes to what is constructed.

S50-25

S51-25

IBC: 1603.1.10 (New)

Proponents: Bonnie Manley, representing AISC (manley@aisc.org); Emily Dunham, Gresham Smith, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com)

2024 International Building Code

Add new text as follows:

1603.1.10 Identification and requirements for the design of systems or components by others. Where the *registered design professional* delegates portions of the project design for systems or components to others, the following information shall be shown, as applicable:

1. Identification of the system or component to be designed by others.
2. Design criteria applicable to the system or component to be designed by others, including design standards, special loads, serviceability, and other performance criteria.
3. Configurations and dimensions related to the system or component to be designed by others.
4. Identification of limitations, requirements, and constraints for the system or component to be designed by others, including, but not limited to, supports, anchors, and connections.
5. Requirements for the submission of drawings and calculations.

Reason: This proposal recommends a new subsection in IBC Section 1603.1. This proposal is intended to stand independently; however, it complements our proposal related to IBC Section 1604.1.

This new Section 1603.1.10 is intended to capture the necessary information on construction documents for designs delegated to others. Delegated design is a long-standing practice by which a building's systems and components are designed by the producers of those systems and components and not by the project's registered design professional(s). If the RDP specifies any system or component in the construction documents to be designed by others, then the pertinent information, listed in 1603.1.10, related to the delegated design of these systems or components must be shown in the construction documents along with the information already required in Sections 1603.1.1 through 1603.1.9.

Delegated designs may or may not be "deferred submittals," and vice versa; in fact, delegated designs may even be included in the initial permit package. The documentation for these systems and components can be deferred submittals and, accordingly, would need to meet the requirements of Section 107.3.4. While provisions for deferred submittals have been in IBC for many editions, the additional requirements in this proposal are intended to clarify and strengthen the roles and responsibilities of all those involved in the design process, including those involved in delegated design. (Example: A modification to an existing curtain wall can be deferred and not be delegated. The same modification could be both delegated and deferred.)

Why is this necessary?

The delegation of design work is common in structural engineering practice. In fact, almost all structural materials currently have some elements of work that are delegated by an Engineer of Record (EOR) to a Specialty Structural Engineer (SSE) as directed in the model building code (e.g., IBC) and its reference standards.

From the structural steel perspective, the most common design work delegated is connection design. It is addressed comprehensively in AISC 360, Specification for Structural Steel Buildings, and the AISC 303, Code of Standard Practice for Steel Buildings and Bridges. The requirements in those documents are consistent with those recommended by CASE, NCSEA, and SEI on design responsibility. Additionally, the AISC provisions dovetail with the model building code requirements on deferred submittals.

However, recent real-world examples continue to demonstrate that improper practices still exist because the delegation of design work specified in the model building code is not as clear and robust as it could be and, as a result, does not safeguard the basic intent for life safety in the process.

Example of a Better Way – Missouri

We recently became aware of current Missouri law, which provides straightforward and concise language on delegated design and deferred submittals in 20 CSR 2030-21.020 Engineer of Record and Specialty Engineers. (Available at: https://www.sos.mo.gov/cmsimages/adrules/csr/current/20csr/20c2030-21.pdf) It describes a transparent process for delegating design work to ensure the protection of life safety.

Development of the ICC Proposals

The concepts presented in the MO statute have been distilled down and transitioned into requirements appropriate for adoption in a model building code. This includes utilizing IBC terminology, substituting EOR with registered design professional, and, instead of introducing a defined term for SSE, we've used the general phrase "designed by others." This proposal and its companion proposal clarify the following three fundamental concepts for delegation practice in the IBC:

1. The delegating RDP must state the criteria that the others performing the delegated design work must meet.
2. The others performing the delegated design work must meet those stated criteria and submit their work to the RDP.
3. The RDP must review that submission for conformance to the stated criteria.

Bibliography: AISC (2022), *Specification for Structural Steel Buildings*, ANSI/AISC 360-22, American Institute of Steel Construction, Chicago, Ill., August 1, 2022. Available at: https://www.aisc.org/publications/steel-standards/.
AISC (2022), *Code of Standard Practice for Steel Buildings and Bridges,* ANSI/AISC 303-22, American Institute of Steel Construction, Chicago, Ill., May 9, 2022. Available at: https://www.aisc.org/publications/steel-standards/.
Rules of Department of Commerce and Insurance, Division 2030—Missouri Board for Architects, Professional Engineers, Professional Land Surveyors, and Professional Landscape Architects, Chapter 21—Professional Engineering, 20 CSR 2030-21.020 *Engineer of Record and Specialty Engineers*. Available at: https://www.sos.mo.gov/cmsimages/adrules/csr/current/20csr/20c2030-21.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clarification. Should design be delegated to others, then the information recommended in this proposal must be specified in the construction documents.

S51-25

S52-25

IBC: 1604.1, 1604.1.1 (New)

Proponents: Bonnie Manley, representing AISC (manley@aisc.org); Emily Dunham, Gresham Smith, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com)

2024 International Building Code

1604.1 General. *Building*, *structures* and parts thereof shall be designed and constructed in accordance with *strength* design, *load and resistance factor* design, *allowable stress design*, empirical design or conventional construction methods, as permitted by the applicable material chapters and referenced standards.

Add new text as follows:

1604.1.1 Delegated design. Delegation of portions of the project design to others by the *registered design professional* shall be in accordance with this section.

1. The *registered design professional* shall show the design and other applicable requirements for the delegated designs on the *construction documents.*
2. The delegated designs shall comply with the requirements of the building code and the requirements specified by the *registered design professional* and shall be submitted to the *registered design professional* for review.
3. The *registered design professional* shall review the delegated designs for general conformance with the *construction documents.*

Reason: This proposal recommends a new subsection in IBC Section 1604.1. This proposal is intended to stand independently; however, it complements our proposal related to IBC Section 1603.1.

This proposal is motivated by our belief that the provisions relating to the role and responsibilities of the registered design professional should be clarified and strengthened as they pertain to the delegated design. Delegated design is a long-standing practice by which a building's systems and components are designed by the producers of those systems and components and not by the project's registered design professional(s). Examples of these components include but are not limited to, hollow-core precast slabs and other precast elements, mass timber systems and elements, structural steel systems and elements, metal plate-connected wood roof trusses, curtain walls, and sprinkler systems.

To ensure proper delegation practice, this proposal distills the role and responsibility of the RDP into the following three fundamental concepts:

1. The delegating RDP must state the criteria that the others performing the delegated design work must meet.
2. The others performing the delegated design work must meet those stated criteria and submit their work to the RDP.
3. The RDP must review that submission for conformance to the stated criteria.

By further clarifying and strengthening the role and responsibilities of the registered design professional, we believe that the chances that some essential design or construction requirement might be overlooked or a responsibility might be unheeded will be significantly reduced and that life safety will be enhanced.

Delegated designs may or may not be “deferred submittals,” and vice versa; in fact, delegated designs may even be included in the initial permit package. If the documentation for these systems and components is deferred, the additional requirements of Section 107.3.4 would also need to be met. While provisions for deferred submittals have been in IBC for many editions, the additional requirements in this proposal are intended to clarify and strengthen the roles and responsibilities of all those involved in the design process, including those involved in delegated design. (Example: A modification to an existing curtain wall can be deferred and not be delegated. The same modification could be both delegated and deferred.)

Why is this necessary?
The delegation of design work is common in structural engineering practice. In fact, almost all structural materials currently have some elements of work that are delegated by an Engineer of Record (EOR) to a Specialty Structural Engineer (SSE) as directed in the model building code (e.g., IBC) and its reference standards.

From the structural steel perspective, the most common design work delegated is connection design. It is addressed comprehensively in AISC 360, *Specification for Structural Steel Buildings*, and the AISC 303, *Code of Standard Practice for Steel Buildings and Bridges*. The requirements in those documents are consistent with those recommended by CASE, NCSEA, and SEI on design responsibility. Additionally, the AISC provisions dovetail with the model building code requirements on deferred submittals.

However, recent real-world examples continue to demonstrate that improper practices still exist because the delegation of design work specified in the model building code is not as clear and robust as it could be and, as a result, does not safeguard the basic intent for life safety in the process.

Example of a Better Way – Missouri
We recently became aware of current Missouri law, which provides straightforward and concise language on delegated design and deferred submittals in 20 CSR 2030-21.020 Engineer of Record and Specialty Engineers. (Available at: https://www.sos.mo.gov/cmsimages/adrules/csr/current/20csr/20c2030-21.pdf) It describes a transparent process for delegating design work to ensure the protection of life safety.

Development of the ICC Proposals

The concepts presented in the MO statute have been distilled down and transitioned into requirements appropriate for adoption in a model building code. This includes utilizing IBC terminology, substituting EOR with *registered design professional*, and, instead of introducing a defined term for SSE, we've used the general phrase "designed by others." This proposal and its companion proposal clarify in the IBC the previously mentioned three fundamental concepts for delegation practice:

1. The delegating RDP must state the criteria that the others performing the delegated design work must meet.
2. The others performing the delegated design work must meet those stated criteria and submit their work to the RDP.
3. The RDP must review that submission for conformance to the stated criteria.

Bibliography: AISC (2022), *Specification for Structural Steel Buildings*, ANSI/AISC 360-22, American Institute of Steel Construction, Chicago, Ill., August 1, 2022. Available at: https://www.aisc.org/publications/steel-standards/.
AISC (2022), *Code of Standard Practice for Steel Buildings and Bridges,* ANSI/AISC 303-22, American Institute of Steel Construction, Chicago, Ill., May 9, 2022. Available at: https://www.aisc.org/publications/steel-standards/.
Rules of Department of Commerce and Insurance, Division 2030—Missouri Board for Architects, Professional Engineers, Professional Land Surveyors, and Professional Landscape Architects, Chapter 21—Professional Engineering, 20 CSR 2030-21.020 *Engineer of Record and Specialty Engineers*. Available at: https://www.sos.mo.gov/cmsimages/adrules/csr/current/20csr/20c2030-21.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the existing role and responsibilities of the RDP for delegated design in the IBC by reflecting requirements consistent with current industry guidelines promulgated by CASE, NCSEA, and SEI for design responsibility.

S52-25

S53-25 Part I

IBC: SECTION 202 (New), TABLE 1604.3

Proponents: Jennifer Hatfield, J. Hatfield & Associates, representing Fenestration & Glazing Industry Alliance (formerly AAMA) (jen@jhatfieldandassociates.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Add new definition as follows:

PATIO COVER. A structure with open or glazed walls that is used for recreational, outdoor living purposes associated with a *dwelling unit.*

Revise as follows:

TABLE 1604.3 DEFLECTION LIMITS[a, b, c, h, i]

CONSTRUCTION	*L or L_r*	*S^j or W^f*	*D + L*[d, g]
Roof members:[e]			
Supporting plaster or stucco ceiling	*l*/360	*l*/360	*l*/240
Supporting nonplaster ceiling	*l*/240	*l*/240	*l*/180
Not supporting ceiling	*l*/180	*l*/180	*l*/120
Floor members	*l*/360	—	*l*/240
Exterior walls:			
With plaster or stucco finishes	—	*l*/360	—
With other brittle finishes	—	*l*/240	—
With flexible finishes	—	*l*/120	—
Interior partitions:[b]			
With plaster or stucco finishes	*l*/360	—	—
With other brittle finishes	*l*/240	—	—
With flexible finishes	*l*/120	—	—
Farm buildings	—	—	*l*/180
Greenhouses	—	—	*l*/120

For SI: 1 foot = 304.8 mm.

a. For structural roofing and siding made of formed metal sheets, the total load deflection shall not exceed *l*/60. For secondary roof structural members supporting formed metal roofing, the live load deflection shall not exceed *l*/150. For secondary wall members supporting formed metal siding, the design wind load deflection shall not exceed *l*/90. For roofs, this exception only applies when the metal sheets have no roof covering.

b. Flexible, folding and portable partitions are not governed by the provisions of this section. The deflection criterion for interior partitions is based on the horizontal load defined in Section 1607.16.

c. See Section 2403 for glass supports.

d. The deflection limit for the $D + (L$ or $L_r)$ load combination only applies to the deflection due to the creep component of long-term dead load deflection plus the short-term live load deflection. For lumber, structural glued laminated timber, prefabricated wood I-joists and structural composite lumber members that are dry at time of installation and used under dry conditions in accordance with the ANSI/AWC NDS, the creep component of the long-term deflection shall be permitted to be estimated as the immediate dead load deflection resulting from 0.5*D*. For lumber and glued laminated timber members installed or used at all other moisture conditions or cross laminated timber and wood structural panels that are dry at time of installation and used under dry conditions in accordance with the ANSI/AWC NDS, the creep component of the long-term deflection is permitted to be estimated as the immediate dead load deflection resulting from *D*. The value of 0.5*D* shall not be used in combination with ANSI/AWC NDS provisions for long-term loading.

e. The preceding deflections do not ensure against ponding. Roofs that do not have sufficient slope or camber to ensure adequate drainage shall be investigated for ponding. See Chapter 8 of ASCE 7.

f. The wind load shall be permitted to be taken as 0.42 times the “component and cladding” loads or directly calculated using the 10-year mean return interval basic wind speed, *V*, for the purpose of determining deflection limits in Table 1604.3. Where framing members support glass, the deflection limit therein shall not exceed that specified in Section 1604.3.7

g. For steel structural members, the deflection due to creep component of long-term dead load shall be permitted to be taken as zero.

h. For aluminum structural members or aluminum panels used in skylights and sloped glazing framing, roofs or walls of sunroom *additions* or patio covers, and not supporting edge of glass or ~~aluminum~~ sandwich panels, the total load deflection shall not exceed *l*/60. For continuous aluminum structural members supporting edge of glass, the total load deflection shall not exceed the lesser of 3/4 in (19 mm) or *l*/175 for each glass lite or, *l*/60 for the entire length of the member, whichever is more stringent. For ~~aluminum~~ sandwich panels used in roofs or walls of sunroom *additions* or patio covers, the total load deflection shall not exceed *l*/120.

i. *l* = Length of the member between supports. For cantilever members, *l* shall be taken as twice the length of the cantilever.

j. The snow load shall be permitted to be taken as 0.7 times the design snow load determined in accordance with Section 1608.1 for the purpose of determining deflection limits in Table 1604.3.

Reason: The term "patio cover" is currently used in the main content of the IBC, in Sections 1202.5.1.1, 1204.2.1, 2606.10 and Table 1604.3. It therefore needs a definition in Section 202. The proposed definition is consistent with the one currently in Appendix I.

This proposal then provides edits to Footnote h of Table 1604.3, for the following reasons:

- The insertion of the word "and" is to clarify that "not supporting edge of glass or sandwich panels" applies to "aluminum structural members of aluminum panels".
- Removes the word "aluminum" in front of "sandwich panels" as they can be constructed of materials other than aluminum. This is also consistent with the same wording in Footnote c of the IRC.
- Insertion of "the lesser of 3/4 in (19 mm) or..." is to provide clarification that aligns with the industry standard, AAMA/NSA 2100-22, Specifications for Sunrooms, as to what is needed when a glass lite span exceeds 11 feet.
- The L/60, L/120, and L/175 are just to correct the capitalization, as it is supposed to be a capital L, which is also reflected in Footnote c of the IRC.

This proposal and its corresponding IRC proposal is editorial in nature by aligning the wording of the footnotes in both codes, as well as making it clear in the definitions what is a "patio cover" versus a "sunroom", the latter already found in Section 202.

Bibliography: Section 6.3.2 of AAMA/NSA 2100-22, Specifications for Sunrooms

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial and clarifying in nature, and meant to align language in both the IRC and IBC. Therefore, the proposal will not increase or decrease the cost of construction.

S53-25 Part II

IRC: SECTION 202 (New), TABLE R301.7

Proponents: Jennifer Hatfield, J. Hatfield & Associates, representing Fenestration & Glazing Industry Alliance (formerly AAMA) (jen@jhatfieldandassociates.com)

2024 International Residential Code

Add new definition as follows:

PATIO COVER. A structure with open or glazed walls that is used for recreational, outdoor living purposes associated with a *dwelling unit.*

SECTION R301
DESIGN CRITERIA

Revise as follows:

TABLE R301.7 ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS[b, c]

STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
Rafters having slopes greater than 3:12 with finished ceiling not attached to rafters	*L*/180
Interior walls and partitions	*H*/180
Floors	*L*/360
Ceilings with brittle finishes (including plaster and stucco)	*L*/360
Ceilings with flexible finishes (including gypsum board)	*L*/240
All other structural members excluding guards and handrails	*L*/240
Exterior walls—wind loads[a] with plaster or stucco finish	*H*/360
Exterior walls—wind loads[a] with other brittle finishes	*H*/240
Exterior walls—wind loads[a] with flexible finishes	*H*/120[d]
Lintels supporting masonry veneer walls[e]	*L*/600

Note: *L* = span length, *H* = span height.

a. For the purpose of the determining deflection limits herein, the wind load shall be permitted to be taken as 0.7 times the component and cladding (ASD) loads obtained from Table R301.2.1(1).

b. For cantilever members, *L* shall be taken as twice the length of the cantilever.

c. For aluminum structural members or aluminum panels used in skylights and sloped glazing framing, roofs or walls of sunroom *additions* or patio covers, and not supporting edge of glass or sandwich panels, the total load deflection shall not exceed *L*/60. For continuous aluminum structural members supporting edge of glass, the total load deflection shall not exceed the lesser of 3/4 in (19 mm) or *L*/175 for each glass lite, or *L*/60 for the entire length of the member, whichever is more stringent. For sandwich panels used in roofs or walls of sunroom *additions* or patio covers, the total load deflection shall not exceed *L*/120.

d. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of *H*/180.

e. Refer to Section R703.8.2. The *dead load* of supported materials shall be included when calculating the deflection of these members.

Reason: The term "patio cover" is currently used in the main content of the IRC, in Table R301.7, and needs a definition in Section R202. The proposed definition is consistent with the one currently in Appendix BF.

This proposal then provides edits to Footnote c of Table R301.7, for the following reasons:

- The reference to "aluminum" panels and "skylights and sloped glazing" is editorial and is for consistency with the verbiage used in the same footnote found in the IBC.
- The insertion of the word "and" is to clarify that "not supporting edge of glass or sandwich panels" applies to "aluminum structural

members or aluminum panels."

- Insertion of "the lesser of 3/4 in (19 mm) or..." is to provide clarification that aligns with the industry standard, AAMA/NSA 2100-22, Specifications for Sunrooms, as to what is needed when a glass lite span exceeds 11 feet. Per R301.2.1.1.1, Sunrooms currently must comply with this Standard.

This proposal and its corresponding IBC proposal is editorial in nature by aligning the wording of the footnotes in both codes, as well as making it clear in the definitions what is a "patio cover" versus a "sunroom", the latter already found in Section R202.

Bibliography: Section 6.3.2 of AAMA/NSA 2100-22, Specifications for Sunrooms

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial and clarifying in nature, and meant to align language in both the IRC and IBC. Therefore, the proposal will not increase or decrease the cost of construction.

S53-25 Part II

S54-25

IBC: TABLE 1604.3

Proponents: John O'Brien, NCSEA Code Advisory Committee Wind Subcommittee Chair, representing NCSEA (jobrien@pesengineers.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

TABLE 1604.3 DEFLECTION LIMITS[a, b, c, h, i]

CONSTRUCTION	*L* or L_r	S^j or W^f	$D + L^{d, g}$
Roof members:[e]			
Supporting plaster or stucco ceiling	*l*/360	*l*/360	*l*/240
Supporting nonplaster ceiling	*l*/240	*l*/240	*l*/180
Not supporting ceiling	*l*/180	*l*/180	*l*/120
Floor members	*l*/360	—	*l*/240
Exterior walls:			
With plaster or stucco finishes	—	*l*/360	—
With other brittle finishes	—	*l*/240	—
With flexible finishes	—	*l*/120	—
Interior partitions:[b]			
With plaster or stucco finishes	*l*/360	—	—
With other brittle finishes	*l*/240	—	—
With flexible finishes	*l*/120	—	—
Farm buildings	—	—	*l*/180
Greenhouses	—	—	*l*/120

For SI: 1 foot = 304.8 mm.

a. For structural roofing and siding made of formed metal sheets, the total load deflection shall not exceed *l*/60. For secondary roof structural members supporting formed metal roofing, the live load deflection shall not exceed *l*/150. For secondary wall members supporting formed metal siding, the design wind load deflection shall not exceed *l*/90. For roofs, this exception only applies when the metal sheets have no roof covering.

b. Flexible, folding and portable partitions are not governed by the provisions of this section. The deflection criterion for interior partitions is based on the horizontal load defined in Section 1607.16.

c. See Section 2403 for glass supports.

d. The deflection limit for the D + (L or L_r) load combination only applies to the deflection due to the creep component of long-term dead load deflection plus the short-term live load deflection. For lumber, structural glued laminated timber, prefabricated wood I-joists and structural composite lumber members that are dry at time of installation and used under dry conditions in accordance with the ANSI/AWC NDS, the creep component of the long-term deflection shall be permitted to be estimated as the immediate dead load deflection resulting from 0.5D. For lumber and glued laminated timber members installed or used at all other moisture conditions or cross laminated timber and wood structural panels that are dry at time of installation and used under dry conditions in accordance with the ANSI/AWC NDS, the creep component of the long-term deflection is permitted to be estimated as the immediate dead load deflection resulting from D. The value of 0.5D shall not be used in combination with ANSI/AWC NDS provisions for long-term loading.

e. The preceding deflections do not ensure against ponding. Roofs that do not have sufficient slope or camber to ensure adequate drainage shall be investigated for ponding. See Chapter 8 of ASCE 7.

f. The wind load shall be permitted to be taken as 0.42 times the "component and cladding" loads ~~or directly calculated using the 10-year mean return interval basic wind speed, *V*,~~ for the purpose of determining deflection limits in Table 1604.3. Where framing members support glass, the deflection limit therein shall not exceed that specified in Section 1604.3.7

g. For steel structural members, the deflection due to creep component of long-term dead load shall be permitted to be taken as zero.

h. For aluminum structural members or aluminum panels used in skylights and sloped glazing framing, roofs or walls of sunroom *additions* or patio covers not supporting edge of glass or aluminum sandwich panels, the total load deflection shall not exceed l/60. For continuous aluminum structural members supporting edge of glass, the total load deflection shall not exceed l/175 for each glass lite or l/60 for the entire length of the member, whichever is more stringent. For aluminum sandwich panels used in roofs or walls of sunroom *additions* or patio covers, the total load deflection shall not exceed l/120.

i. l = Length of the member between supports. For cantilever members, l shall be taken as twice the length of the cantilever.

j. The snow load shall be permitted to be taken as 0.7 times the design snow load determined in accordance with Section 1608.1 for the purpose of determining deflection limits in Table 1604.3.

Reason: **Code history:**

The current ratio of 0.42 for serviceability deflections due to wind loads in footnote f was based on an approximate ratio of 10-year mean recurrence interval (MRI) wind pressures to risk category II wind pressures in non-hurricane regions (ASCE 7-05, Equation CC-3 and Table C6-7; ASCE 7-22, Commentary Section CC.2.2). For hurricane regions, the 0.42 ratio was understood to be conservative for 10-year winds, and unconservative for some locations such as Anchorage, Alaska. Using the same ratio for all risk categories resulted in longer serviceability return periods for higher risk categories, but not specific or uniform ones.

In the 2018 IBC, the option was added to use 10-year MRI wind speeds for all locations and all risk categories.

Problems with current requirements:

There are several problems with the current wind load serviceability deflection windspeed requirements, the most notable of which pertains to the use of the 10-year wind speed for all risk categories.   that can be seen in the table in Exhibit 1. Unlike the historic 0.42 reduction factor (IBC 2012 and 2015 for strength-based wind loads) and the 0.7 reduction factor (IBC 2009 and earlier editions), the 10-year MRI wind speed alternative does not increase deflection serviceability wind pressures and achieve the higher performance intended for higher risk categories. This is illustrated in Exhibit 1.

Recommended code change proposal:

This code change proposes to delete the option to utilize the 10-year MRI wind speeds while retaining the historic 0.42 reduction factor.

Potential future considerations:

In 2019 ASCE published the *Prestandard for Performance-Based Wind Design* which addressed the serviceability issue from a performance perspective. The Prestandard recommends that, to remain operational (i.e., serviceable) with the performance objective that the building envelope remain attached to the structure and maintain wind-driven rain resistance, the following MRI’s be utilized:

- Risk Category II 10-year MRI
- Risk Category III 25-year MRI
- Risk Category IV 50-year MRI

As this is only a Prestandard at this time, it could be considered premature to incorporate these deflection limitations in the IBC. As the performance-based standard evolves, the IBC deflection limitations can be reassessed.

2024 IBC - Table 1604.3 - Deflection Limits

Exhibit 1

Footnote f - Comparison Between 0.42 Reduction Factor and 10-year MRI Equivalent Reduction

Municipality	ASCE 7-22 - Basic Design Wind Speed, *V* (mph)			10-year MRI Wind Speed (mph)	RC II / 10-year MRI Comparison		RC III / 10-year MRI Comparison		RC IV / 10-year MRI Comparison	
	Risk Category II	Risk Category III	Risk Category IV		Effective Wind Pressure Reduction Factor	Variation from 0.42	Effective Wind Pressure Reduction Factor	Variation from 0.42	Effective Wind Pressure Reduction Factor	Variation from 0.42
Atlanta, GA	105	113	118	71	0.46	9%	0.39	-6%	0.36	-14%
Denver, CO	107	113	117	77	0.52	23%	0.46	11%	0.43	3%
Orlando, FL	137	144	150	80	0.34	-19%	0.31	-27%	0.28	-32%
Raleigh, NC	115	123	127	75	0.43	1%	0.37	-11%	0.35	-17%
Washington DC	113	120	125	75	0.44	5%	0.39	-7%	0.36	-14%
New York, NY	116	125	130	75	0.42	0%	0.36	-14%	0.33	-21%
Cleveland, OH	109	116	121	75	0.47	13%	0.42	0%	0.38	-9%
Boston, MA	116	124	129	74	0.41	-3%	0.36	-15%	0.33	-22%
Milwaukee, WI	106	114	119	73	0.47	13%	0.41	-2%	0.38	-10%
Chicago, IL	107	114	119	74	0.48	14%	0.42	0%	0.39	-8%
Omaha, NE	111	119	124	77	0.48	15%	0.42	0%	0.39	-8%
Dallas, TX	105	115	117	75	0.51	21%	0.43	1%	0.41	-2%
Phoenix, AZ	101	108	112	71	0.49	18%	0.43	3%	0.40	-4%
Los Angeles, CA	95	101	105	65	0.47	11%	0.41	-1%	0.38	-9%
Seattle, WA	98	104	109	67	0.47	11%	0.42	-1%	0.38	-10%
New Orleans, LA	138	147	153	78	0.32	-24%	0.28	-33%	0.26	-38%
Jacksonville, FL	125	135	143	75	0.36	-14%	0.31	-27%	0.28	-35%
Charleston, SC	147	156	163	78	0.28	-33%	0.25	-40%	0.23	-45%
Savannah, GA	135	147	154	75	0.31	-27%	0.26	-38%	0.24	-44%
Anchorage, AK	128	133	139	90	0.49	18%	0.46	9%	0.42	0%

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

In practice, most designers are defaulting to the 0.42 factor for determining component and cladding deflection. The 10-year mean return period option does not appear to be widely adopted by the industry. Thus, there is no change in practice and construction cost.

S54-25

S55-25

IBC: 1604.5, TABLE 1604.5

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Robert Bachman, RE Bachman Consulting Structural Engineer, representing Myself (rebachmanse@aol.com); Chris Kimball, Building Code Solutions, representing Self (chris@bcscodegroup.com)

2024 International Building Code

Revise as follows:

1604.5 Risk category. Each *building* and *structure* shall be assigned a *risk category* in accordance with Table 1604.5. Where a referenced standard specifies an occupancy category, the *risk category* shall not be taken as lower than the occupancy category specified therein. Where a referenced standard specifies that the assignment of a *risk category* be in accordance with ASCE 7, Table 1.5-1, Table 1604.5 shall be used in lieu of ASCE 7, Table 1.5-1.

Exceptions:

1. The assignment of *buildings* and *structures* to Tsunami *Risk Categories* III and IV is permitted to be in accordance with Section 6.4 of ASCE 7.
2. Freestanding parking garages not used for the storage of emergency services vehicles or not providing means of egress for *buildings* or *structures* assigned to a higher risk category shall be assigned to Risk Category II.
3. Battery energy storage systems are permitted to be assigned to Risk Category II where the *owner* has submitted and the *building official* has approved a plan to provide an alternative equivalent source of stored energy to the same energy consumers within one hour of the system's failure due to a design level wind, earthquake, snow, flood, or tornado event, considering the regional effects of any such event.

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.

III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:
	• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.
	• Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500.
	• Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.
	• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.
	• Group I-3, Condition 1 occupancies.
	• Any other occupancy with an occupant load greater than 5,000.[a]
	• Power-generating stations with individual power units rated 75 MW_{AC} (megawatts, alternating current) or greater, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.
	• Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code*; and
	  • Are sufficient to pose a threat to the public if released.[b]

RISK CATEGORY	NATURE OF OCCUPANCY

IV	Buildings and other structures designated as essential facilities and buildings or structures where loss of function represents a substantial hazard to occupants or users, including but not limited to:
	• Group I-2 occupancies.
	• Ambulatory care facilities having emergency surgery or emergency treatment facilities.
	• Group I-3 occupancies other than Condition 1.
	• Fire, rescue, ambulance and police stations and emergency vehicle garages
	• Designated earthquake, hurricane or other emergency shelters.
	• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
	• Public utility facilities providing power generation, potable water treatment, or wastewater treatment.
	• Power-generating stations and other public utility facilities required as emergency backup facilities for *Risk Category* IV structures.
	Battery energy storage systems providing ancillary services to a power plant, power-generating station or power generation facility that has a total capacity of 20 MW or more or is assigned to Risk Category IV.
	Battery energy storage systems for which the system's total energy capable of being stored is 80 MWh or more.
	Battery energy storage system components, cabinets, containers, enclosures, equipment platforms, foundations, shelters, and sheltering buildings for dedicated-use or nondedicated-use, where the battery energy storage system is assigned to Risk Category IV.
	• Buildings and other structures containing quantities of highly toxic materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]
	• Aviation control towers, air traffic control centers and emergency aircraft hangars.
	• Buildings and other structures having critical national defense functions.
	• Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use *gross floor area* calculations shall be permitted to use *net floor areas* to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

Reason: This proposal fills a hole in Table 1604.5 related to a relatively new, and increasingly common and newly essential, energy installation: **large-scale battery energy storage systems, or BESS** (see the Terminology section below for precedent definitions).

As illustrated below, BESS installations involve modular units that combine nonstructural components with a non-building structure. BESS are often built as customized containers or equipment frames, filled with batteries and related electrical and HVAC equipment, and mounted on a platform, a slab on ground, or a set of isolated footings. From the structural perspective, a BESS installation is basically a bunch of boxes anchored to a foundation, but these new features of our built environment are as important to our energy future as any piece of high tech public-serving infrastructure.

The proposal does three basic things:

- It adds three line items to Table 1604.5 for two categories of BESS and for their support structures: one item for "ancillary" BESS, paired or co-located with a generator; one for standalone BESS facilities; and one for the support or shelter structures that go with either of the first two.
- It assigns large-scale BESS to Risk Category IV as essential facilities and as structures where loss of function would represent a substantial hazard.
- It allows an alternative means of maintaining BESS' essential functionality through planning, recognizing the interconnectedness and redundancy of large, networked energy grids. This is consistent in principle with footnote b to the current Table 1604.5.

The proposal derives from the following three points. (Details and supplemental information on each of these points is available in the "BESS" pdf in the "2027 I-codes Bonowitz" dropbox link):
https://www.dropbox.com/scl/fo/bsmcosw9sr4bgrxapeg8h/AB5Y1Wb8KbMpz2BUhmPpAT4?rlkey=mj232e5p1nmnpfrqgrw7apd29&dl=0.)

1. Current Table 1604.5 does not give clear guidance about BESS, so current practice is inconsistent. Consider current Table 1604.5:

- BESS is definitely energy infrastructure, but it's not a "power-generating station." It's also not power transmission and distribution, which is explicitly outside the scope of some IBC provisions, including Sec 1613.

- Some BESS (usually on-site) provides direct "emergency backup" to distinct Risk Category IV facilities, in which case it should be clearly designed as RC IV. BESS that supports the grid might indirectly support RC IV facilities in the community, but for these cases, Table 1604.5 is unclear, since off-site BESS is not obviously "required for emergency response." Even where BESS is meant to assist the "black start" of a downed power station, not all power stations are public utilities currently assigned to RC IV.
- Some BESS facilities are owned, operated, or co-located with a public utility, but many are not.
- Depending on the battery type, BESS can involve toxic or hazardous materials, but not always at RC III or IV levels. Even so, IFC provisions for energy storage focus on fire safety and hazmat containment, not on structural performance or functionality.

Thus, the derivation of proper design criteria, which depends on the Risk Category assignment, is prone to inconsistency. Our review of seven recent BESS installations in California found three that designed for RC IV, each co-located with a gas peaker plant; two assigned to RC III, but using different importance factors; one assigned to RC II; and one that did not report a risk category but used an importance factor of 1.0. (Kimball, 2024). The cases we reviewed were all designed with the 2019 or 2022 *California Building Code*, neither of which included the 2024 IBC's new provision assigning public utility power generation to RC IV. (For details, see the file at the dropbox link above.)

As new, specialized buildings and structures become common within the built environment, or where the code's broad categories need more nuance, it is entirely appropriate to add new line items to Table 1604.5. New items have been added, split, and moved in each of the last two code cycles.

Beyond Section 1604.5, I-codes provisions for energy storage systems are found primarily in IFC Section 1207 and IECC Appendix CJ, but those provisions are primarily for "behind-the-meter" systems at residential or commercial scale (discussed in point 2), and they focus primarily on fire and hazmat safety, not on loss of function due to damage from environmental loads. For example, 2024 IFC Section 1207.4.4, regarding seismic and structural design, says only, "Stationary ESS shall comply with the seismic design requirements in Chapter 16 of the *International Building Code*, and shall not exceed the floor loading limitation of the building."

2. BESS installations have various characteristics and functions, some of which deserve special attention in the code.

BESS facilities can serve multiple functions; typically, the different functions are related to the facility's size and ownership. (See the examples in photos below.)

Residential and commercial scale BESS are relatively small (storing around 10 kWh for residential, up to about 8 MWh for large commercial) and "behind the meter," or dedicated to just one or a few buildings. They mostly provide backup power, performing the same role as a traditional battery rack, but they have become more common as a means of managing a facility's rooftop solar output, allowing energy to be stored during the day and discharged at night. Because of their size and use by specific consumers, residential and commercial-scale BESS are NOT the subject of this proposal.

<u>Large-scale BESS, also called grid-scale or utility-scale, is the subject of this proposal.</u> A large-scale BESS facility is a grouping of modular BESS containers or frames covering an area from a few thousand square feet to several acres. A large-scale BESS facility can store and discharge tens or hundreds of MWh of energy.

The large-scale BESS of interest here are "front of the meter" and have a larger role to play with respect to the regional electricity grid or a community's micro-grid. Large-scale BESS can be stand-alone facilities connected to the grid, or they can be linked directly, i.e. co-located with, a power generator itself. Over the last few years, the combination of "solar + storage," meaning a large PV farm combined with a yard of BESS containers and inverters, has become a common project type for independent power producers (IPPs), who then sell the power they generate and store to public utilities, municipal utilities (cities and towns), and sometimes to especially large private power consumers (though customers can switch from private to public and back over time).

Where BESS is part of a larger electricity grid, it has a broader role and importance, beyond merely providing backup power – whether or not the BESS facility or its co-located generator is regulated as a public utility. This is discussed in point 3.

Thus, BESS installations can be categorized by their ownership, by their consumers, by how they are connected to power generators, by their capacity, or in other ways. Current Table 1604.5 distinguishes between power generators that are or are not regulated as public utilities. This distinction indicates a heightened importance for power delivered to and consumed by the general public. But the energy market is far more complex now than it was when the IBC first used the term "public utility." Now, utilities of many types and sizes can be connected to each other in a variety of ways that change over time (independent BESS facilities can be both energy customers and providers), and in which new technologies at new scales, such as large-scale BESS, can create interdependencies that require designation primarily by size and metering. (EIA stats, 2022; Colthorpe, 2022)

In other words, the importance of reliable power for the general public is now indicated more by the capacity and grid connectivity of generators and BESS, not by public utility status. Therefore, this proposal makes distinctions by BESS size, with an exception that recognizes a well-planned whole-grid response to an unexpected outage.

<u>How large is large?</u> Nearly every week now brings reports of a new large-scale BESS facility that can store 10, 20, 50, or more MW of power, though only the largest ones usually make the news. Some precedents are worth considering.

- The Department of Energy's (DOE) U.S. Energy Information Administration (EIA) defines "large-scale solar" as "solar thermal and photovoltaic generating units at power plants larger than or equal to one megawatt" (EIA, 2024). DOE also uses this threshold in its study of siting issues for PV installations (DOE, 2025). A 1 MW solar power plant typically covers 5 to 10 acres and can power 100 to 200 homes (SEIA, 2024). Typically, a BESS co-located with a generator would discharge the full generator capacity over about four hours (consistent with IECC Section CJ101.1.1), so at this scale, the BESS would have a capacity of 1 MW or 4 MWh.

- The Federal Energy Regulatory Commission (FERC, an independent agency within DOE) sets different rules for generators of different sizes, drawing a line at 20 MW capacity (FERC, 2024b). The associated BESS would have a capacity of about 80 MWh.
- FERC also sets certain fees based on generator size, drawing lines at 20 MW, 80 MW, and 200 MW. Regional system operators are sometimes allowed to modify these rules; Southwest Power Pool, for example, draws lines at 2 MW, 20 MW, and 75 MW. (FERC, 2024a)
- The benchmark cost study by DOE's National Renewable Energy Laboratory (NREL), cited in our cost impact statement below, assumes a BESS facility of 60 MW or 240 MWh (NREL, 2024).
- While all public utility generators are assigned to RC IV, current Table 1604.5 assigns other generators to RC III if they have a capacity of 75 MW or more (though it dubiously associates that threshold with individual power "units," a separate issue).

These precedents are useful in drawing the kinds of lines the building code needs to draw. Here, there are obvious precedents at 20 MW and 75 MW. The DOE definition set at 1 MW is probably too low to reflect the code's emphasis on public risk. But 75 MW is probably too high, as it would miss an enormous portion of public-serving BESS. In 2019, more than half of solar PV plants in the U.S. were rated between 20 and 75 MW (NERC, 2019). Further, there is evidence that the 75 MW precedent has already influenced how independent power providers plan their facilities (Ludt, 2023; Misbrener, 2025). Therefore, based on these precedents, this proposal draws a line at 20 MW for the capacity of a plant at which the BESS is co-located, or 80 MWh for a stand-alone BESS.

This proposed threshold – 20 MW or 80 MWh – already represents a fairly large BESS facility. For example:

- In 2022, a large PV plant in Florida, built in 2019, added an 18 MW co-located BESS facility (Weaver, 2024), so if built under this proposal, it would still be below the RC IV level.
- The largest "second life" BESS facility in the world, co-located with a wind farm in Texas, has a capacity of 53 MWh, below the proposed RC IV level (Spector, 2024a).
- Microgrids, which DOE calls "essential building blocks" of a strong energy system, will often use BESS below the proposed RC IV level (Sisson, 2024). A microgrid for the 535 residents of Hot Springs, NC provides only 4.4 MWh of backup energy but is sufficient for their needs and helped with recovery after Hurricane Helene (St. John, 2024).
- Rural coops often develop BESS facilities that would fall under the proposed RC IV level. The largest coop in Minnesota is using a federal grant to develop renewable energy and is still planning only a 20 MW BESS (Fischer, 2024).
- A 25 MW (100 MWh) BESS announced last year – thus just over the proposed RC IV level – would be "the largest standalone battery project to date in the Pacific Northwest" (Gerke, 2024).
- A 30 MW BESS in Escondido, CA was "the largest of its kind" when it was built in 2017 (Elmer, 2024).

By comparison, if we were to draw a line at 75 MW (300 MWh), this proposal would apply only to BESS big enough to support a solar plant that covers a full square mile (Electrify America, 2023) or a wind farm with at least 30 large turbines (Certrec, 2025).

3. Large-scale BESS merits assignment to Risk Category IV.

<u>As backup power</u>

. As backup power for a community (or for the community's power provider), large-scale BESS already qualifies for RC IV status because its loss could represent a substantial hazard to users. In addition to meeting energy demands at peak times, BESS "can supply backup power during natural disasters and other emergencies" (NFPA, 2024). Heat is a growing threat nationwide, and an extremely effective solution, air conditioning, requires power. But extreme heat can also cause power outages or require rolling blackouts. BESS helps solve that problem (Spector, 2024b), as long as the BESS components themselves are not knocked out by earthquake or hurricane.

SEIA, the leading trade organization for the solar power industry, recognized the growing importance of BESS to public health and safety in testimony in the last code cycle: "[T]he addition of Energy Storage Systems (ESS) is changing" the degree to which power outages can "cause substantial economic losses and disruption to civilian life." "[W]ith increasing adoption of Energy Storage Systems (ESS), it is conceivable that PV paired with ESS could be a sole source of required backup power. Where PV plus ESS is the only direct source of backup power for an essential services facility [which, with the 2024 IBC, now includes any public utility power provider] ... it shall be assigned as Risk Category IV" (SEIA, 2022).

Backup power provided directly to other RC IV facilities is already assigned to RC IV. To the extent that a BESS installation also provides backup power to the grid, which then serves various RC IV facilities, it should also be considered RC IV. Further, even for uses that are *not* assigned to RC IV, such as housing for vulnerable populations, community-supporting businesses, etc., a prolonged power outage with no backup absolutely represents a substantial hazard to users. If a BESS facility is planned with the goal of providing backup power, then its design criteria, including its risk category assignment, should be suited to that plan.

<u>As grid stabilization and to enable the growth of renewable energy.</u>

Large-scale BESS is more than just backup power. Increasingly, large-scale BESS facilities are being developed to help manage and stabilize the grid itself, as well as the demand and price of the energy it delivers. From this perspective, BESS is (or soon will be) as essential to the overall functioning of a local, regional, or even national grid as a thermostat, pressure release valve, warning system, or auto-shutoff is to an expensive and essential piece of mechanical or electrical equipment.

BESS is particularly important for reaching the full potential of renewable energy sources such as wind and solar. Because these sources are intermittent, and because the demand for power varies throughout the day, wind and solar power generators cannot match demand on their own. They can even *over*-generate, leading to grid volatility and requiring generation to be "curtailed" temporarily. For this reason, the output of large wind and solar generators is typically coordinated with that of a traditional fossil fuel power plant. As we wean ourselves from fossil fuels and come to rely more on renewables, the problem of capacity being out of sync with demand becomes ever more pronounced; the graphic representation of this discrepancy is often called the "duck curve" (because it resembles a duck).

The duck curve is a problem for renewables. But BESS is expected to solve much of it, effectively flattening the duck curve (DOE, 2017; DOE, 2023; SEAM, 2025). As DOE noted eight years ago, "solar coupled with storage technologies could alleviate, and possibly eliminate, the risk of over-generation" (DOE, 2017).

NFPA (2024) is even clearer, noting that the need for storage should also motivate changes in how we design generation and BESS facilities: "Growing concerns about the use of fossil fuels and greater demand for a cleaner, more efficient, and more resilient energy grid has led to the use of energy storage systems, and that use has increased substantially over the past decade. ... However, the rise in the number of [BESS] installations requires the need for a heightened understanding of the hazards involved and more extensive measures to reduce the risks."

Thus, if we want to transition more fully away from fossil fuels, we will need more renewable power generators like wind and solar. But to make those intermittent sources work at large scale, we will need more large-scale BESS just to make the grid function.

To summarize: Large-scale BESS is a relatively new, but increasingly common and increasingly important, addition to the built environment throughout the country, but it is not clearly addressed in the building code. Considering its importance as both backup power and the future of a renewable energy system, large-scale BESS installations should be considered essential facilities and assigned to Risk Category IV.

Finally, we anticipate the opposition of the energy industry – and, it must be said, of industry's well-intentioned cheerleaders in government, who are too slow to get in front of this wave of development already affecting city councils, land use committees, and building officials across the country.

<u>Argument 1: How do we know the benefits exceed the costs?</u>

It's true, we have not produced a comprehensive benefit-cost analysis for this relatively simple proposal. However:

- Practically all of the policy judgments inherent in risk category assignment are just that – judgments, made by the good faith consensus of building officials and stakeholders in the interest of the public. Practically none of the current risk category assignments came into the code with a comprehensive benefit-cost analysis, nor should that be necessary.
- Lack of a comprehensive BCA has not stopped enlightened utilities from voluntarily using RC IV criteria even though the current code is silent (Kimball, 2024). Nor has it stopped the State of Florida, which routinely applies RC IV wind loads – a decision that served it well when its solar facilities recovered quickly after recent hurricanes and even a direct hit from a tornado (Byrd, 2024; Weaver, 2024).
- Even if we wanted to produce a BCA, a DOE-funded study has shown that estimating the benefits of proposed changes to energy infrastructure design is practically impossible (Sanstad et al., 2020).
- If the benefits are hard to quantify, however, the question is largely moot if the cost is extremely low, which it is. As we show in our cost impact statement, the construction cost premium relative to RC II is definitely less than 1% and probably much closer to 0.3%.
- Further, the cost of BESS installation has dropped so much over the last several years (and is projected to continue dropping), that any cost premium due to this proposal is already paid for many times over by savings elsewhere. The price of battery packs (by far the most costly BESS component) dropped over 80 percent from 2013 to 2023, and fell another 20 percent relative to the 2023 price in 2024 alone (Bloomberg, 2024). Overall capital expenditure costs for BESS installations are projected to fall 18 percent between 2025 and 2030 (NREL, 2024).

<u>Argument 2: Any *perceived* increase in cost or disruption to the status quo will stop developers from entering the BESS market.</u>

With respect, this is laughable, given the explosive growth in BESS, both standalone and in "solar + storage" developments. California and Texas are actively encouraging BESS development (even if they have different objectives and are largely silent with respect to design criteria and natural hazards). (ERCOT, 2023; CPUC, 2024).

This trend was foreseeable even five years ago, before any federal or state agencies stepped in: "The electric power grid in North America is undergoing a significant transformation in technology, design, control, planning, and operation, and these changes are occurring more rapidly than ever before" (NERC, 2019). With respect to BESS in particular: "U.S. battery storage capacity will increase significantly by 2025. ... Battery storage capacity in the United States was negligible prior to 2020, when electricity storage capacity began growing rapidly. As of October 2022, 7.8 GW of utility-scale battery storage was operating in the United States; developers and power plant operators expect to be using 1.4 GW more battery capacity by the end of the year. From 2023 to 2025, they expect to add another 20.8 GW of battery storage capacity." (EIA, 2022) This pattern is effectively visualized by Cleveland and Ni (2023): https://visualizingenergy.org/watch-the-history-of-battery-storage-in-the-united-states/

Further, all this growth in renewables has happened despite hurdles thrown up by local regulations, not the building code, related to noise, fire safety, loss of agricultural land, planning and zoning, etc. – hurdles fought and overcome by developers and their expensive lawyers. So a new code provision that costs almost nothing and is already satisfied in many cases is hardly likely to stop this train.

Even if one suspects that the recent growth was only possible with heavy state and federal subsidies, the attitude of the incoming administration, which derides renewable energy at every opportunity, is actually another reason to ramp up design criteria. If subsidies for new installations dry up, so will funds to quickly repair any facilities that happen to be damaged in the near future. If no repair funds are coming, the best strategy is stronger design for those facilities now in the pipeline. (Surprisingly, it's even possible that some in industry are over-relying on government, i.e. all of us, to bail them out when their under-designed products fail. One expert we consulted actually voiced potential opposition to this proposal by saying that they didn't want to require seismic certification testing because the BESS components might fail the test. Let that sink in.)

Bottom line: If this proposal is approved, and BESS development slows down as a result between now and 2030, I will personally propose to undo the proposal for the 2033 code.

<u>Argument 3: Actual power loss from BESS failure can't happen because of grid redundancy.</u>

This is a fair argument about the complex interconnectedness of the electricity grid, something the building code does not account for – or it would be if there were any plans published that explicitly discussed applicable building code provisions, the likelihood of failures, and how the current grid will respond, given how much BESS capacity is newly in place.

Even so, the proposed Exception to Section 1604.5 is meant to acknowledge these circumstances and provide relief to BESS developers who really want to avoid the 0.3% cost premium and the potential damage reduction benefits it buys. Bring your plan – presumably one produced or at least adopted by DOE, FERC, NERC, or your state's PUC, PSC, ISO, or RTO, or even your city's resilience officer or recovery planner – to the building official, and you may design using RC II criteria.

The proposed exception is consistent in principle with footnote b to current Table 1604.5, which allows a lower risk category assignment for certain hazardous materials if an assessment in accordance with ASCE 7 Section 1.5.3 indicates a low risk. The exception proposed here might read as qualitative and open to judgment, but so is ASCE 7 Section 1.5.3.

<u>Argument 4: Even if power loss occurs due to BESS failure, it's not important except for "essential facilities" like hospitals, and they're already assigned to RC IV.</u>

First, this ignores the importance of BESS to an electricity grid that relies on renewable energy sources, an importance recognized by DOE (2017; 2023) and discussed at point 3 above.

Second, even if BESS is primarily about backup power, this attitude represents obsolete thinking about what counts as important, and the role of electric power in restoring normalcy after a damaging event. This attitude effectively says that providing power to your house, your office, your grocery store, you child's school, or your mom's care facility isn't really important. Even if the code does not yet recognize any of those buildings and uses as needing RC IV design criteria, it can still be true that the chief obstacle to their recovery should not be in the power or water service over which they have no control. The electricity grid, with BESS as a critical piece, is still essential to "non-essential" buildings.

A BESS developer, engineer, building official, or recovery planner who does not see the facility as essential is effectively rationalizing its failure by saying at least one of the following:

- The only things that are truly essential are the emergency response and public safety services that have always been assigned to RC IV.
- The failed BESS facility actually performed exactly as expected, incurring substantial damage in a design-level event.
- Repair of this $50-million BESS facility will take weeks and a lot of money (including more tax dollars) because we didn't think it was worth using a slightly bigger $5 rod anchor.

In summary, this proposal comes as close as any to embodying the proverb, "For want of a nail."

Terminology

This proposal uses terminology with precedents in industry publications, the I-codes (especially the IFC), and the Department of Energy's U.S. Energy Information Administration glossary (EIA, 2025).

Battery energy storage system(s), or BESS, has emerged as an industry standard term. It is not yet explicitly defined by the I-codes, but a number of related terms are, and BESS is indirectly defined by them. The following related terms are already defined:

- IFC: "**Battery system, stationary storage.** A rechargeable energy storage system consisting of electrochemical storage batteries, battery chargers, controls and associated electrical equipment designed to provide electrical power to a building. The system is typically used to provide standby or emergency power, an uninterruptible power supply, load shedding, load sharing or similar capabilities."
- IECC, IFC: "**Energy storage system (ESS).** One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time."
- IBC, IFC: "**Energy storage system, electrochemical.** An energy storage system that stores energy and produced electricity using chemical reactions. It includes, among others, **battery ESS** and capacitor ESS."

By using "battery," as opposed to just ESS, the proposal distinguishes its scope from capacitor ESS (per the definition of electrochemical ESS above) and from other ESS such as pumped hydro or compressed air. The IFC also defines several "battery types," but the proposal would apply to all types, including some newer types (e.g. sodium-ion or iron-air) not yet defined in the IFC.

Ancillary services is an industry standard term defined by EIA (2025): "Services that ensure reliability and support the transmission of electricity from generation sites to customer loads. Such services may include load regulation, spinning reserve, non-spinning reserve, replacement reserve, and voltage support." By providing load regulation, BESS provides an ancillary service when paired with or co-located with a power generator.

Power plant is used in the following EIA definitions:

- **Electric power plant:** A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.
- **Large-scale solar:** Solar thermal and photovoltaic generating units at power plants larger than or equal to one megawatt.

Power-generating station is not defined in the I-codes, but it has been used in Table 1604.5 since the 2003 edition.

Facilities providing power generation (that is, a power generation facility) was used in a change made to the 2024 code to replace the undefined "station" with the broader (and defined) "facility."

Total energy capable of being stored is borrowed from IFC Table 1207.1.3, where it is used specifically to denote the capacity of energy storage systems. Other relevant I-code precedents that might apply to BESS capacity or size come from IECC Appendix CJ, which uses, but does not define, the terms "energy capacity" (in kW or MW) and "power capacity" (in kWh or MWh). The EIA glossary contains several terms that define or use capacity in various ways.

The various BESS components, supports, and shelters listed in the third proposed new RC IV line item reference, and are generally consistent with, terms defined or cited in IFC Section 1207:

- **"Energy storage system, walk-in unit.** A prefabricated building that contains energy storage systems. It includes doors that provide walk-in access for personnel to maintain, test and service the equipment, and is typically used in outdoor and mobile ESS applications."
- **"Energy storage system cabinet.** An enclosure containing an energy storage system and meeting the applicable requirements of the listing for the system. Personnel are not able to enter the enclosure other than reaching in to access components for maintenance purposes."
- **"Equipment platform.** An unoccupied, elevated platform used exclusively for mechanical systems or industrial process equipment, including the associated elevated walkways, stairways, alternating tread devices and ladders necessary to access the platform (see Section 505.3 of the International Building Code)."

IFC Sections 1207.7.1 and 1207.7.2 provide requirements for "dedicated-use buildings" and "nondedicated-use buildings" that house BESS. Per Section 1207.7.1, a dedicated-use building is effectively defined as one used exclusively for "ESS, electrical energy generation and other electrical grid-related operations."

Representative BESS examples

The following photographs (sources credited as shown) offer representative examples of BESS installations of different scales. They are provided as background reference for readers not familiar with BESS. Nothing in this proposal, including the reason statement and cost impact data, is necessarily meant to apply to any of the specific cases shown.

<table>
<tr>
<td>Residential-scale


https://www.wsj.com/articles/your-next-home-could-run-on-batteries-1508065205
Typically “behind the meter” (owned and used by a single- or multi-unit building to manage that building’s supply and costs) and installed on or within the building.
These are not the focus of this proposal, and their capacities are well under the threshold capacities proposed for assignment to RC IV.</td>
<td>Facility- or Commercial-scale

https://insideclimatenews.org/news/19052022/inside-clean-energy-flow-battery/
Also “behind the meter,” but typically for a commercial or institutional facility. Often installed on site but in a separate cabinet or enclosure similar to a shipping container. The enclosure is not part of the BESS, but the performance of the BESS and the performance of its container or enclosure are clearly linked.
These are not the focus of this proposal, and their capacities are well under the threshold capacities proposed for assignment to RC IV.</td>
</tr>
<tr>
<td colspan="2">Large-scale (also called Grid-scale or Utility-scale)
Note the variety of facility sizes and types, one- and two-tiered configurations, foundation conditions, outdoor and indoor facilities, etc.</td>
</tr>
<tr>
<td>
https://invinity.com/utility-scale-battery-storage/</td>
<td>
https://www.reuters.com/business/energy/california-battery-plant-is-among-worlds-largest-power-storage-booms-2024-04-12/</td>
</tr>
</table>

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 *https://www.energy-storage.news/key-capture-energy-sells-investment-tax-credits-for-120mw-of-new-york-and-texas-bess/* A 20 MW BESS installation in New York State. Inverters in the foreground, batteries in the background.	 *https://www.renewableenergyworld.com/storage/evlo-vermont-utilities-team-up-on-unique-bess/* Installation of BESS containers for a 3MW (12MWh) facility in Vermont. Note the isolated footings.

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Cost Impact: Increase

Estimated Immediate Cost Impact:

Where BESS is already assigned to RC IV, there will be no cost impact.
Where BESS is already conservatively designed to facilitate use at multiple locations subject to a range of wind and earthquake loads, there will be no construction cost impact in many cases, but there could be a one-time design cost (by the manufacturer or vendor) of $30,000 for seismic certification testing of each active component, but this would only apply to installations in locations of moderate or high seismicity, and only where the specific components have not been certified previously.

In other cases, accounting for worst case changes in wind and earthquake loads, inclusion of tornado loads (which only apply to RC III and RC IV), and inclusion of seismic certification, and with additional conservative assumptions and rounding up, assignment to RC IV might raise the cost of BESS development just 0.9% (from $1907/kW to $1924/kW using the NREL benchmark).

More reasonable, but still conservative assumptions (a structural factor of 1.5, indirect cost factors of 1.0, and no seismic testing) would raise the cost only 0.3%.

The NREL (2024) cost data on which this assessment is based do not include the substantial cost of land acquisition or of ongoing operations and maintenance. If those were included in the baseline RC II cost, the impact of a change to RC IV would be even smaller.

Estimated Immediate Cost Impact Justification (methodology and variables):

Cost impacts reflect four main design changes that would apply if a BESS that might otherwise be assigned to RC II is instead required to use design criteria for RC IV:

- Higher earthquake loads, and fewer exemptions for nonstructural protection
- Inclusion of seismic certification testing costs
- Higher straight line wind loads
- Inclusion of tornado loads (which apply only in RC III and RC IV)

Factors for each of these effects were derived for different regions of the U.S. (because no one place has worst-case wind, and seismic, and tornado) through a comprehensive review of current IBC and ASCE 7 provisions for structural design, non-building structure design, and nonstructural component protection. (Details are provided in the supplemental materials available at the dropbox link given above.) Overall, the changes result in a design increase factor of 1.2 to 1.5, plus a cost for seismic certification. These were then *very conservatively* translated into a direct cost increase factors of 2.0 on the structural portion of the BESS benchmark construction cost (NREL, 2024). The NREL benchmark costs were the latest available, reflecting 2023 data, for a BESS system of 60 MW (or 240 MWh) capacity, for which the total cost is $1,907 per kW (or $477/kWh).

In the NREL benchmark, “Structural Balance of System” includes every design and construction hard cost (engineering, foundation, anchorage, etc.), and its total cost is $11/kW, or just 0.6% of the total benchmark cost. We factored this up by the conservative RC IV premium factor of 2.0. Other benchmark costs (taxes, profit, overhead, etc.) are based on the total hard cost, so those were also factored up by the Structural BOS portion with a conservative factor of 1.01. With each benchmark line item thus factored, and a cost for seismic certification added, the total cost increased from $1,907/kW to $1,924/kW.

S55-25

S56-25

IBC: TABLE 1604.5

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net)

2024 International Building Code

Revise as follows:

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.

III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:
	• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.
	• Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500.
	• Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.
	• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.
	• Group I-3, Condition 1 occupancies.
	• Any other occupancy with an occupant load greater than 5,000.[a]
	• Power-generating stations with individual power units rated 75 MW_{AC} (megawatts, alternating current) or greater, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.
	• Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]

IV	Buildings and other structures designated as essential facilities and buildings where loss of function represents a substantial hazard to occupants or users, including but not limited to:
	Group I-1, Condition 2 occupancies
	• Group I-2 occupancies.
	• Ambulatory care facilities having emergency surgery or emergency treatment facilities.
	• Group I-3 occupancies other than Condition 1.
	• Fire, rescue, ambulance and police stations and emergency vehicle garages
	• Designated earthquake, hurricane or other emergency shelters.
	• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
	• Public utility facilities providing power generation, potable water treatment, or wastewater treatment.
	• Power-generating stations and other public utility facilities required as emergency backup facilities for *Risk Category* IV structures.
	• Buildings and other structures containing quantities of highly toxic materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]
	• Aviation control towers, air traffic control centers and emergency aircraft hangars.
	• Buildings and other structures having critical national defense functions.
	• Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use *gross floor area* calculations shall be permitted to use *net floor areas* to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

Reason: Group I-1 Condition 2 facilities are large facilities specially designed for people who need help with everyday tasks (*custodial care*), and even need help evacuating in an emergency (*limited verbal or physical assistance*). Because of the residents' special needs, expected structural damage to one of these buildings will almost certainly lead to a "loss of function [that] represents a substantial hazard," requiring these buildings to be assigned to Risk Category IV.

With the current code, Chapter 4 requires these buildings to have special design features suited to the residents' disabilities. But Chapter 16 assigns them to Risk Category II, just like any market-rate housing, just like any house, condo, or apartment building. Further, because Group I-1 is currently assigned to RC II, it means that even a highly deficient existing building (like an old apartment building) can be converted to one of these facilities with essentially no structural review. This is more of a concern than in the past, as housing shortages throughout the country have led to calls for "adaptive reuse" of market housing, hotels, motels, and even office buildings into Group I-1 care facilities, and in some cases the shortage is acute enough that proponents are willing to overlook existing deficiencies (SFBOS, 2023). The answer is not to look the other way, but to discourage the conversion of deficient buildings unless they're retrofitted and to ensure that new buildings are given as much thought in Chapter 16 as they are in Chapter 4. This proposal does both.

Under current code, if a Group I-1 Condition 2 building is damaged in a design-level hurricane or earthquake – as we structural engineers expect – these vulnerable residents will have nowhere to go that can provide the design features and expert staff care they need.

Instead, assigning these buildings to RC IV will ensure, at minimal additional cost (see below):

- A stronger, more damage-resistant lateral system, and much higher likelihood of immediate reoccupancy
- More complete protection for nonstructural components and systems, including the special conditions and systems required of Group I-1 Condition 2 buildings but not found in normal multi-unit housing.
- Backup utilities, including backup power so necessary for protecting vulnerable seniors against life-threatening power outages.

We know from experience that while developers (or private equity buyers) could provide these RC IV features voluntarily, they won't. On the contrary, assisted living, senior housing, and memory care facilities, all of which could be Group I-1 Condition 2, are a growth industry, and many developers are looking to provide nothing more than what the code requires.

Private equity is increasingly buying and building assisted living (I-1) and nursing home (I-2) facilities (MEDPAC, 2021; Senate Budget Committee, 2025). Nursing homes and assisted living facilities are especially vulnerable to these new market conditions: "The past two decades have seen a rapid increase in Private Equity (PE) investment in healthcare, a sector in which intensive government subsidy and market frictions could lead high-powered **for-profit incentives to be misaligned with the social goal of affordable, quality care**. ... PE's success in other sectors may not be relevant to healthcare, which suffers from unique market frictions. For example, patients cannot accurately assess provider quality, they typically do not pay for services directly, and a web of government agencies act as both payers and regulators (Cutler, 2011; Skinner, 2011). **These features weaken the natural ability of a market to align firm incentives with consumer welfare and could mean that high-powered incentives to maximize profits have detrimental implications for consumer welfare** (Hansmann, 1980; Hart et al., 1997; Chandra et al., 2016)." (Gupta et al., 2021, emphasis added)

If the owners of these vital facilities are now more willing than ever to cut costs, cut care, and walk away from losses – at the direct expense of the vulnerable occupants and at the indirect expense of the community – the least the building code can do is ensure that a major earthquake, hurricane, or winter storm does not add to the problem by giving them yet another excuse. The building code provides essentially one tool to express the importance of natural hazard resistance and recovery through design, and that tool is assignment to Risk Category IV. While design for RC IV can be more expensive than design for RC II, the premium can be surprisingly low -- as little as 1%, or even less for some thoughtfully-designed facilities (see the Cost Impact and Justification statements). Just as important, the design requirements and the needs of tenants in Group I-1 Condition 2 facilities mean that the benefits of a RC IV design are even more likely to outweigh any additional costs. In addition to the normal benefits of reduced damage, which in turn reduces repair costs (which are also at a premium following a natural hazard event) and downtime operating losses, benefits for these special facilities would include reductions in the cost of relocating vulnerable tenants, the premium cost for suitable alternative space (which is rare), the premium cost for specialized staff, and any additional liability for losses by especially vulnerable tenant-clients.

As we consider what the appropriate performance ought to be for a large, new care facility, it might be useful to review actual performance from the last year or two. Consider these examples that demonstrate over and over the difficulty of finding appropriate buildings for care facilities and senior housing among the existing building stock, and the vulnerability that is sure to arise if we don't take the opportunity to make *new* care facilities more damage resistant:

- The country faces a potential "gray wave" of homeless seniors. The solution, of course, is to build more affordable housing, but "that housing will have to be accessible too. Older homeless peoples ... need homes they can safely navigate." (Bolton, 2024)
- If the code doesn't mandate better buildings, including appropriate fire safety for seniors and custodial care recipients, insurers will walk away. "Industry experts say increasing premiums are the result of greater weariness on the part of insurance carriers to take on what they consider to be riskier properties, especially as they also confront higher rebuilding costs, more frequent losses from natural disasters, and other challenges." (Baldassari, 2024)
- If landlords, tenants, city emergency planners, and code officials don't want to see more eviction bans, we need to be designing more damage-resistant housing. (Sisson, 2024)
- Risk Category IV ensures backup power, which might have prevented some deaths linked to power outages. "The deaths could have been caused by many dangers of power outages: people not being able to charge medical equipment, not being able to use air conditioning on hot days, or experiencing increased physical and mental stress and isolation of living without elevators or subways. ... Weather-related power outages are increasing, as climate change brings more frequent, more powerful storms that threaten our power grid and other physical infrastructure." (Siegel, 2012; NYC.gov, 2022)
- Relying on facilities to voluntarily provide backup power for vulnerable residents doesn't work, and state regulation varies considerably. "[W]hile nursing homes face such federal oversight, lower-care-level facilities that provide some medical care — known as assisted living — are regulated at the state level, so the rules for emergency preparedness vary widely. ... Maryland adopted rules for generators in assisted living facilities following Hurricane Isabel, which left more than 1.2 million residents in the state without power in 2003. Florida did so for nursing homes and assisted living facilities in 2018, after Hurricane Irma led to deaths at one facility. But Texas has not. And no requirements for generators exist in Texas for the roughly 2,000 assisted living facilities or the even less regulated independent living sites." (West, 2024)
- Texas will now require backup power, after unacceptable losses in recent years. "[D]uring Winter Storm Uri in February 2021, 10% of nursing homes and 33% of the assisted living facilities in Texas lost power. During Hurricane Beryl in July [2024], 14 nursing homes and 30 assisted living facilities lost power." (Dominguez, 2025)

I made a similar proposal last cycle (S77-22). This proposal has made changes in response to comments offered then. I also respond here to some misunderstandings voiced during last cycle's testimony.

- S77-22 was written to apply only where at least half the care recipients would qualify as Condition 2. That was consistent in concept with the exception in IEBC Sec 1002.3, which waives code upgrades when less than half of the building area is changed to Group I-1. But some felt that the proposal drew an unnecessary line, so I have removed it.
- Some felt that the proposal covered too many types of buildings, but I believe they were misled by the list of uses (mostly undefined) in IBC 308.2. In fact, both S77-22 and this proposal apply to just one type of facility – Condition 2 (Sec 308.2.2), where at least some residents need assistance with egress. ICC's Healthcare Committee already recognizes profound differences between Condition 1 and Condition 2, which is why IEBC Sec 1002.3 waives upgrade for a change from Condition 2 to Condition 1, but not the other way.
- Some were concerned that RC IV was too much to ask of a small care facility. In fact, this proposal only applies to the large care facilities in Group I-1. Smaller facilities are either Group R-3 or R-4 and would not be affected by this proposal.
- Some expressed concern about what would happen if an existing care recipient were to transition over time from Condition 1 to Condition 2, and the feasibility of enforcement. This is a good question, but it's a question for the IEBC, and the IEBC requirements for change of use within Group I-1 already present the same issues (e.g. IEBC Sec 1002.3). If a patient changes from Condition 1 to Condition 2, the IEBC already triggers compliance of egress, smoke and fire safety, room layouts, etc. to meet the IBC *as a new building*. That's already onerous enough to probably discourage the change – but again, that's an IEBC issue. Developers of new care facilities should definitely be thinking about these possibilities during design. This proposal does not change the designer's and developer's interest in looking forward to potential changes in their tenant-client base.

For reference:

Group I-1 Condition 2 buildings include ONLY:

- Buildings designed for more than 16 *custodial care* recipients, plus staff. (The same use with 1 to 5 residents is R-3, not I-1. The same use with 6 to 16 residents is R-4, not I-1.)
- Buildings where at least some of the care recipients require *limited verbal or physical assistance* to respond to an emergency. This is a lower level

of disability than being fully *incapable of self-preservation* (such I-2 facilities are already assigned to RC IV). But its design requirements are still different from even brand new market housing.

This proposal does NOT apply to R-3. Therefore, a converted dwelling or any small building converting to a care facility is not affected.

This proposal does NOT apply to R-4. Therefore, even a smaller care facility that needs flexibility as its residents' care needs change is not affected.

This proposal is only for large buildings intentionally and specifically designed as care facilities.

Compared with a normal R-2 multi-unit building (or even a similar but smaller R-4 care facility), the current code requires Group I-1 Condition 2 buildings to meet special requirements and limits regarding:

- IBC 420.6: Smoke barriers, with refuge areas and limits on smoke compartment size and maximum travel distance.
- IBC 420.7: Walls, ceilings, sprinklers, and space planning related to common areas and activity rooms.
- IBC 420.8: Kitchens and cooking areas.
- IBC 420.9: Kitchen appliances, regarding shutoffs, timers, etc. in shared cooking areas.

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Cost Impact: Increase

Estimated Immediate Cost Impact:

The initial construction cost premium to design for RC IV instead of RC II will vary significantly with the building location, size, architecture, and program. That said, premium is often surprisingly low, between 1% and 2%. Though rare, it can even be zero if the designer is thoughtful about structural system selection and nonstructural system detailing. (If the cost of land acquisition, operations, and maintenance are also considered, the construction cost premium would be even smaller relative to the total project long-term cost.)

For a new assisted living facility, assuming a construction cost between $272/sf and $444/sf (see Justification) and a conservative 1.5% cost premium, the immediate cost impact would range from $4.10/sf to $6.70/sf.

See the reason statement for a brief discussion of likely benefits that would offset any immediate construction cost premium.

Estimated Immediate Cost Impact Justification (methodology and variables):

The construction cost for a new assisted living facility is from Gaivin (2024), citing data from The Weitz Company. For a city index of 100, 2024 construction cost was expected to range from $272/sf to $347/sf for a "mid-level" building (wood-frame) and from $356/sf to $444/sf for a "high-level" building (steel or concrete).

The estimate of 1% to 2% is based on case studies of voluntary design of nominally RC II buildings for RC IV in regions of high seismicity: Almufti (2016), Bade (2014), Berkowitz (2021), Haselton et al. (2021), Lizundia (2021), Mar (2021), Moore (2021), SEFT (2015), Westermeyer (2021), and Zimmerman (2021).

This estimate stands to reason: Wind, snow, and earthquake loads can already vary significantly within a jurisdiction, but the building designs and unit costs don't change wildly from one side of the county to the other. For example, the seismic design force in Berkeley is about 1.5 times that in downtown San Francisco; so with respect to the structure, any care facility you can build as RC II in Berkeley you can also build as RC IV in San Francisco with no change to the design. The same is likely true for snow design, for example, in Vail v. Boulder and for wind design in Galveston v. the west side of Houston. On the nonstructural side, a facility's nonstructural systems might need more bracing or support when assigned to RC IV, but the number and size of the components themselves don't suddenly look

like a hospital just because the risk category has changed.

S56-25

S57-25

IBC: 1604.5, TABLE 1604.5

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net)

2024 International Building Code

Revise as follows:

1604.5 Risk category. Each *building* and *structure* shall be assigned a *risk category* in accordance with Table 1604.5. Where a referenced standard specifies an occupancy category, the *risk category* shall not be taken as lower than the occupancy category specified therein. Where a referenced standard specifies that the assignment of a *risk category* be in accordance with ASCE 7, Table 1.5-1, Table 1604.5 shall be used in lieu of ASCE 7, Table 1.5-1.

Exceptions:

1. The assignment of *buildings* and *structures* to Tsunami *Risk Categories* III and IV is permitted to be in accordance with Section 6.4 of ASCE 7.
2. Freestanding parking garages not used for the storage of emergency services vehicles or not providing means of egress for *buildings* or *structures* assigned to a higher risk category shall be assigned to Risk Category II.
3. Power-generating facilities are permitted to be assigned to Risk Category II where the *owner* has submitted and the *building official* has approved a plan to provide an alternative equivalent source of energy to the same energy consumers within one hour of the facility's outage due to a design level wind, earthquake, snow, flood, or tornado event, considering the regional effects of any such event.

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.

III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:
	• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.
	• Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500.
	• Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.
	• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.
	• Group I-3, Condition 1 occupancies.
	• Any other occupancy with an occupant load greater than 5,000.[a]
	• ~~Power-generating stations with individual power units rated 75 MW$_{AC}$ (megawatts, alternating current) or greater, water~~ Water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.
	• Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]

RISK CATEGORY	NATURE OF OCCUPANCY

IV	Buildings and other structures designated as essential facilities and buildings or structures where loss of function represents a substantial hazard to occupants or users, including but not limited to:
	• Group I-2 occupancies.
	• Ambulatory care facilities having emergency surgery or emergency treatment facilities.
	• Group I-3 occupancies other than Condition 1.
	• Fire, rescue, ambulance and police stations and emergency vehicle garages
	• Designated earthquake, hurricane or other emergency shelters.
	• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
	Power-generating facilities with total capacity of 20 MW$_{AC}$ or greater.
	• Public utility facilities providing power generation, potable water treatment, or wastewater treatment.
	• Power-generating stations and other public utility facilities required as emergency backup facilities for *Risk Category* IV structures.
	• Buildings and other structures containing quantities of highly toxic materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]
	• Aviation control towers, air traffic control centers and emergency aircraft hangars.
	• Buildings and other structures having critical national defense functions.
	• Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use *gross floor area* calculations shall be permitted to use *net floor areas* to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

Reason: No doubt some will open this proposal and immediately accuse me of trying to kill the wind and solar industries. Either that, or I am just too stupid for words.

But stay with me. What I'm trying to do is have a conversation about how we are going to ensure the fast recovery of electric power for the general public after a damaging natural hazard event, and the role of the building code and of building officials in doing so. In general, "grid reliability" is an increasingly complex issue, and there are lots of experts doing excellent, good-faith work on it, but they don't read our code, and we don't read their industry standards. But as long as the IBC is going to address "power-generating stations" or "public utilities" (and from what I've seen, it probably shouldn't any more), we need to get some consensus on what we expect this book to deliver.

Some recent history: Everyone agrees that a facility providing backup power to a RC IV building ought to be in RC IV too. That's flawed, but it's easy. Beyond that, the 2021 IBC had one important line about power in Table 1604.5: All other "power-generating stations" were assigned to RC III. No size limits, no distinctions by fuel source or ownership, just one broad rule. Basically it was the code saying "Electric power is important, so we want a little more strength in those structures, but not RC IV-level important."

Now, Section 1604.5 of the 2024 IBC reflects the results of three approved proposals from the last cycle:

- S76-22 (driven by me) said that power produced and delivered to the general public is so important during and after a hurricane, earthquake, or winter storm that the facilities who make and sell it -- presented as "public utility facilities providing power generation" -- need to be in RC IV. The wind and solar industry fought it, but ICC members approved it at every step.
- S81-22 (driven by the solar industry) laid out a set of requirements, now in 1604.5.2, for generally small PV installations (residential and commercial scale). But that general rule from the 2021 code about RC III? Forget it. Industry said "We don't care what the code says, we've been designing for RC II or even RC I for years, and we need the code to let us keep doing that." ICC members said ok.
- S79-22 (driven by the wind industry) said "We want/need to keep ignoring the code too." So at the Public Comment hearing they changed the RC III line to exempt all but the largest generators: 75 MW or bigger. Did any code official or building designer in the room know how big 75 MW is? I sure didn't (and I said so). Well, it turns out that the biggest wind turbine in the world is only 22 MW,

and most of the big on-shore ones are only 2 or 3 MW. So S79 effectively guarantees that no wind turbine will ever be assigned to RC III, meaning that every wind farm that isn't a public utility now defaults to RC II. 2021 IBC we hardly knew ye.

As I said, the energy industry doesn't read our code, so when shown the RC III provision from 2021, they just ignored it. (Interestingly, oil, gas, hydro, and nuclear reps didn't even come to the hearings. They *really* don't care what we do.)

And in all the discussion of those three proposals, nobody from industry came out and said that good performance and fast recovery after nat haz events is bad. They just weren't going to lift a finger to help get there. Solar had to acknowledge that wind actually does rip up solar farms, that FL has voluntarily implemented higher standards that work, that DOE has guidelines for high-wind installations, and that a couple of vendors are now specifically pushing high wind-resistant trackers. But actually require design for functionality and fast recovery? No way. And all Wind kept saying was that they've always done it their way and no turbine has ever had a foundation failure. What they failed to mention is that typical turbines today are twice as big as they were 20 years ago, so the track record for the new stuff is pretty short. Also, a slightly heftier foundation and tower would cost pennies compared with the high-tech nacelle and blades. But no, anything but RC II would kill renewables dead. Come on.

Anyway, here's where things stand:

- Pretty much all solar (unless public utility): RC II
- Pretty much all wind (unless public utility): RC II
- Oil, gas, nuclear, hydro (unless public utility?): RC III, I guess?
- Public utility generators: RC IV.

So at least the big installations, the public utility-owned generators, are designed for low damage and fast recovery. Right? Well, not really, because public utilities for electric power are not what they used to be. They're not even what they were three years ago when we used that term (which has been in Table 1604.5 since 2003) as a proxy for power that normal people and normal buildings use. Yes, the big investor-owned public utilities like PG&E, Duke Energy, and Con Edison are still around, but they all buy power from independent wind and solar providers, to the point where it's nearly impossible to say whether a new proposed wind or solar farm, no matter the size, is regulated as a public utility or not. I was a little naive on this point back in 2022, but in my defense, the web of relationships between the various players is WAY more complicated now, as construction of renewables (boosted even more by post-pandemic Fed subsidies) has really exploded.

Which leaves us with the question S76 was trying to answer: **How do we make sure that the most substantial power providers, the ones normal people absolutely rely on, are properly designing for wind, earthquake, snow, and flood?** (And we should probably throw in high heat, drought, and WUI fire too.)

From a building code perspective, we have a tested, if blunt, tool: Risk Category. Who cares how wind and solar did their work when they were little alternative sources. Now they're the big boys too, and we need them to see their own end product as important, even essential, as we do. It's not about selling panels or turbines, it's about delivering power and keeping the lights, the heat, the food cold chain, and the air conditioning on.

So that's the first part of this surprisingly serious proposal: Put any big power plant in RC IV. (And by the way, the cutoff should be 20 MW, not 75, and it should be based on the whole facility, not "individual power units." The key agencies, FERC and NERC, are actually pretty clear about those metrics.)

But won't that just rehash the arguments from last cycle? Yeah, but I'm acknowledging, as I did then, that their best argument against S76 was that the very nature of the grid provides redundancy and reliability already, so a power outage is not like a building collapse.

I get it, and I accept it, and that's **the second part of this proposal: RC II is fine if there's a real plan, grid-wide as needed, to shorten outages and help the community recover.**

Three years ago, wind and solar industry reps swore this was already doable. Ok, show us the plan. You (and DOE) have until 2028 when states start enforcing this next edition, to get it done.

(The alternative to all this, which maybe someone will propose as a floor mod: Strike all mention of power from Table 1604.5. The grid is not a building, and the building code is just not the right tool for that job.)

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal is obviously not just editorial or a clarification, but with the proposed Exception, it provides a means for any power industry stakeholder to keep using RC II just as they're doing now, if they just have a plan to keep the energy flowing.

Staff Analysis: CC # S57-25 and CC # 58-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S57-25

S58-25

IBC: TABLE 1604.5

Proponents: Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Building Code

Revise as follows:

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.

III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:
	• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.
	• Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500.
	• Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.
	• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.
	• Group I-3, Condition 1 occupancies.
	• Any other occupancy with an occupant load greater than 5,000.[a]
	• Power-generating stations with individual power units rated 75 MW_{AC} (megawatts, alternating current) or greater, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.
	• Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]

IV	Buildings and other structures designated as essential facilities and buildings where loss of function represents a substantial hazard to occupants or users, including but not limited to:
	• Group I-2 occupancies.
	• Ambulatory care facilities having emergency surgery or emergency treatment facilities.
	• Group I-3 occupancies other than Condition 1.
	• Fire, rescue, ambulance and police stations and emergency vehicle garages
	• Designated earthquake, hurricane or other emergency shelters.
	• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
	• Public utility facilities providing power generation with individual power units rated 75 MW_{AC} (megawatts, alternating current) or greater, potable water treatment, or wastewater treatment.
	• Power-generating stations and other public utility facilities required as emergency backup facilities for *Risk Category* IV structures.
	• Buildings and other structures containing quantities of highly toxic materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]
	• Aviation control towers, air traffic control centers and emergency aircraft hangars.
	• Buildings and other structures having critical national defense functions.
	• Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use *gross floor area* calculations shall be permitted to use *net floor areas* to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

Reason: During the Public Comment Hearings for ICC Group B in 2022, Proposal S79-22 was Approved As Modified by Public Comment 1. This public comment created a threshold of 75 MW_{AC} or greater for power-generating stations in Risk Category III.

This proposal seeks to include the same 75 MW_{AC} threshold in Risk Category IV as presently exists in 2024 IBC Table 1604.5 for Risk Category III.

The proponent offers the same reason statement for adding the threshold to RC IV as in the previous cycle for RC III, as in S79-22 Public Comment 1.

"ASCE 7-22 Section 15.5.4 states: "Electrical power-generating facilities are power plants that generate electricity by steam turbines, combustion turbines, diesel generators, or similar turbomachinery." Commentary to Section 15.5.4 states: "Electrical power plants closely resemble building structures, and their performance in seismic events has been good." It is clear that IBC Table 1604.5 and ASCE Section 15.5.4 were not written with renewable energy facilities in mind. The term "power generating station" is undefined and ambiguous in the 2021 IBC, and it has no threshold assigned to it. This PC seeks to establish a threshold on the term "power generating station" that is consistent with the original intent of the term in the IBC and in ASCE 7. Note 75 MWac is a better threshold than 100 MW for the smallest power-producing unit of a power generating station, as 75 MW is established in North American Electric Reliability Corporation Docket No. RR15-4-000, Order on Electric Reliability Organization Risk Based Registration Initiative and Requiring Compliance Filing (Issued March 19, 2015). The smallest power-producing unit of a renewable energy facility could be considered as one inverter, or could be one wind turbine."

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only seeks to apply the same 75 MWAC threshold to Risk Category IV power generation as was approved for Risk Category III power generation.

Staff Analysis: CC # S58-25 and CC # 57-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S58-25

S59-25

IBC: TABLE 1604.5

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Building Code

Revise as follows:

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.

III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:
	• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.
	• Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500.
	• Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.
	• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.
	• Group I-3, Condition 1 occupancies.
	Group I-2 Condition 1 occupancies with 50 or more care recipients
	• Any other occupancy with an occupant load greater than 5,000.[a]
	• Power-generating stations with individual power units rated 75 MW_{AC} (megawatts, alternating current) or greater, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.
	• Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]

IV	Buildings and other structures designated as essential facilities and buildings where loss of function represents a substantial hazard to occupants or users, including but not limited to:
	• Group I-2, Condition 2 occupancies.
	• Ambulatory care facilities having emergency surgery or emergency treatment facilities.
	• Group I-3 occupancies other than Condition 1.
	• Fire, rescue, ambulance and police stations and emergency vehicle garages
	• Designated earthquake, hurricane or other emergency shelters.
	• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
	• Public utility facilities providing power generation, potable water treatment, or wastewater treatment.
	• Power-generating stations and other public utility facilities required as emergency backup facilities for *Risk Category* IV structures.
	• Buildings and other structures containing quantities of highly toxic materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]
	• Aviation control towers, air traffic control centers and emergency aircraft hangars.
	• Buildings and other structures having critical national defense functions.
	• Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use *gross floor area* calculations shall be permitted to use *net floor areas* to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

Reason: The intent of this proposal is to return Nursing Homes (Group I-2 Condition 1) to Risk Category 3. There is another change to address Hospitals (Group I-2 Condition 2). The description text and Group I-2 occupancies were revised in S74-22.

This proposal has three serious problems.

The added language in the description for Risk Category IV could be read that any of the current occupancies in this list could sustain loss of function as long as that damage did not represent a substantial hazard to the occupants. The list of facilities is a listing of essential facilities that are intended to be operational after an event for the safety and recovery of the entire community. Hospitals that have emergency surgery or emergency treatment facilities are intended to be operational after an emergency. There could be a lot of damage to the building that would not be a substantial hazard to occupants, but would stop impact the functionality of the emergency room. During normal operations there are times that emergency rooms divert additional patients to other facilities that are available hence the true intention of an ER is to address a set amount of emergent patients and not to address every possible patient within the community. It is also common practice within a community to develop emergency operation plans to allow for facilities to coordinate services across the community. Hence hospitals and ER’s are expected to be functional during an emergency and to address a set amount of patients and efforts are coordinated across a community to provide essential services as needed.

If all nursing homes and hospitals are relocated to Risk Category IV with the beginning language - how would a 'substantial hazard' to the occupants be determined. Would this require protection for power and water supplies? What if the windows break? Is that a hazard in the summer or winter? That depends on the season and where in the country you are located. This language will not be uniformly understood or enforced.

This language would move all nursing homes and hospitals to Risk Category IV. Currently nursing homes with between 6 and 50 occupants can be Risk Category II; and nursing homes with more than 50 occupants and hospitals without emergency surgery or emergency treatment can be Risk Category III. While these are a vulnerable population., however, there has been no history of issues with these facilities that justifies this increase in design for higher winds, seismic and snow loads for all such facilities. Hospitals and nursing homes already include additional safety features for residents and have a high level of oversite. If the concern is to remain operational as expressed in the proponents’ reasons, there are many emergency planning options that can address this outside of a substantial increase in building construction (added cost). These facilities have staff trained in emergency care and operations and have detailed emergency operation plans. If a building has damage, the residents can be relocated to other parts of the building or to another facility. Such facilities typically have emergency generators. Operational plans for emergencies can address early evacuation plans; potable water supplies; etc.

This proposal is submitted by the ICC Committee for Healthcare (CHC). The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Per RS Means data including the 2024 year, hospital construction is approximately $500 per square foot for hospital construction. This change added 15% to 20% of construction costs, resulting in $575 to $600 per square foot. Reversing this change will reverse this increase.

Estimated Immediate Cost Impact Justification (methodology and variables):

This pricing considers the need to provide N+1 redundancy in a central utility plant for power and full air conditioning, plus additional structural scope. It does not consider premium sits such as California, New York or Gulf Coast, but a national average square footage cost. In these locations, the savings would be more.

S59-25

S60-25

IBC: TABLE 1604.5

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Building Code

Revise as follows:

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.

III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:
	• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.
	• Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500.
	• Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.
	• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.
	Group I-2, Condition 2 occupancies not having emergency surgery or emergency treatment facilities.
	• Group I-3, Condition 1 occupancies.
	• Any other occupancy with an occupant load greater than 5,000.[a]
	• Power-generating stations with individual power units rated 75 MW_{AC} (megawatts, alternating current) or greater, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.
	• Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]

IV	Buildings and other structures designated as essential facilities and buildings where loss of function represents a substantial hazard to occupants or users, including but not limited to:
	Group I-2 Condition 1
	• Group I-2, Condition 2 occupancies having emergency surgery or emergency treatment facilites.
	• Ambulatory care facilities having emergency surgery or emergency treatment facilities.
	• Group I-3 occupancies other than Condition 1.
	• Fire, rescue, ambulance and police stations and emergency vehicle garages
	• Designated earthquake, hurricane or other emergency shelters.
	• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
	• Public utility facilities providing power generation, potable water treatment, or wastewater treatment.
	• Power-generating stations and other public utility facilities required as emergency backup facilities for *Risk Category* IV structures.
	• Buildings and other structures containing quantities of highly toxic materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]
	• Aviation control towers, air traffic control centers and emergency aircraft hangars.
	• Buildings and other structures having critical national defense functions.
	• Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use *gross floor area* calculations shall be permitted to use *net floor areas* to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

Reason: The intent of this proposal is to restore the Group I-2 hospitals without emergency surgery or emergency treatment areas to Risk Category 3. The change for Group I-2 Nursing homes is a separate proposal. The description text and Group I-2 occupancies were revised in S74-22.

This proposal has three serious problems.

The added language in the description for Risk Category IV could be read that any of the current occupancies in this list could sustain loss of function as long as that damage did not represent a substantial hazard to the occupants. The list of facilities is a listing of essential facilities that are intended to be operational after an event for the safety and recovery of the entire community. Hospitals that have emergency surgery or emergency treatment facilities are intended to be operational after an emergency. There could be a lot of damage to the building that would not be a substantial hazard to occupants, but would impact the functionality of the emergency room. During normal operations there are times that emergency rooms divert additional patients to other facilities that are available hence the true intention of an ER is to address a set amount of emergent patients and not to address every possible patient within the community. It is also common practice within a community to develop emergency operation plans to allow for facilities to coordinate services across the community. Hence hospitals and ER's are expected to be functional during an emergency and to address a set amount of patients and efforts are coordinated across a community to provide essential services as needed.

If all nursing homes and hospitals are relocated to Risk Category IV with the beginning language - how would a 'substantial hazard' to the occupants be determined. Would this require protection for power and water supplies? What if the windows break? Is that a hazard in the summer or winter? That depends on the season and where in the country you are located. This language will not be uniformly understood or enforced. This language would move all nursing homes and hospitals to Risk Category IV.

Currently nursing homes with between 6 and 50 occupants can be Risk Category II; and nursing homes with more than 50 occupants and hospitals without emergency surgery or emergency treatment can be Risk Category III. While these are a vulnerable population., however, there has been no history of issues with these facilities that justifies this increase in design for higher winds, seismic and snow loads for all such facilities. Hospitals and nursing homes already include additional safety features for residents and have a high level of oversite. If the concern is to remain operational as expressed in the proponents' reasons, there are many emergency planning options that can address this outside of a substantial increase in building construction (added cost). These facilities have staff trained in emergency care and operations and have detailed emergency operation plans. If a building has damage, the residents can be relocated to other parts of the building or to another facility. Such facilities typically have emergency generators. Operational plans for emergencies can address early evacuation plans; potable water supplies; etc.

Note: Group I-2, Condition 1 is addressed by another proposal by this proponent.

This proposal is submitted by the ICC Committee for Healthcare (CHC). The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Per RS Means data including the 2024 year, hospital construction is approximately $500 per square foot for hospital construction. This change added 15% to 20% of construction costs, resulting in $575 to $600 per square foot. Reversing this change will reverse this increase.

Estimated Immediate Cost Impact Justification (methodology and variables):

This pricing considers the need to provide N+1 redundancy in a central utility plant for power and full air conditioning, plus additional structural scope. It does not consider premium sits such as California, New York or Gulf Coast, but a national average square footage cost. In these locations, the savings would be more.

S60-25

S61-25

IBC: TABLE 1604.5

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.

III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to:
	• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.
	• Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500.
	• Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.
	• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.
	• Group I-3, Condition 1 occupancies.
	• Any other occupancy with an occupant load greater than 5,000.[a]
	• Power-generating stations with individual power units rated 75 MW_{AC} (megawatts, alternating current) or greater, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.
	• Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]

IV	Buildings and other structures designated as essential facilities ~~and buildings where loss of function represents a substantial hazard to occupants or users~~, including but not limited to:
	• Group I-2 occupancies.
	• Ambulatory care facilities having emergency surgery or emergency treatment facilities.
	• Group I-3 occupancies other than Condition 1.
	• Fire, rescue, ambulance and police stations and emergency vehicle garages
	• Designated earthquake, hurricane or other emergency shelters.
	• Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
	• Public utility facilities providing power generation, potable water treatment, or wastewater treatment.
	• Power-generating stations and other public utility facilities required as emergency backup facilities for *Risk Category* IV structures.
	• Buildings and other structures containing quantities of highly toxic materials that:
	  • Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code* ; and
	  • Are sufficient to pose a threat to the public if released.[b]
	• Aviation control towers, air traffic control centers and emergency aircraft hangars.
	• Buildings and other structures having critical national defense functions.
	• Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use *gross floor area* calculations shall be permitted to use *net floor areas* to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

Reason: The intent of this proposal is to review the description in Risk Category IV. Revisions to Group I-2 are address in two other code changes. The description text and Group I-2 occupancies were revised in S74-22.

The scope of the Healthcare committee is for healthcare facilities, such as ambulatory care facilities, clinics, nursing homes and hospitals. Therefore, this public comment is limited to the effect of the new language to the description of Risk Category IV and how it would effect the 1st and 2nd item in the list.

- Group I-2 occupancies .
- Ambulatory care facilities having emergency surgery or emergency treatment facilities.

The added language in the description for Risk Category IV could be read that any of the current occupancies in this list could sustain loss of function as long as that damage did not represent a substantial hazard to the occupants. These are a list of essential facilities that must be operational after an event for the safety and recovery of the entire community. Hospitals that have emergency surgery or emergency treatment facilities need to be operational and functional after an emergency. There could be a lot of damage to the building that would not be a substantial hazard to occupants, but would stop the emergency room from functioning. During normal operations there are times that emergency rooms divert additional patients to other facilities that are available hence the true intention of an ER is to address a set amount of emergent patients and not to address every possible patient within the community. It is also common practice within a community to develop emergency operation plans to allow for facilities to coordinate services across the community. Hence hospitals and ER's are expected to be functional during an emergency and to address a set amount of patients and efforts are coordinated across a community to provide essential services as needed.

Additionally, the language in question could also be read to include other buildings that are not considered as essential facilities but when the loss of the function of the building is a substantial hazard to the occupants or users such as a dialysis center which loss could put those users at risk but during an emergency these services could be provided in an alternate facility. This language could cause the mis-application of Risk Category IV to facilities that were not intended to be included.

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Per RS Means data including the 2024 year, hospital construction is approximately $500 per square foot for hospital construction. This change added 15% to 20% of construction costs, resulting in $575 to $600 per square foot. Reversing this change will reverse this increase.

Estimated Immediate Cost Impact Justification (methodology and variables):

This pricing considers the need to provide N+1 redundancy in a central utility plant for power and full air conditioning, plus additional structural scope. It does not consider premium sits such as California, New York or Gulf Coast, but a national average square footage cost. In these locations, the savings would be more.

S61-25

S62-25

IBC: 1604.5.1

Proponents: Erik Madsen, representing NCSEA (emadsen@dci-engineers.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

1604.5.1 Multiple occupancies. Where a *building* or *structure* is occupied by two or more occupancies not included in the same *risk category*, it shall be assigned the classification of the highest *risk category* corresponding to the various occupancies. Where *buildings* or *structures* have two or more portions that are structurally separated, each portion shall be separately classified. Where a separated portion of a *building* or *structure* provides required access to, required egress from or shares life safety systems, designated seismic systems, emergency power systems, or emergency and egress lighting systems with another portion having a higher *risk category*, or provides required electrical, communications, mechanical, plumbing or conveying support to another portion assigned to *Risk Category* IV, both portions shall be assigned to the higher *risk category*.

> **Exception:** Where a *storm shelter* designed and constructed in accordance with <u>Section 423 and </u>ICC 500 is provided in a *building*, *structure* or portion thereof normally occupied for other purposes, the *risk category* for the normal occupancy of the *building* shall apply unless the *storm shelter* is a designated emergency shelter in accordance with Table 1604.5.

Reason: There is no pointer connecting the Risk Category section in 1604.5 with the storm shelter designated section of IBC Section 423. In previous code cycles, attempts were made to connect these sections by creating a pointer in the wrong location, sometimes reassigning the Risk Category in Table 1604.5 against the intent of this exception. The multiple occupancy section is clear about the application of the Risk Category. This proposal hopefully clarifies the connection between the sections.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Change is editorial - pointer added

S62-25

S63-25

IBC: 1604.5.2, 1604.5.3 (New)

Proponents: Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Building Code

1604.5.2 Photovoltaic (PV) panel systems. Photovoltaic (PV) panel systems and *elevated PV support structures* shall be assigned a *risk category* as follows:

1. *Ground-mounted PV panel systems* serving only Group R-3 *buildings* shall be assigned to *Risk Category* I.
2. *Ground-mounted PV panel systems* other than those described in Items 1 and 5 shall be assigned to *Risk Category* II.
3. *Elevated PV support structures* other than those described in Items 4, 5 and 6 shall be assigned to *Risk Category* II.
4. Rooftop-mounted *PV panel systems* and *elevated PV support structures* installed on top of *buildings* shall be assigned to the same *risk category* as the *risk category* of the *building* on which they are mounted.
5. *PV panel systems* and *elevated PV support structures* paired with energy storage systems (ESS) and serving as a dedicated, stand-alone source of backup power for *Risk Category* IV *buildings* shall be assigned to *Risk Category* IV.
6. *Elevated PV support structures* where the usable space underneath is used for parking of emergency vehicles shall be assigned to *Risk Category* IV.

Add new text as follows:

1604.5.3 Energy storage systems (ESS). *Energy storage systems (ESS)* shall be assigned a risk category as follows:

1. *ESS* serving only Group R-3 *buildings* and installed outdoors on the ground, in detached garages or in detached accessory structures a minimum of 10 feet (3048 mm) away from property lines and *dwellings* shall be assigned to *Risk Category I.*
2. *ESS* serving a bulk-power grid and not associated with occupiable *buildings* other than on-site facilities shall be assigned to *Risk Category II.*
3. *ESS* directly serving *buildings* other than those described in Items 1 and 2 shall be assigned to the same *risk category* as the highest *risk category* of the *buildings* they serve.

Reason: For the 2024 IBC, Proposal S81-22 created new Section 1604.5.2, which establishes structural risk category for a variety of installations and use cases for photovoltaic (PV) panel systems. During the ICC Group B Public Comment Hearings, this proposal was well-received, with a 98% positive vote of the Assembly on the floor prior to the online governmental vote.

This proposal seeks to create new Section 1604.5.3 for energy storage systems (ESS), using the same or similar logic as Proposal S81-22 from last cycle.

Justification is provided here for each of the three line items in this proposal.

1. Item 1 focuses on ESS that serves only Group R-3 buildings, but includes only ESS that is not installed in or on the residence. For example, ESS installed inside the residence in non-habitable space, or inside an attached garage, or mounted on the outside of the residence is not included in Item 1, and must instead comply with Item 3. The terms used in Item 1 are consistent with terms approved during the 2nd Draft meeting for the future 2026 edition of NFPA 855 Standard for the Installation of Stationary Energy Storage Systems. These terms are expected to appear in 2026 NFPA 855 Chapter 15, Table 15.5.2 Maximum Ratings of ESS.

The effect of Item 1 is that ESS serving Group R-3 is assigned to Risk Category I only if installed a minimum of 10 feet away from property lines and dwellings, either outdoors on the ground (presumably on a concrete pad), or in detached garages, or in detached accessory structures. All other ESS serving Group R-3 buildings must comply with Item 3, and therefore must match the risk category of the building, which is Risk Category II.

2. Item 2 for ESS in proposed Section 1604.5.3 is intended to correlate with Item 2 for PV in Section 1604.5.2 for large-scale power facilities. Where ESS is remote and is connected to a bulk-power grid, it does not make any direct contribution as "lifeline infrastructure" to any individual building for which engineers are seeking to achieve functional recovery. It simply provides dispatchable power into the grid, which is managed by grid operators under the rules and standards of the North American Electric Reliability Corporation (NERC). NERC is subject to oversight by the Federal Energy Regulatory Commission (FERC).

As an example, a Risk Category IV building such as a police station, fire station, or hospital -- or any other building for which functional recovery is a goal -- is no more or less likely to experience a grid power outage if a particular ESS facility serving only the bulk-power grid is assigned to a risk category higher than RC II.

Note: In NERC standards, the defined terms "bulk electric system" and "bulk power system" are used. In the IBC, the proponent feels the term "bulk-power grid" would be more intuitive and meaningful to readers of the IBC charged with implementation, interpretation, and enforcement.

3. Item 3 requires that ESS directly serving buildings (primarily ESS installed on-site) must be assigned to a risk category that matches the risk category of the building(s) served. To keep the language simple and unambiguous, where ESS in Item 3 directly serves multiple buildings or multiple risk categories within one building, the ESS is required to be assigned to the highest risk category served.

ESS installed and configured to serve as a source of backup power during periods of grid power outage can directly serve as "lifeline infrastructure" for individual building(s) for which engineers are seeking to achieve functional recovery. This is true whether the ESS is paired with renewable energy systems such solar or wind, or is stand-alone ESS. It is also true regardless of risk category of the building(s) for which functional recovery is a goal. This is also true where ESS is configured to provide backup power to microgrids serving a distinct grouping of buildings during times of outage of a bulk-power grid.

During development of the language for this proposal, the proponent considered distinctions of whether or not a building is an "essential services facility," and whether or not a particular building or facility has a requirement for an emergency power system or standby power system." For simplicity and for clarity, the proponent decided to tie the RC of ESS directly to the RC of the building(s) served. A project engineer might not know whether the ESS is providing legally required backup power, so the proposed language should simplify the determination of risk category by the Engineer of Record for the ESS.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal seeks to establish structural risk category for a variety of installations of energy storage systems, and is intended to formalize current practice. While there could be certain cost implications up or down for individual projects, there is no trend of increased cost intended by this proposal.

S63-25

S64-25

IBC: 1604.5.3 (New), IEC (New)

Proponents: Paul Armstrong, PACCS, representing Lightning Protection Institute

2024 International Building Code

Add new text as follows:

1604.5.3 Lightning protection assessment. Buildings or structures assigned to Risk Category IV shall have a lightning risk assessment in accordance with NFPA 780 or IEC 62305-2.

Add new standard(s) as follows:

IEC

International Electrotechnical Commission
3, rue de Varembe CH-1211
Geneva,
Switzerland

IEC 62305-2-24	Protection against lightning, Part 2: Risk Management

Reason: The problem:

There is a lack of a standardized, detailed methodology within the IBC to assess and mitigate lightning risks specifically for Risk Category IV buildings and other structures. These buildings contain essential facilities (e.g., hospitals, emergency shelters) and also those buildings where the loss of function is a real hazard to the occupants/users. The assignment in Risk Category IV is to help ensure these buildings maintain functionality and safety during natural hazards; in this case severe weather events. This specialized code language will provide a systematic, accurate, and consistent approach to evaluating lightning risk for these essential uses and recommend protective measures.

Specific example:

Lightning strikes can significantly disrupt hospital operations, affecting both infrastructure and patient care. Key impacts include:

Electrical and Electronic System Failures:

a. Power Supply Disruptions: Lightning can cause power outages, compromising critical systems. For instance, a 2017 lightning strike at a Florida hospital led to a fire and subsequent failure of backup power systems, necessitating the evacuation of 225 patients.

b. Equipment Damage: Sensitive medical devices are vulnerable to voltage spikes from lightning, potentially leading to malfunctions or complete failure. This can impede patient monitoring and treatment.

Communication System Interruptions:

a. Lightning-induced surges can disrupt hospital communication networks, including telephones, intercoms, and internet services, hindering coordination among medical staff and with external emergency services.

Structural Damage:

a. Direct lightning strikes can cause fires or physical damage to hospital buildings, posing safety risks to patients and staff and potentially leading to evacuations.

To safeguard against these risks, hospitals can implement comprehensive lightning protection systems. These mitigation measures include:

- External Protection: Installation of lightning rods and other systems to intercept strikes.
- Surge Protection Devices (SPDs): To shield electrical and electronic equipment from voltage spikes.
- Equipotential Bonding**:** Ensuring all conductive parts within the hospital are at the same electrical potential to prevent dangerous voltage differences during a lightning event.
- Regular Maintenance and Compliance: Adhering to standards such as NFPA 70, NFPA 780, and UL 96A to ensure the effectiveness of lightning protection systems.

Implementing these measures can enhance hospital resilience against lightning-related incidents, ensuring continuity of critical healthcare services.

Historical Losses:

Documented instances of lightning strikes have shown that they can cause fires in critical infrastructure, power outages disrupting emergency operations, and structural damage leading to costly repairs and operational downtime.

The quantification of Impact: The new language can incorporate data from past incidents to model the economic, structural, and human costs of lightning-related failures. This data-driven foundation helps stakeholders understand the necessity of robust lightning protection.

Over the past five years, lightning strikes have significantly impacted commercial properties in the United States, leading to substantial insurance claims and financial losses. Key statistics include:

- Percentage of Claims: Lightning-induced fires account for approximately 3% to 5% of all U.S. commercial property insurance claims annually. (Institute for Intergovernmental Research) https://www.iii.org/press-release/struck-by-lightning-how-businesses-can-become-more-resilient-triple-i-and-lpi
- Annual Financial Impact: These incidents result in over $2 billion in insured losses each year for small and medium-sized businesses. (Institute for Intergovernmental Research) https://www.iii.org/press-release/when-lightning-strikes-how-business-can-protect-its-bottom-line
- Types of Damage: Lightning can cause fires, structural damage, and electrical system failures, leading to significant financial burdens for businesses. (Voss Law Firm) https://www.vosslawfirm.com/blog/a-guide-to-commercial-insurance-claims-for-lightning-strikes.
- While specific annual data for each of the past five years is limited, these figures highlight the consistent and substantial impact of lightning on commercial properties.

Implementing the analysis of the benefits of certified lightning protection systems and then securing appropriate insurance coverage are essential steps for businesses to mitigate these risks.

Lightning strikes have been responsible for several significant power outages. Notable instances include:

1. New York City Blackout (1977)

- **Date:** July 13–14, 1977
- **Cause:** A severe lightning storm led to a series of electrical failures, beginning with a lightning strike on a substation on the Hudson River. This initiated a cascading failure throughout the city's power grid.
- **Impact:** Approximately 9 million people were affected by the power outage, which lasted around 25 hours. The blackout resulted in widespread looting, arson, and significant property damage.

2. Southern Brazil Blackout (1999)

- **Date:** March 11, 1999
- **Cause:** A lightning strike at an electricity substation in Bauru, São Paulo State, caused most of the 440kV circuits at the substation to trip. This led to a chain reaction resulting in a widespread power outage.
- **Impact:** The blackout affected an estimated 75 to 97 million people across multiple states, including São Paulo, Rio de Janeiro, and Minas Gerais.

3. United Kingdom Power Outage (2019):

- **Date:** August 9, 2019
- **Cause:** A lightning strike on a transmission line led to the loss of 500 MW of embedded generation. Subsequently, two large generators, Little Barford Power Station and Hornsea Wind Farm, tripped, causing a significant drop in frequency.
- Impact: Experienced power cuts for 15 to 20 minutes. The outage also caused substantial travel disruption, particularly on the railway network, and affected infrastructure such as Newcastle Airport and Ipswich Hospital.

These events highlight the vulnerability of power grids to lightning strikes and underscore the importance of robust infrastructure and responsive measures to mitigate such risks.

How does this increase protection?

This code change will provide the following safety enhancements:

Reduce risk of structural fires and electrical surges caused by lightning.

Protect occupants and critical assets within the buildings.

Ensure that the functionality of the essential facilities continue.

Failures in electrical systems can affect life-sustaining equipment, such as ventilators and infusion pumps, endangering patient health, especially in intensive care units.

This code change will also provide improvements to functionality that ensures continuity of operations for essential services during severe weather, such as healthcare and emergency response. It will also minimize downtime by integrating resilient design features and protective measures while also facilitating adherence to higher safety standards for critical infrastructure, ensuring alignment with federal or state mandates.

Other Thoughts:

The proposed language can also accommodate different geographic and environmental factors by including variables like regional lightning density, soil conductivity, and building materials to tailor recommendations.

The proposed language could include cost-benefit analyses of different protection systems, enabling informed decisions about resource allocation. The Cost per Square Foot for Low-Rise Buildings is approximately $2.10 to $2.70 per square foot of roof area and Five-Story Buildings is approximately $1.50 to $1.90 per square foot of roof area.

The new language should help streamline assessments to integrate seamlessly into design and approval phases, avoiding delays in the construction timeline.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The proposed language could include cost-benefit analyses of different protection systems, enabling informed decisions about resource allocation. The Cost per Square Foot of such systems for Low-Rise Buildings is approximately $2.10 to $2.70 per square foot of roof area and Five-Story Buildings is approximately $1.50 to $1.90 per square foot of roof area for the installation of such protective systems based on industry studies. It should be noted however that the code change only requires the hazard assessment for Risk Category IV buildings or structures and that is considerably less in cost. The decision to install such a protective system would be a factor in whether or not it was needed for the use.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost impacts are based on industry studies. It is a simple cost of system over roof area provided. The new language should help streamline assessments to integrate seamlessly into design and approval phases, avoiding delays in the construction timeline.

Estimated Life Cycle Cost Impact:

This proposal only requires an analysis of whether the use needs protection from lightning storms. Therefore it is only a slight increase.

Staff Analysis: A review of the standard proposed for inclusion in the code, IEC 62305-2 Protection against lightning, Part 2: Risk Management 2024, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S64-25

S65-25

IBC: SECTION 202 (New), 1604.5.2 (New)

Proponents: Tom Vinson, representing American Clean Power Association (tvinson@cleanpower.org)

2024 International Building Code

Add new definition as follows:

WIND TURBINE GENERATOR SYSTEMS (WTGS). A system that incorporates an elevated generator, supported by a tower and its foundation, that converts wind kinetic energy into electrical power.

Add new text as follows:

1604.5.3 Wind Turbine Generating Systems (WTGS). *Wind turbine generating systems* shall be assigned a risk category as follows:

1. WTGS other than those described in Item 2 shall be assigned to *Risk Category* II.
2. WTGS paired with energy storage systems (ESS) and serving as a dedicated, stand-alone source of backup power for *Risk Category* IV *buildings* shall be assigned to *Risk Category* IV.

Reason: This proposal seeks clarity on the risk category of wind turbine generating systems (WTGS) in a way consistent with more than a decade of precedent in permitting such systems by authorities having jurisdiction (AHJs) while also remaining consistent with the intent of certain structural proposals adopted during the last International Building Code (IBC) revision cycle to improve resilience and functional recovery of communities in the wake of natural disasters. This proposal is also consistent with the risk category framework adopted for comparable ground-mounted PV panel systems in items 2 and 5 in 1604.5.2 during the last code revision cycle. For more than a decade, wind turbine generators have been classified as Occupancy Category II, per the *Recommended Practice for Compliance of Large Land-based Wind Turbine Support Structures* (ASCE/AWEA RP2011). This document was co-designated by the American Society of Civil Engineers (ASCE) and the American Wind Energy Association (AWEA),[1] and is used when classifying wind turbines. This has been accepted by AHJs across the country. In 2012 the ICC changed from using Occupancy Category to Risk Category. Classifying a wind turbine as Risk Category II is now equivalent to the previous classification as Occupancy Category II. It is also consistent with the more recently adopted ACP 61400-6-2023, *Wind Energy Generation Systems – Part 6: Tower and foundation design requirements – Modified Adoption of IEC 61400-6*, approved by the American National Standards Institute (ANSI) on June 27, 2023.

Justification by proposal line item is provided as follows:

1. **Wind Turbine Generator Systems (WTGS) – A system that incorporates an elevated generator, supported by a tower and its foundation, that converts wind kinetic energy into electrical power.**

There is currently no definition for wind turbine generating system in the IBC. This change would add a definition for wind turbine generating system. The wording is largely based on ASCE/AWEA RP 2011 and consistent with International Electrotechnical Commission (IEC) standards.[2]

2. **WTGS other than those described in Item 2 shall be assigned to *Risk Category* II.**

AHJs have approved the construction of tens of thousands of wind turbines as Risk Category II using ASCE/AWEA RP2011 over the last thirteen years. ACP is not aware of any increase in grid failure rates, including related to natural disasters and extreme weather, which would justify any need to categorize wind turbines at a level beyond risk category II. In addition, ACP 61400-6-2023, *Wind Energy Generation Systems – Part 6: Tower and foundation design requirements – Modified Adoption of IEC 61400-6*, approved by the American National Standards Institute (ANSI) on June 27, 2023, notes in Section 5.2.1, "WTGS [wind turbine generating systems] may be classified as Risk Category II structures, resulting in normal design importance factors. This approach mirrors implicit structural reliability levels of international wind turbine design standards such as IEC 61400-1 and is consistent with longstanding and contemporary wind industry support structure design practice in the United States and internationally."

The proposed ACP code revision recognizes that geographically dispersed power generation like wind energy improves grid resilience, reliability, and recovery, and that permitting wind turbines consistent with Risk Category II has resulted in wind farms able to withstand natural disasters and contribute to community recovery by continuing to generate electricity.

If an entire wind farm ceases operation, which is rare, geographically diverse wind farms elsewhere across the state or region are still putting electrons on the grid for delivery to homes and businesses.

Further, if a natural disaster contributes to failure at an individual wind turbine or a few turbines within a wind farm that does not mean an entire wind farm stops operating. The remaining turbines generally can continue to generate electricity if the substation and transmission system remains up and running.

We saw this in Turkey following severe earthquakes in 2023. Twenty-one wind power facilities continued operating in seven earthquake hit provinces.[3]Even when there is a direct hit on a few wind turbines from a severe tornado with one of the highest wind speeds in recorded history of at least 309 miles per hour[4] as was experienced in Iowa in May 2024, the geographic dispersion of wind turbines across hundreds or thousands of acres within a facility means that only a small subset of turbines were damaged by the tornado with the remaining turbines remaining structurally sound and able to generate electricity. For example, during the May 2024 series of Iowa tornadoes, three wind farms (out of 140 in Iowa) experienced damaged turbines, but in total only 10 turbines (2.5%) were damaged in those three wind farms with the other 386 turbines still able to generate electricity along with the other more than 6,000 in the State that were built consistent with Risk Category II.[5]'[6]

Specifying wind turbines as Risk Category II is consistent with maintaining community resilience and recovery. Grid reliability, including the performance of power generation facilities, is regulated by the North American Electric Reliability Corporation (NERC), which itself is regulated by the Federal Energy Regulatory Commission (FERC). Various reports on generation outages over the last two decades by FERC and NERC have not identified the structural integrity of wind generation specifically or power generation generally as factors in blackouts. Rather, transmission lines being down is generally the main factor.The U.S.-Canada Power Outage System Task Force Final Report on the August 14, 2003, Blackout in the Eastern United States and Canada[7] identified four major causes all related to improper operation and maintenance of the transmission system by a utility in Ohio.

A joint FERC-NERC staff report[8] on blackouts in Arizona and Southern California on September 8, 2011, found the grid operator failed to maintain the transmission system within its system operation limits, which contributed to cascading outages.

NERC's report on Hurricane Sandy,[9] which made landfall on October 29, 2012, indicated "no damage was reported" to wind turbines in the impact area.

NERC's report on Hurricane Harvey,[10] which made landfall on August 25, 2017, found "only minimal damage" was reported at wind energy facilities and facilities other than one that went offline came back online on the next day or the day after on August 26 or 27.

FERC-NERC issued a joint report[11] in February 2021 regarding an extreme cold and freeze event that led to multiple days of outages in Texas and more limited challenges in other states that identified two major causes: (1) power generation and natural gas pipelines were not adequately winterized which led to frozen equipment and systems and (2) inadequate supplies of natural gas meant there was insufficient gas for power generation as it was being used for home heating.

Even the longest power outage in U.S. history in Puerto Rico after Hurricanes Irma and Maria in September 2017 was due primarily to 80% of the transmission and distribution network being inoperable and difficult to repair given mountainous topography, rather than power generation facilities, including wind farms, being inoperable due to structural deficiencies. As a peer reviewed article[12] in the February 2019 *IEEE Power and Energy Technology Systems Journal* found, "damage to the conventional electric power generation infrastructure was relatively minor…". A 95 MW wind farm, Puerto Rico's largest, suffered "no damage" while at the other wind farm, located near Maria's landfall, the turbine blades were damaged, but only one turbine support structure failed.

Grid operators instantaneously balance generation from various power facilities in their area to match demand. As a part of this balance, the grid operators account for generation or transmission that is offline for maintenance, intermittent by design, or forced offline by a component or system failure or weather. In the U.S., the grid is largely operated on a regional basis, meaning grid operators ramp up and down generation over a geographically diverse area that is not impacted by a weather system the same way. Adding the geographic diversity of wind and solar, with the broad operating areas of the grid operators, supports resilience and recovery.

Further, grid operators require excess generation capacity that is well-beyond (15% or more)[13] demand peaks (i.e. "reserve margins") to facilitate the ability to ramp up generation to meet demand and to address generator outages (both planned an unplanned).

For the reasons above, ACP urges adoption of this proposal to specify that wind turbines are in Risk Category II, consistent with ASCE/AWEA RP 2011, ACP 61400-6-2023, and the treatment of comparable ground-mounted solar PV facilities in the IBC as this designation has been demonstrated based on real world experience to be sufficient to ensure wind energy generation in the wake of natural disasters.

3. **WTGS paired with energy storage systems (ESS) and serving as a dedicated, stand-alone source of backup power for *Risk Category* IV *buildings* shall be assigned to *Risk Category* IV.**

The intermittent nature of WTGS make them an unlikely choice to serve as a dedicated, stand-alone source of backup power for Risk Category IV buildings. But, given the increasing economic competitiveness, availability, and performance of ESS, it is conceivable WTGS could be paired with ESS to power essential facilities. In the instance where a WTGS is paired with an ESS to serve as a dedicated, stand-alone source of backup power for Risk Category IV buildings, ACP believes it makes sense for WTGS to be assigned the same risk category as the building itself.

[1] AWEA merged into the American Clean Power Association (ACP) on January 1, 2021.

[2] IEC definition of WTGS available at: https://www.electropedia.org/iev/iev.nsf/display?openform&ievref=415-01-02

[3]https://www.aa.com.tr/en/energy/regulation-renewable/21-wind-power-plants-in-7-earthquake-hit-provinces-generating-electricity/37527.

[4] https://www.nbcnews.com/science/environment/storm-chasers-catch-tornado-300-mph-winds-rcna158040

[5] https://www.civilrenewables.com/blog/tornados-vs-wind-turbines-a-wake-up-call

[6] The number of projects and turbines in Iowa comes from the CleanPower IQ database: https://cleanpoweriq.cleanpower.org/app/

[7] https://www.ferc.gov/sites/default/files/2020-05/ch1-3_0.pdf

[8]
https://www.nerc.com/pa/rrm/ea/September%202011%20Southwest%20Blackout%20Event%20Document%20L/AZOutage_Report_01M

[9] https://www.nerc.com/pa/rrm/ea/Oct2012HurricanSandyEvntAnlyssRprtDL/Hurricane_Sandy_EAR_20140312_Final.pdf

[10] https://www.nerc.com/pa/rrm/ea/Hurricane_Harvey_EAR_DL/NERC_Hurricane_Harvey_EAR_20180309.pdf

[11]https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and

[12]https://www.researchgate.net/publication/331214878_Hurricane_Maria_Effects_on_Puerto_Rico_Electric_Power_Infrastructure

[13] https://www.nerc.com/pa/RAPA/ri/Pages/PlanningReserveMargin.aspx

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Adoption of this amendment is not impact construction costs for wind turbines as they are already designed for Risk Category II per ASCE/AWEA RP2011 and the more recently adopted ACP 61400-6-2023.

S65-25

S66-25

IBC: 1604.8, 1604.8.1, 1604.8.2, 1604.8.3, 1604.8.4 (New)

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Building Code

1604.8 Anchorage. *Buildings* and *other structures* , and portions thereof, shall be provided with anchorage in accordance with Sections 1604.8.1 through 1604.8.3, as applicable.

1604.8.1 General. Anchorage of the roof to walls and columns, and of walls and columns to foundations, shall be provided to resist the uplift and sliding forces that result from the application of the prescribed *loads*.

1604.8.2 Structural walls. Walls that provide vertical load-bearing resistance or lateral shear resistance for a portion of the *structure* shall be anchored to the roof and to all floors and members that provide lateral support for the wall or that are supported by the wall. The connections shall be capable of resisting the horizontal forces that result from the application of the prescribed *loads*. The required earthquake out-of-plane *loads* are specified in Section 1.4.4 of ASCE 7 for walls of *structures* assigned to *Seismic Design Category* A and to Section 12.11 of ASCE 7 for walls of *structures* assigned to all other *seismic design categories*. Required anchors in *masonry* walls of hollow units or cavity walls shall be embedded in a reinforced grouted structural element of the wall. See Sections 1609 for wind design requirements and 1613 for earthquake design requirements.

1604.8.3 Decks. Where supported by attachment to an *exterior wall*, decks shall be positively anchored to the primary *structure* and designed for both vertical and lateral *loads* as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary *building structure* cannot be verified during inspection, decks shall be self-supporting. Connections of decks with cantilevered framing members to *exterior walls* or other framing members shall be designed for both of the following:

1. The reactions resulting from the *dead load* and *live load* specified in Table 1607.1, or the snow *load* specified in Section 1608, in accordance with Section 1605, acting on all portions of the deck.
2. The reactions resulting from the *dead load* and *live load* specified in Table 1607.1, or the snow *load* specified in Section 1608, in accordance with Section 1605, acting on the cantilevered portion of the deck, and no *live load* or snow *load* on the remaining portion of the deck.

Add new text as follows:

1604.8.4 Guards. Floor, deck and wall members that support guard systems shall be designed to resist the forces resulting from the application of the prescribed loads for guard systems.

Reason: Floor, deck and wall members supporting guards are overlooked by designers. The SMA believes this is due to a serious deficit in the building codes. Detailed prescriptive requirements for floor edge members supporting guards were added to the 2024 IRC. The SMA is actively soliciting jurisdictions across the nation for early adoption of these requirements. Although guard systems must support specific live loads the IBC has no requirement to provide the necessary structure to resist the loads transferred from the guard. This simple sentence will add the necessary and much needed performance requirement to the 2027 IBC and affords the opportunity to include walls that we have not been able to date to address with prescriptive requirements in the IRC.

Complete details including drawings and calculations supporting the prescriptive changes to the 2024 IRC are summarized in the document at this link, IRC 2024 - Floor framing supporting guards

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change merely provides design guidance for existing requirements and will not affect any change in the cost of construction.

S66-25

S67-25

IBC: 1605.1, 1605.1.1, 1605.2, 1802.1, 1806.1, 1808.3, 1810.3.1.1

Proponents: Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com); Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Bonnie Manley, representing AISC (manley@aisc.org)

2024 International Building Code

Revise as follows:

1605.1 General. *Buildings* and *other structures* and portions thereof shall be designed to resist the strength load combinations specified in ASCE 7, Section 2.3~~,~~ or the a*llowable stress design* load combinations specified in ASCE 7, Section 2.4~~, or the alternative a*llowable stress design* load combinations of Section 1605.2~~.

Exceptions:

1. The modifications to load combinations of ASCE 7, Section 2.3~~,~~ and ASCE 7, Section 2.4 ~~and Section 1605.2~~ specified in ~~ASCE 7 Chapters~~ Chapter 18 ~~and 19~~ shall apply.
2. Where the *allowable stress design* load combinations of ASCE 7, Section 2.4 are used, flat roof snow *loads* of 45 pounds per square foot (2.15 kN/m^2) and *roof live loads* of 30 pounds per square foot (1.44 kN/m^2) or less need not be combined with seismic load. Where flat roof snow *loads* exceed 45 pounds per square foot (2.15 kN/m^2), 15 percent shall be combined with seismic loads.
3. Where the *allowable stress design* load combinations of ASCE 7 Section 2.4 are used, crane hook loads need not be combined with *roof live loads* or with more than three-fourths of the snow load or one-half of the wind loads.
4. ~~Where design for tornado loads is required, the alternative *allowable stress design* load combinations of Section 1605.2 shall not apply when tornado loads govern the design.~~

1605.1.1 Stability. Regardless of which load combinations are used to design for strength, where overall *structure* stability (such as stability against overturning, sliding, or buoyancy) is being verified, use of the load combinations specified in Section 2.3 or 2.4 of ASCE 7~~, and in Section 1605.2~~ shall be permitted. Where the load combinations specified in ASCE 7, Section 2.3 are used, strength reduction factors applicable to soil resistance shall be provided by a *registered design professional*. The stability of retaining walls shall be verified in accordance with Section 1807.2.3.

Delete without substitution:

~~**1605.2 Alternative allowable stress design load combinations.** In lieu of the load combinations in ASCE 7, Section 2.4, *structures* and portions thereof shall be permitted to be designed for the most critical effects resulting from the following combinations. Where using these alternative allowable stress load combinations that include wind or seismic *loads*, allowable stresses are permitted to be increased or load combinations reduced where permitted by the material chapter of this code or the referenced standards. For load combinations that include the counteracting effects of dead and wind *loads*, only two-thirds of the minimum *dead load* likely to be in place during a design wind event shall be used. Where using these alternative load combinations to evaluate sliding, overturning and soil bearing at the soil-*structure* interface, the reduction of foundation overturning from Section 12.13.4 in ASCE 7 shall not be used. Where using these alternative basic *load* combinations for proportioning foundations for loadings, which include seismic *loads*, the vertical seismic *load effect*, E_v, in Equation 12.4-4 of ASCE 7 is permitted to be taken equal to zero. Where required by ASCE 7, Chapters 12, 13 and 15, the load combinations including overstrength of ASCE 7, Section 2.4.5 shall be used.~~

$\xcancel{D + L + (L_r \text{ or } 0.7S \text{ or } R)}$ ~~**(Equation 16-1)**~~

$\xcancel{D + L + 0.6W}$ ~~**(Equation 16-2)**~~

$\xcancel{D + L + 0.6W + 0.7S/2}$ ~~**(Equation 16-3)**~~

$\xcancel{D + L + 0.7S + 0.6(W/2)}$ ~~**(Equation 16-4)**~~

$\cancel{D + L + 0.7S + E/1.4}$ ~~(Equation 16-5)~~

$\cancel{0.9D + E/1.4}$ ~~(Equation 16-6)~~

~~**Exceptions:**~~

1. ~~Crane hook *loads* need not be combined with *roof live loads* or with more than three-fourths of the snow load or one-half of the wind load.~~
2. ~~Flat roof snow *loads* of 45 pounds per square foot (2.15 kN/m^2) or less and *roof live loads* of 30 pounds per square foot (1.44 kN/m^2) or less need not be combined with seismic loads. Where flat roof snow loads exceed 45 pounds per square foot (2.15 kN/m^2), 15 percent shall be combined with seismic loads.~~

Revise as follows:

1802.1 General. Allowable bearing pressures, allowable stresses and design formulas provided in this chapter shall be used with the *allowable stress design* load combinations specified in ASCE 7, Section 2.4 ~~or the alternative *allowable stress design* load combinations of Section 1605.2~~. The quality and design of materials used structurally in excavations and foundations shall comply with the requirements specified in Chapters 16, 19, 21, 22 and 23. Excavations and fills shall comply with Chapter 33.

1806.1 Load combinations. The presumptive load-bearing values provided in Table 1806.2 shall be used with the *allowable stress design* load combinations specified in ASCE 7, Section 2.4 ~~or the alternative *allowable stress design* load combinations of Section 1605.2. The values of vertical foundation pressure and lateral bearing pressure given in Table 1806.2 shall be permitted to be increased by one-third where used with the alternative *allowable stress design* load combinations of Section 1605.2 that include wind or earthquake *loads*~~.

1808.3 Design loads. Foundations shall be designed for the most unfavorable effects due to the combinations of *loads* specified in Section 2.3 or 2.4 of ASCE 7 ~~or the alternative *allowable stress design* load combinations of Section 1605.2~~. The *dead load* is permitted to include the weight of foundations and overlying fill. Reduced *live loads*, as specified in Sections 1607.13 and 1607.14, shall be permitted to be used in the design of foundations.

1810.3.1.1 Design methods for concrete elements. Where concrete *deep foundations* are laterally supported in accordance with Section 1810.2.1 for the entire height and applied forces cause bending moments not greater than those resulting from accidental eccentricities, structural design of the element using the *allowable stress design* load combinations specified in ASCE 7, Section 2.4 ~~or the alternative *allowable stress design* load combinations of Section 1605.2~~ and the allowable stresses specified in this chapter shall be permitted. Otherwise, the structural design of concrete *deep foundation* elements shall use the strength load combinations specified in ASCE 7, Section 2.3 and *approved* strength design methods.

Reason: This change proposal removes the **Alternative** Allowable Stress Design Load Combinations of Section 1605.2, which are not included in ASCE 7 and only exist in the IBC. ASCE/SEI is the ANSI consensus body that develops and maintains the load combinations and believes it is critical that these load combinations be removed from the IBC.

Technical Rationale

The alternative load combinations produce allowable stress design (ASD) loads that are significantly different from Allowable Stress Design Load Combinations of ASCE 7 Section 2.4. A significant non-conservative difference is the larger value of dead load prescribed for resistance to wind or earthquake-induced overturning. While that area of difference could be minimized through targeted changes to Section 1605.2 combinations, there is no compelling need to maintain the alternative ASD combinations in the IBC. Furthermore, the alternative ASD combinations are unused by standards promulgating organizations (such as ICC, AWC, and AISI/SFIA) in the development of prescriptive solutions for required member size/fastening and are also not used as the basis of prescriptive solutions contained in the building code. The combinations are largely unused due to other differences that produce less efficient designs than those associated with the ASD load combinations included in ASCE 7. The combinations of Section 1605.2 are unnecessary to accomplish an ASD design, are non-conservative for cases that involve dead load resistance to overturning (i.e., overturning stability), and are overly conservative in other cases.

Additionally, while there is an industry-wide effort underway to ensure continuing consistency between the ASD and LRFD load combinations in ASCE 7, there is no similar effort to maintain the *alternative* ASD load combinations or to better align them with the ASCE

7 ASD load combinations. Therefore, it is critical they are removed.

Coordination

During the previous code development cycle, Proposal S47-19 removed Basic Allowable Stress Design Load Combinations from the IBC due to their inclusion and ongoing maintenance in ASCE 7. The Basic ASD Load Combinations remain in ASCE 7 and will continue to be maintained. Load combinations of ASCE 7 for both strength design and allowable stress design are the preferred load combinations for design. The combinations of Section 1605.2 are unnecessary and cause confusion in the profession.

Industry Support

NCSEA polls the structural engineering profession routinely to seek feedback on technical provisions in standards and codes. In the 2018 NCSEA Survey of 10,000 practicing engineers, 84% of respondents "never or rarely" use the Alternative Allowable Stress Design Load Combinations contained in Section 1605.2 of the IBC, and 80% of respondents "would not object" to the deletion of them. In addition to design professionals, other standards development organizations support the removal of the Alternative ASD Load Combinations, including the Structural Engineers Association of California and the American Institute of Steel Construction, among others.

Finally, this change proposal also corrects Section 1605.1, Exception 1. ASCE 7-22 Chapters 18 and 19 do not currently contain modifications to the load combinations listed herein. Rather, in reviewing past editions of the IBC, it looks as if a typo occurred, and the reference to ASCE 7 Chapters 18 and 19 should have remained references to IBC Chapters 18 and 19. In the 2024 edition of the IBC, only Chapter 18 includes modifications to the load combinations. Therefore, the references to "ASCE 7" and "Chapter 19" have been deleted.

- **1-s2.0-S0143974X23005540-main.pdf**
  https://www.cdpaccess.com/proposal/11878/35642/documentation/184737/attachments/download/9342/
- **ASD_IBC_Letter.pdf**
  https://www.cdpaccess.com/proposal/11878/35642/documentation/184737/attachments/download/9340/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal removes the Alt. ASD Load Combinations, which are not compatible with the provisions for load combinations and requirements in ASCE 7-22. The IBC points to the referenced standard for all load combinations and these outdated provisions are no longer relevant and not applicable.

S67-25

S68-25

IBC: SECTION 1606, 1606.1, 1606.2, 1606.3

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

SECTION 1606
DEAD LOADS

Revise as follows:

1606.1 General. *Buildings*, *structures,* and parts thereof shall be designed to resist the effects of dead loads.

1606.2 Weights of materials of construction. ~~For~~ In determining dead loads for purposes of design, the actual weights of materials of construction shall be used. In the absence of definite information, values used shall be subject to the approval of the *building official*.

1606.3 Weight of fixed service equipment. In determining dead loads for purposes of design, the weight of fixed service equipment, including the maximum weight of the contents of fixed service equipment, shall be included. The components of fixed service equipment that are variable, such as liquid contents and movable trays, shall not be used to counteract forces causing overturning, sliding, and uplift conditions in accordance with Section 1.3.6 of ASCE 7.

Exceptions:

1. Where force effects are the result of the presence of the variable components, the components are permitted to be used to counter those *load effects*. In such cases, the *structure* shall be designed for force effects with the variable components present and with them absent.
2. For the calculation of seismic force effects, the components of fixed service equipment that are variable, such as liquid contents and movable trays, need not exceed those expected during normal operation.

Reason: This proposal is a coordination proposal to bring the 2027 IBC up to date with the provisions of the 2022 edition of ASCE/SEI 7 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE/SEI 7-22). These changes improve the coordination between the IBC and ASCE 7 by adding text in the IBC that appears in the corresponding section in ASCE 7.

Additionally, this change does the following: 1) It revises the section to refer to the weight of materials of construction as dead loads. While this section is a sub-section under 1606 Dead Loads, the section itself does not currently mention dead loads. 2) It aligns the text of the section with the section that follows, Section 1606.3. This section which addresses fixed service equipment starts with “In determining dead loads for purposes of design, the weight of fixed service equipment…”.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Improving coordination with ASCE 7 and consistency between sections within the IBC is not expected to affect the cost of construction.

S68-25

S69-25

IBC: 1607.1, TABLE 1607.1, 1607.20

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Building Code

1607.1 General. *Buildings*, *structures*, and parts thereof shall be designed to resist the effects of *live loads*.

Revise as follows:

TABLE 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_0 , AND MINIMUM CONCENTRATED LIVE LOADS

OCCUPANCY OR USE		UNIFORM (psf)	CONCENTRATED (pounds)	ALSO SEE SECTION
1. Apartments (see residential)		—	—	—
2. Access floor systems	Office use	50	2,000	—
	Computer use	100	2,000	—
3. Armories and drill rooms		150[a]	—	—
4. Assembly areas	Fixed seats (fastened to floor)	60[a]	—	—
	Lobbies	100[a]		
	Movable seats	100[a]		
	Stage floors	150[a]		
	Platforms (assembly)	100[a]		
	Bleachers, folding and telescopic seating and grandstands	100[a] (See Section 1607.18)		
	Stadiums and arenas with fixed seats (fastened to the floor)	60[a] (See Section 1607.18)		
	Other assembly areas	100[a]		
5. Balconies and decks		1.5 times the live load for the area served, not required to exceed 100	—	—
6. Catwalks for maintenance and service access		40	300	—
7. Cornices		60	—	—
8. Corridors	First floor	100	—	—
	Other floors	Same as occupancy served except as indicated		
9. Dining rooms and restaurants		100[a]	—	—
10. Dwellings (see residential)		—	—	—
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)		—	300	—
12. Finish light floor plate construction (on area of 1 inch by 1 inch)		—	200	—
13. Fire escapes		100	—	—
	On single-family dwellings only	40		
14. Fixed ladders		See Section 1607.10		—
15. Garages and vehicle floors	Passenger vehicle garages	40[c]	See Section 1607.7	—
	Trucks and buses	See Section 1607.8		
	Fire trucks and emergency vehicles	See Section 1607.8		
	Forklifts and movable equipment	See Section 1607.8		
16. Handrails, guards and grab bars		See Section 1607.9		—
17. Helipads	Helicopter takeoff weight 3,000 pounds or less	40[a]	See Section 1607.6.1	Section 1607.6
	Helicopter takeoff weight more than 3,000 pounds	60[a]	See Section 1607.6.1	Section 1607.6
18. Hospitals	Corridors above first floor	80	1,000	—
	Operating rooms, laboratories	60	1,000	
	Patient rooms	40	1,000	
19. Hotels (see residential)		—	—	—
20. Libraries	Corridors above first floor	80	1,000	—
	Reading rooms	60	1,000	—
	Stack rooms	150[b]	1,000	Section 1607.17
21. Manufacturing	Heavy	250[b]	3,000	—
	Light	125[b]	2,000	
22. Marquees, except one- and two-family dwellings		75	—	—

OCCUPANCY OR USE		UNIFORM (psf)	CONCENTRATED (pounds)	ALSO SEE SECTION
23. Office buildings	Corridors above first floor	80	2,000	—
	File and computer rooms shall be designed for heavier loads based on anticipated occupancy	—	—	
	Lobbies and first-floor corridors	100	2,000	
	Offices	50	2,000	
24. Penal institutions	Cell blocks	40	—	—
	Corridors	100		
25. Public restrooms		Same as live load for area served but not required to exceed 60 psf	—	—
26. Recreational uses	Bowling alleys, poolrooms and similar uses	75[a]	—	—
	Dance halls and ballrooms	100[a]		
	Gymnasiums	100[a]		
	Theater projection, control, and follow spot rooms	50		
	Ice skating rinks	250[b]		
	Roller skating rinks	100[a]		
27. Residential	One- and two-family dwellings:		—	Section 1607.21
	Uninhabitable attics without storage	10		
	Uninhabitable attics with storage	20		
	Habitable attics and sleeping areas	30		
	Canopies, including marquees	20		
	All other areas	40		
	Hotels and multifamily dwellings:			
	Private rooms and corridors serving them	40		
	Public rooms	100 [a]		
	Corridors serving public rooms	100		
28. Roofs	Ordinary flat, pitched, and curved roofs (that are not occupiable)	20	—	
	Roof areas used for assembly purposes	100[a]	—	
	Roof areas used for occupancies other than assembly	Same as occupancy served	—	
	Vegetative and landscaped roofs:			Section 1607.14
	Roof areas not intended for occupancy	20	—	
	Roof areas used for assembly purposes	100[a]	—	
	Roof areas used for occupancies other than assembly	Same as occupancy served	—	
	Awnings and canopies:			
	Fabric construction supported by a skeleton structure	5[a]	—	
	All other construction, except one- and two-family dwellings	20	—	
	Primary roof members exposed to a work floor:			Section 1607.15
	Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs over manufacturing, storage warehouses, and repair garages	—	2,000	
	All other primary roof members	—	300	
	All roof surfaces subject to maintenance workers	—	300	
29. Schools	Classrooms	40	1,000	—
	Corridors above first floor	80	1,000	
	First-floor corridors	100	1,000	
30. Scuttles, skylight ribs and accessible ceilings		—	200	—
31. Sidewalks, vehicular driveways and yards, subject to trucking		250[b]	8,000	Section 1607.19
32. Stairs and exits	One- and two-family dwellings and within dwelling units of R2 and R3 occupancies	40	300	Section 1607.20
	All other	100	300	Section 1607.20
33. Storage areas above ceilings		20	—	—
34. Storage warehouses (shall be designed for heavier loads if required for anticipated storage)	Heavy	250[b]	—	—
	Light	125[b]		
35. Stores	Retail:			—
	First floor	100	1,000	
	Upper floors	75	1,000	
	Wholesale, all floors	125[b]	1,000	
36. Vehicle barriers		See Section 1607.11		—
37. Walkways and elevated platforms (other than exitways)		60	—	—
38. Yards and terraces, pedestrian		100[a]	—	—

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm^2, 1 square foot = 0.0929 m^2, 1 pound per square foot = 0.0479 kN/m^2, 1 pound = 0.004448 kN.

a. Live load reduction is not permitted.

b. Live load reduction is only permitted in accordance with Section 1607.13.1.2 or Item 1 of Section 1607.13.2.

c. Live load reduction is only permitted in accordance with Section 1607.13.1.3 or Item 2 of Section 1607.13.2.

1607.20 Stair treads. The concentrated *load* indicated in Table 1607.1 for *stair* treads shall be applied on an area of 2 inches by 2 inches (51 mm by 51 mm). This *load* need not be assumed to act concurrently with the uniform *load*.

Reason: As in One and two-family dwellings the live loads within R2 and R3 Residential units are considerably lower due to the limited occupancy. Currently the code is contradictive. In Table 1607.1 line 10 Dwellings sends you to line 27 Residential. Line 27 Residential is divided in two sections; One- and two-family dwellings and Hotels and multifamily dwellings. In both "All other areas" of One- and two-family dwellings and "Private rooms and corridors serving them" of Hotels and multifamily dwellings, the same minimum 40 psf load is required. Stairs are listed on line 32 "Stairs and Exits" but only one- and two-family dwellings have the 40 psf load leaving some to interpret that the 100 psf minimum must be applied within R2 and R3 dwellings. Obviously a 100 psf load limit on stairs within any dwelling unit is unnecessary if private rooms and corridors in R2 and R3 occupancies are allowed a 40 psf minimum. I believe this is an unintended oversight in need of the clarification provided in this proposal. The text added to the table clarifies that the 40 psf uniform load would be applicable within the dwelling units of R2 and R3 occupancies with similar occupant limitations.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$1000 Minimum savings in wood construction could be realized., Clearly a stair designed to meet a 40 psf will be lower in cost compared to a 100 psf design. Regardless of the materials used tread, stringer and riser cross-sections could be reduces significantly.

Estimated Immediate Cost Impact Justification (methodology and variables):

Based on a typical $3000 wood 14 riser staircase built to meet the 100 pond per square foot design load a savings of approximately $1000 in labor and material would be achieved if the design load were reduced to 40 pounds per square foot. Depending upon the materials used a 25% to 50% savings in the cost of stair construction could be achieved. The change in the cost of labor would not be as significant however shipping an handling costs of thinner and lighter materials could represent further cost reductions..

S69-25

S70-25

IBC: TABLE 1607.1

Proponents: Jeff Gonzales, representing Joby Aviation; Chris Hazell, representing Joby Aviation (chris.hazell@jobyaviation.com)

2024 International Building Code

Revise as follows:

TABLE 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_0 , AND MINIMUM CONCENTRATED LIVE LOADS

OCCUPANCY OR USE		UNIFORM (psf)	CONCENTRATED (pounds)	ALSO SEE SECTION
1. Apartments (see residential)		—	—	—
2. Access floor systems	Office use	50	2,000	—
	Computer use	100	2,000	—
3. Armories and drill rooms		150[a]	—	—
4. Assembly areas	Fixed seats (fastened to floor)	60[a]	—	—
	Lobbies	100[a]		
	Movable seats	100[a]		
	Stage floors	150[a]		
	Platforms (assembly)	100[a]		
	Bleachers, folding and telescopic seating and grandstands	100[a] (See Section 1607.18)		
	Stadiums and arenas with fixed seats (fastened to the floor)	60[a] (See Section 1607.18)		
	Other assembly areas	100[a]		
5. Balconies and decks		1.5 times the live load for the area served, not required to exceed 100	—	—
6. Catwalks for maintenance and service access		40	300	—
7. Cornices		60	—	—
8. Corridors	First floor	100	—	—
	Other floors	Same as occupancy served except as indicated		
9. Dining rooms and restaurants		100[a]	—	—
10. Dwellings (see residential)		—	—	—
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)		—	300	—
12. Finish light floor plate construction (on area of 1 inch by 1 inch)		—	200	—
13. Fire escapes		100	—	—
	On single-family dwellings only	40		
14. Fixed ladders		See Section 1607.10		—
15. Garages and vehicle floors	Passenger vehicle garages	40[c]	See Section 1607.7	—
	Trucks and buses	See Section 1607.8		
	Fire trucks and emergency vehicles	See Section 1607.8		
	Forklifts and movable equipment	See Section 1607.8		
16. Handrails, guards and grab bars		See Section 1607.9		—
17. Helipads	Helicopter and powered-lift aircrafttakeoff weight ~~3~~6,000 pounds or less	40[~~a~~b]	See Section 1607.6.1	Section 1607.6
	Helicopter and powered-lift aircrafttakeoff weight more than ~~3~~6,000 pounds	60[~~a~~b]	See Section 1607.6.1	Section 1607.6
18. Hospitals	Corridors above first floor	80	1,000	—
	Operating rooms, laboratories	60	1,000	
	Patient rooms	40	1,000	
19. Hotels (see residential)		—	—	—
20. Libraries	Corridors above first floor	80	1,000	—
	Reading rooms	60	1,000	—
	Stack rooms	150[b]	1,000	Section 1607.17
21. Manufacturing	Heavy	250[b]	3,000	—
	Light	125[b]	2,000	
22. Marquees, except one- and two-family dwellings		75	—	—
23. Office buildings	Corridors above first floor	80	2,000	—
	File and computer rooms shall be designed for heavier loads based on anticipated occupancy	—	—	
	Lobbies and first-floor corridors	100	2,000	
	Offices	50	2,000	

OCCUPANCY OR USE		UNIFORM (psf)	CONCENTRATED (pounds)	ALSO SEE SECTION
24. Penal institutions	Cell blocks	40	—	—
	Corridors	100		
25. Public restrooms		Same as live load for area served but not required to exceed 60 psf	—	—
26. Recreational uses	Bowling alleys, poolrooms and similar uses	75[a]	—	—
	Dance halls and ballrooms	100[a]		
	Gymnasiums	100[a]		
	Theater projection, control, and follow spot rooms	50		
	Ice skating rinks	250[b]		
	Roller skating rinks	100[a]		
27. Residential	One- and two-family dwellings:		—	Section 1607.21
	Uninhabitable attics without storage	10		
	Uninhabitable attics with storage	20		
	Habitable attics and sleeping areas	30		
	Canopies, including marquees	20		
	All other areas	40		
	Hotels and multifamily dwellings:			
	Private rooms and corridors serving them	40		
	Public rooms	100 [a]		
	Corridors serving public rooms	100		
28. Roofs	Ordinary flat, pitched, and curved roofs (that are not occupiable)	20	—	
	Roof areas used for assembly purposes	100[a]	—	
	Roof areas used for occupancies other than assembly	Same as occupancy served	—	
	Vegetative and landscaped roofs:			
	Roof areas not intended for occupancy	20	—	Section 1607.14
	Roof areas used for assembly purposes	100[a]	—	
	Roof areas used for occupancies other than assembly	Same as occupancy served	—	
	Awnings and canopies:			
	Fabric construction supported by a skeleton structure	5[a]	—	
	All other construction, except one- and two-family dwellings	20	—	
	Primary roof members exposed to a work floor:			
	Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs over manufacturing, storage warehouses, and repair garages	—	2,000	Section 1607.15
	All other primary roof members	—	300	
	All roof surfaces subject to maintenance workers	—	300	
29. Schools	Classrooms	40	1,000	—
	Corridors above first floor	80	1,000	
	First-floor corridors	100	1,000	
30. Scuttles, skylight ribs and accessible ceilings		—	200	—
31. Sidewalks, vehicular driveways and yards, subject to trucking		250[b]	8,000	Section 1607.19
32. Stairs and exits	One- and two-family dwellings	40	300	Section 1607.20
	All other	100	300	Section 1607.20
33. Storage areas above ceilings		20	—	—
34. Storage warehouses (shall be designed for heavier loads if required for anticipated storage)	Heavy	250[b]	—	—
	Light	125[b]		
35. Stores	Retail:			—
	First floor	100	1,000	
	Upper floors	75	1,000	
	Wholesale, all floors	125[b]	1,000	
36. Vehicle barriers		See Section 1607.11		—
37. Walkways and elevated platforms (other than exitways)		60	—	—
38. Yards and terraces, pedestrian		100[a]	—	—

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm^2, 1 square foot = 0.0929 m^2, 1 pound per square foot = 0.0479 kN/m^2, 1 pound = 0.004448 kN.

a. Live load reduction is not permitted.

b. Live load reduction is only permitted in accordance with Section 1607.13.1.2 or Item 1 of Section 1607.13.2.

c. Live load reduction is only permitted in accordance with Section 1607.13.1.3 or Item 2 of Section 1607.13.2.

Reason: Overview

This code change proposal focuses on components of IBC Chapter 16 that are related to helicopter and powered-lift infrastructure. The primary intention of this code change submittal is to ensure that emergent aircraft technologies within the advanced air mobility (AAM) sector are accounted for within the IBC prior to widespread adoption of these technologies and the associated buildout of infrastructure. This is accomplished through the following change.

1. Modifying structural live load requirements for helicopters and powered-lift aircraft.

Introduction to Advanced Air Mobility

Per the National Aeronautics and Space Administration (NASA), Advanced Air Mobility (AAM) is a movement within the air travel sector that seeks to provide “safe, accessible, automated, and affordable air transportation system for passengers and cargo capable of serving previously hard-to-reach urban and rural locations.” Emergent technologies that support this mission include electric vertical takeoff and landing (eVTOL) aircraft, which are lithium-ion battery powered aircraft that have been developed by various manufacturers (e.g., Joby Aviation, BETA Technologies, and Archer Aviation) to provide intracity aerial taxi services, cargo transportation, and other air travel needs. In order to facilitate widespread adoption of eVTOL and other powered-lift aircraft, it is necessary to develop a safe and robust infrastructure network. A key component of facilitating this infrastructure development is ensuring that the IBC is updated to account for this emergent technology. The code change proposal below describes an update to Chapter 16 to better account for powered-lift aircraft use of helipads.

Chapter 16: Structural Live Load for Helipads Justification

Live load reduction footnote in Table 1607.1: Helipad live loads (primarily VTOL aircraft taking off and landing) have the similar transient nature of passenger vehicle garages in that local horizontal and vertical support members must be designed to support the full specified live load assuming full occupancy occurs for limited durations at a time. However, for a multi-story structure, it is unlikely that structural members supporting two or more floors will have full occupancy for sustained periods of time simultaneously at every floor. This revision avoids an overly conservative penalty on foundations and lower-level columns supporting multi-story garages and building structures with rooftop helipads.

Helicopter takeoff weights in Table 1607.1: The existing helicopter takeoff weight threshold of 3,000 pounds is outdated when compared to passenger vehicle garage live loads, since many passenger vehicles weigh more than 6,000 pounds with a smaller footprint (and thus closer spacing capability and higher equivalent uniform loading) than helicopters, yet passenger vehicle garage live loads are prescribed as 40 psf. Updating the threshold from 3,000 pounds to 6,000 pounds will enable new and existing helipads to support additional aircraft without the overly conservative current restriction. The footprint of a helicopter weighing 6,000 pounds that is subject to the 40 psf requirement would require a governing rotor diameter of less than 14 ft diameter, which is so extremely small that a helicopter with this rotor size would never get off the ground. As an additional justification for this update, when comparing the ASCE 7 Section 4.11 Helipad Loads for concentrated loads based on the maximum takeoff weight of the aircraft there is parity between an equivalent 40psf live load compared to a 6,000 pound aircraft with a 1.5x dynamic amplification factor applied for peak bending demand in framing members. Assuming a typical 10ft beam spacing and 40ft beam span, 40 psf results in a peak bending demand of 80,000 ft-lbs, which is greater than the two amplified concentrated loads for a 6,000 pound aircraft with 7ft wide landing gear which results in 74,250 ft-lbs. As beam spans go up to 50ft, 60 ft, or longer, the 40 psf live load becomes increasingly conservative.

Bibliography: NASA: Advanced Air Mobility (AAM): An Overview and Brief History

https://ntrs.nasa.gov/api/citations/20210024608/downloads/2021-12-10%20AAM%20for%20PSU%20Tran%20Eng%20and%20Safety%20Conf%20v2%20compressed.pdf

Simple Helipad Cost

https://bjtonline.com/business-jet-news/everything-you-need-to-know-about-adding-a-heliport-to-your-home

Cost Impact: Decrease

Estimated Immediate Cost Impact:

It is estimated that this code change may decrease the cost of construction by a minimum of $0.00.

Estimated Immediate Cost Impact Justification (methodology and variables):

The proposed change suggests an increase in weight of helicopter and powered-lift aircraft from 3,000 pounds to 6,000 pounds while maintaining the same uniform live load requirement (i.e., 40 pounds per square foot) that is currently in Table 1607.1. This may result in a decrease in construction cost since aircraft between 3,000 pounds and 6,000 pounds will now be subject to a lower uniform live load than was previously specified, meaning that less robust, and potentially less costly, construction is required for aircraft of this size as a result of this code change proposal.

This change can be examined using an example case where a heliport is constructed to accommodate a common lightweight helicopter, such as the Bell 206, which is commonly used by news departments and hospitals. The Bell 206 aircraft has a maximum takeoff weight of 3,200 pounds, which would current require a live load rating of 60 pounds per square foot. The new code requirement would require a live load rating of 40 pounds per square foot. Assuming that the the increase in live load also results in a linear increase in construction material required to support the load, the reduction of a 60 psf load to a 40 psf load requirement would decrease the cost of material by 33% for the construction elements used to support the live load, such as columns, beams, and slabs. As such, every new helipad that is constructed to accommodate an aircraft of this type would likely see a decrease in construction costs.

One simple estimate for the construction of a "lighted concrete [heli]pad" is $15,000. Using a 33% reduction in cost based on decreasing the live load from 60 psf to 40 psf may result in the cost of construction decreasing to $10,000 due to the reduction of material required to support the decreased live load requirement.

Staff Analysis: CC # S70-25 and CC # S71-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S70-25

S71-25

IBC: TABLE 1607.1, 1607.6, 1607.6.1, 1607.13, 1607.13.1, TABLE 1607.13.1, 1607.13.1.1, 1607.13.1.2, 1607.13.1.3, 1607.13.1.4 (New)

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

TABLE 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_0, AND MINIMUM CONCENTRATED LIVE LOADS

OCCUPANCY OR USE		UNIFORM (psf)	Live Load Reduction Permitted? (Section No.)	Multiple-Story Live Load Reduction Permitted? (Section No.)	CONCENTRATED (pounds)	ALSO SEE SECTION
1. Apartments (see residential)		—	—	—	—	—
2. Access floor systems	Office use	50	Yes (1607.13.1)	Yes (1607.13.1)	2,000	—
	Computer use	100	Yes (1607.13.1)	Yes (1607.13.1)	2,000	—
3. Armories and drill rooms		150~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)	—	—
4. Assembly areas	Fixed seats (fastened to floor)	60~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)	—	—
	Lobbies	100~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)		—
	Movable seats	100~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)		—
	Stage floors	150~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)		—
	Platforms (assembly)	100~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)		—
	Bleachers, folding and telescopic seating and grandstands	100~~[a]~~ ~~(See Section 1607.18)~~	No (1607.13.1.4)	No (1607.13.1.4)		1607.18
	Stadiums and arenas with fixed seats (fastened to the floor)	60~~[a]~~ ~~(See Section 1607.18)~~	No (1607.13.1.4)	No (1607.13.1.4)		1607.18
	Other assembly areas	100~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)		
5. Balconies and decks		1.5 times the live load for the area served, not required to exceed 100	Yes (1607.13.1)	Yes (1607.13.1)	—	—
6. Catwalks for maintenance and service access		40	Yes (1607.13.1)	Yes (1607.13.1)	300	—
7. Cornices		60	Yes (1607.13.1)	Yes (1607.13.1)	—	—
8. Corridors	First floor	100	Yes (1607.13.1)	Yes (1607.13.1)	—	—
	Other floors	Same as occupancy served except as indicated				
9. Dining rooms and restaurants		100~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)	—	—
10. Dwellings (see residential)		—	—	—	—	—
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)		—	—	—	300	—
12. Finish light floor plate construction (on area of 1 inch by 1 inch)		—	—	—	200	—
13.	Fire escapes	100	Yes (1607.13.1)	Yes (1607.13.1)	—	—
	On single-family dwellings only	40	Yes (1607.13.1)	Yes (1607.13.1)		
14. Fixed ladders		~~See Section 1607.10~~ —	—	—	—	1607.10
15. Garages and vehicle floors	Passenger vehicle garages	40~~[e]~~	No (1607.13.1.3)	Yes (1607.13.1.3)	See Section 1607.7	—
	Trucks and buses	See Section 1607.8				
	Fire trucks and emergency vehicles	See Section 1607.8				
	Forklifts and movable equipment	See Section 1607.8				
16. Handrails, guards and grab bars		See Section 1607.9				—

OCCUPANCY OR USE		UNIFORM (psf)	Live Load Reduction Permitted? (Section No.)	Multiple-Story Live Load Reduction Permitted? (Section No.)	CONCENTRATED (pounds)	ALSO SEE SECTION
17. Helipads	Helicopter takeoff weight 3,000 pounds or less	40~~[a]~~	No (1607.6)	No (1607.6)	See Section 1607.6.1	~~Section~~ 1607.6
	Helicopter takeoff weight more than 3,000 pounds	60~~[a]~~	No (1607.6)	No (1607.6)	See Section 1607.6.1	~~Section~~ 1607.6
18. Hospitals	Corridors above first floor	80	Yes (1607.13.1)	Yes (1607.13.1)	1,000	—
	Operating rooms, laboratories	60	Yes (1607.13.1)	Yes (1607.13.1)	1,000	
	Patient rooms	40	Yes (1607.13.1)	Yes (1607.13.1)	1,000	
19. Hotels (see residential)		—	—	—	—	—
20. Libraries	Corridors above first floor	80	Yes (1607.13.1)	Yes (1607.13.1)	1,000	—
	Reading rooms	60	Yes (1607.13.1)	Yes (1607.13.1)	1,000	—
	Stack rooms	150~~[b]~~	No (1607.13.1.2)	Yes (1607.13.1.2)	1,000	~~Section~~ 1607.17
21. Manufacturing	Heavy	250~~[b]~~	No (1607.13.1.2)	Yes (1607.13.1.2)	3,000	—
	Light	125~~[b]~~	No (1607.13.1.2)	Yes (1607.13.1.2)	2,000	
22. Marquees, except one- and two-family dwellings		75	Yes (1607.13.1)	Yes (1607.13.1)	—	—
23. Office buildings	Corridors above first floor	80	Yes (1607.13.1)	Yes (1607.13.1)	2,000	—
	File and computer rooms shall be designed for heavier loads based on anticipated occupancy	—	—	—	—	
	Lobbies and first-floor corridors	100	Yes (1607.13.1)	Yes (1607.13.1)	2,000	
	Offices	50	Yes (1607.13.1)	Yes (1607.13.1)	2,000	
24. Penal institutions	Cell blocks	40	Yes (1607.13.1)	Yes (1607.13.1)	—	—
	Corridors	100	Yes (1607.13.1)	Yes (1607.13.1)		
25. Public restrooms		Same as live load for area served but not required to exceed 60 psf	Yes (1607.13.1)	Yes (1607.13.1)	—	—
26. Recreational uses	Bowling alleys, poolrooms and similar uses	75~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)	—	—
	Dance halls and ballrooms	100~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)		
	Gymnasiums	100[a]	No (1607.13.1.4)	No (1607.13.1.4)		
	Theater projection, control, and follow spot rooms	50	Yes (1607.13.1)	Yes (1607.13.1)		
	Ice skating rinks	250~~[b]~~	No (1607.13.1.4)	No (1607.13.1.4)		
	Roller skating rinks	100~~[a]~~	No (1607.13.1.4)	No (1607.13.1.4)		
27. Residential	One- and two-family dwellings:				—	~~Section~~ 1607.21
	Uninhabitable attics without storage	10	Yes (1607.13.1)	Yes (1607.13.1)		
	Uninhabitable attics with storage	20	Yes (1607.13.1)	Yes (1607.13.1)		
	Habitable attics and sleeping areas	30	Yes (1607.13.1)	Yes (1607.13.1)		
	Canopies, including marquees	20	Yes (1607.13.1)	Yes (1607.13.1)		
	All other areas	40	Yes (1607.13.1)	Yes (1607.13.1)		
	Hotels and multifamily dwellings:					
	Private rooms and corridors serving them	40	Yes (1607.13.1)	Yes (1607.13.1)		
	Public rooms	100~~-[a]~~	No (1607.13.1.4)	No (1607.13.1.4)		
	Corridors serving public rooms	100	Yes (1607.13.1)	Yes (1607.13.1)		

OCCUPANCY OR USE			UNIFORM (psf)	Live Load Reduction Permitted? (Section No.)	Multiple-Story Live Load Reduction Permitted? (Section No.)	CONCENTRATED (pounds)	ALSO SEE SECTION
28.	Roofs	Ordinary flat, pitched, and curved roofs (that are not occupiable)	20	Yes (1607.14.1)	—	—	
		Roof areas used for assembly purposes	100~~a~~	No (1607.13.1.4)	—	—	
		Roof areas used for occupancies other than assembly	Same as occupancy served	Yes (1607.14.2)	—	—	
		Vegetative and landscaped roofs:					
		Roof areas not intended for occupancy	20	Yes (1607.14.1)	—	—	~~Section~~ 1607.14
		Roof areas used for assembly purposes	100~~a~~	No (1607.13.1.4)	—	—	
		Roof areas used for occupancies other than assembly	Same as occupancy served	Yes (1607.14.2)	—	—	
		Awnings and canopies:					
		Fabric construction supported by a skeleton structure	5~~a~~	No (1607.14.1)	—	—	
		All other construction, except one- and two-family dwellings	20	Yes (1607.14.1)	—	—	
		Primary roof members exposed to a work floor:					
		Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs over manufacturing, storage warehouses, and repair garages	—	—	—	2,000	~~Section~~ 1607.15
		All other primary roof members	—	—	—	300	
		All roof surfaces subject to maintenance workers	—	—	—	300	
29.	Schools	Classrooms	40	Yes (1607.13.1)	Yes (1607.13.1)	1,000	—
		Corridors above first floor	80	Yes (1607.13.1)	Yes (1607.13.1)	1,000	
		First-floor corridors	100	Yes (1607.13.1)	Yes (1607.13.1)	1,000	
30.	Scuttles, skylight ribs and accessible ceilings		—	—	—	200	—
31.	Sidewalks, vehicular driveways and yards, subject to trucking		250~~b~~	No (1607.13.1.2)	Yes (1607.13.1.2)	8,000	~~Section~~ 1607.19
32.	Stairs and exits	One- and two-family dwellings	40	Yes (1607.13.1)	Yes (1607.13.1)	300	~~Section~~ 1607.20
		All other	100	Yes (1607.13.1)	Yes (1607.13.1)	300	~~Section~~ 1607.20
33.	Storage areas above ceilings		20	Yes (1607.13.1)	Yes (1607.13.1)	—	—
34.	Storage warehouses (shall be designed for heavier loads if required for anticipated storage)	Heavy	250~~b~~	No (1607.13.1.2)	Yes (1607.13.1.2)	—	—
		Light	125~~b~~	No (1607.13.1.2)	Yes (1607.13.1.2)		
35.	Stores	Retail:					—
		First floor	100	Yes (1607.13.1)	Yes (1607.13.1)	1,000	
		Upper floors	75	Yes (1607.13.1)	Yes (1607.13.1)	1,000	
		Wholesale, all floors	125~~b~~	No (1607.13.1.2)	Yes (1607.13.1.2)	1,000	
36.	Vehicle barriers		—	—	—	See Section 1607.11	—
37.	Walkways and elevated platforms (other than exitways)		60	Yes (1607.13.1)	Yes (1607.13.1)	—	—
38.	Yards and terraces, pedestrian		100~~a~~	No (1607.13.1.4)	No (1607.13.1.4)	—	—

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm^2, 1 square foot = 0.0929 m^2, 1 pound per square foot = 0.0479 kN/m^2, 1 pound = 0.004448 kN.

~~a. Live load reduction is not permitted.~~

~~b. Live load reduction is only permitted in accordance with Section 1607.13.1.2 or Item 1 of Section 1607.13.2.~~

~~c. Live load reduction is only permitted in accordance with Section 1607.13.1.3 or Item 2 of Section 1607.13.2.~~

1607.6 Helipads. Helipad live loads shall not be reduced. *Helipads* shall be marked to indicate the maximum takeoff weight. The takeoff weight limitation shall be indicated in units of thousands of pounds and placed in a box that is located in the bottom right corner of the landing area as viewed from the primary approach path. The box shall be not less than 5 feet (1524 mm) in height.

1607.6.1 Concentrated loads.. *Helipads* shall be designed for the following concentrated *live loads* :

1. A single concentrated *live load*, *L*, of 3,000 pounds (13.35 kN) applied over an area of 4.5 inches by 4.5 inches (114 mm by 114 mm) and located so as to produce the maximum *load effects* on the structural elements under consideration. The concentrated load is not required to act concurrently with other uniform or concentrated *live loads*.
2. Two single concentrated *live loads*, *L*, 8 feet (2438 mm) apart applied on the landing pad (representing the helicopter's two main landing gear, whether skid type or wheeled type), each having a magnitude of 0.75 times the maximum takeoff weight of the helicopter, and located so as to produce the maximum *load effects* on the structural elements under consideration. The concentrated loads shall be applied over an area of 8 inches by 8 inches (203 mm by 203 mm) and are not required to act concurrently with other uniform or concentrated *live loads*.

1607.13 Reduction in uniform live loads. Except for uniform roof live loads, all other minimum uniformly distributed *live loads*, L_o, in Table 1607.1 are permitted to be reduced in accordance with Section 1607.13.1 or 1607.13.2. Uniform roof *live loads* are permitted to be reduced in accordance with Section 1607.14.

1607.13.1 Basic uniform live load reduction. Subject to the limitations of Sections 1607.13.1.1 through 1607.13.1.3 and Table 1607.1, members for which a value of $K_{LL}A_T$ is 400 square feet (37.16 m^2) or more are permitted to be designed for a reduced uniformly distributed *live load*, *L*, in accordance with the following equation:

$$L = L_o\left(0.25 + \frac{15}{\sqrt{K_{LL}A_T}}\right)$$ **(Equation 16-7)**

$$L = L_o\left(0.25 + \frac{15}{\sqrt{K_{LL}A_T}}\right)$$

where:

L = Reduced design *live load* per square foot (m^2) of area supported by the member. L_o = Unreduced design *live load* per square foot (m^2) of area supported by the member (see Table 1607.1). K_{LL} = *Live load* element factor (see Table 1607.13.1). A_T = Tributary area, in square feet (m^2).

L shall be not less than $0.50L_o$ for members supporting one floor and *L* shall be not less than $0.40L_o$ for members supporting two or more floors.

TABLE 1607.13.1 LIVE LOAD ELEMENT FACTOR, K_{LL}

ELEMENT	K_{LL}
Interior columns	4
Exterior columns without cantilever slabs	4
Edge columns with cantilever slabs	3
Corner columns with cantilever slabs	2
Edge beams without cantilever slabs	2
Interior beams	2
Members not previously identified including:	1
Edge beams with cantilever slabs	
Cantilever beams	
One-way slabs	
Two-way slabs	
Members without provisions for continuous shear transfer normal to their span	

1607.13.1.1 One-way slabs. The tributary area, A_T, for use in Equation 16-7 for one-way slabs shall not exceed an area defined by the slab span times a width normal to the span of 1.5 times the slab span.

1607.13.1.2 Heavy live loads. *Live loads* that exceed 100 psf (4.79 kN/m^2) shall not be reduced.

Exceptions:

1. The *live loads* for members supporting two or more floors are permitted to be reduced by not greater than 20 percent, but the reduced *live load* shall be not less than *L* as calculated in Section 1607.13.1.
2. For uses other than storage, where *approved*, additional *live load* reductions shall be permitted where shown by the *registered design professional* that a rational approach has been used and that such reductions are warranted.

1607.13.1.3 Passenger vehicle garages. The *live loads* shall not be reduced in passenger vehicle garages.

Exception: The *live loads* for members supporting two or more floors are permitted to be reduced by not greater than 20 percent, but the reduced *live load* shall be not less than *L* as calculated in Section 1607.13.1.

Add new text as follows:

<u>**1607.13.1.4 Assembly Area Loads.** Live loads shall not be reduced in assembly areas.</u>

Reason: This proposal is a coordination proposal to bring the 2027 IBC up to date with the provisions of the 2022 edition of ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-22). This proposal improves the coordination between the IBC and ASCE 7 by aligning the format of the Live Load Table in the IBC with the format of the ASCE 7 Live Load Table. Specifically two columns are added to the IBC table and three footnotes are removed. No requirements are changed, only the way in which the requirements are presented are changed.

This proposal completes the format alignment of the live load tables which was started, and mostly accomplished, in the 2021 IBC. The tables were not completely aligned in the 2021 IBC due to the existence of the Alternative Live Load Reduction provisions in the IBC (which are not in ASCE 7). With the removal of the Alternative Live Load Reduction provisions, which is proposed in a separate ASCE sponsored code change proposal, the format alignment of the IBC and ASCE 7 tables can now be completed.

Ultimately these changes go back to the removal of the sixteen footnotes to the live load table, which occurred for the 2016 edition of ASCE 7. In general having this many footnotes to a single table was unwieldy and resulted in requirements being difficult to find. The footnote information was either moved into the table itself or into new live load sections. However when this update was attempted in the IBC, for the 2021 edition, the existence of the Alternative Live Load Reduction provisions made the table changes related to live load reduction more complicated as two methods needed to be addressed. Therefore the footnotes related to live load reduction were left in place and the new columns related to live load reduction were not added.

The new text that is added in 1607.6 and 1607.13.1.4 mirrors text in ASCE 7 and is necessary to provide the reason why live load reduction is, or is not, permitted for certain uses and to provide a section to reference in the new columns. Again, no technical requirements are changed by this proposal.

The layout and look of the table was difficult to work with in cdpAccess as the column widths and text positioning do not look the same in the website preview mode and the downloaded/printed PDF version. ICC staff indicated that this is a limitation of the cdpAccess website. The existing text indents and centering/justification of text within cells are not changed by this proposal. In addition the column widths should be such that all text is readable.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The modification to the live load table is a clarification that is not expected to impact the cost of construction.

Staff Analysis: CC # S71-25 and CC # S70-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S71-25

S72-25

IBC: 1607.3

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1607.3 Uniform live loads. The *live loads* used in the design of *buildings* and *other structures* shall be the maximum loads expected by the intended use or occupancy but shall not be less than the minimum uniformly distributed *live loads* given in Table 1607.1.*Roof live* ~~*Live*~~ *loads* acting on a sloping surface shall be assumed to act vertically on the horizontal projection of that surface.

Reason: This proposal corrects an inadvertent change made by an ASCE sponsored proposal in the last code change cycle. S92-22 moved the sentence “Live loads acting on a sloping surface shall be assumed to act vertically on the horizontal projection of that surface.” from a section labeled Roof Loads (1607.14) to a section with the more general label of Uniform Live Loads (1607.3). Section 1607.14 and the majority of the text within it was deleted, however this sentence needed to be kept, and as such it was moved. However, as S92-22 did not edit the sentence to specify **roof live loads**, it inadvertently expanded the scope of the provision from roof live loads to live loads in general. This proposal corrects the inadvertent change.

Refer to the highlighted portions of S92-22 shown in the graphic below.

S92-22

IBC: 1507.15, 1603.1.2, SECTION 1607, 1607.1, 1607.2, 1607.3, 1607.13, 1607.14.1, 1607.12, 1607.14, 1607.14.2, 1607.14.2.1, 1607.14.2.2, 1607.14.3, 1607.14.4, 1607.14.4.1, 1607.14.4.2, 1607.14.4.3, 1607.14.4.4, 1607.14.4.5, 1808.3, 3111.1, 3111.1.1, 3111.1.2

Proponents: Jennifer Goupil, representing Structural Engineering Institute of ASCE (jgoupil@asce.org)

2021 International Building Code

Revise as follows:

1507.15 Vegetative roofs and landscaped roofs. *Vegetative roofs* and landscaped roofs shall comply with the requirements of this chapter, Section ~~1607.14.2.2~~ 1607.13.2 and the *International Fire Code*.

1603.1.2 Roof live load. The *roof live load* used in the design shall be indicated for roof areas ~~(Section 1607.14)~~.

SECTION 1607
LIVE LOADS

1607.1 General. *Live loads* are those loads defined in Chapter 2 of this code.

1607.2 Loads not specified. For occupancies or uses not designated in Section 1607, the *live load* shall be determined in accordance with a method *approved* by the *building official*.

Revise as follows:

1607.3 Uniform live loads. The *live loads* used in the design of buildings and *other structures* shall be the maximum loads expected by the intended use or occupancy but shall not be less than the minimum uniformly distributed *live loads* given in Table 1607.1. *Live loads* acting on a sloping surface shall be assumed to act vertically on the horizontal projection of that surface.

~~**1607.13**~~ **1607.3.1** ~~**Distribution of floor loads.**~~ **Partial loading of floors.** Where uniform floor *live loads* are involved in the design of structural members arranged so as to create continuity, the minimum applied loads shall be the full *dead loads* on all spans in combination with the floor *live loads* on spans selected to produce the greatest *load effect* at each location under consideration. ~~Floor~~ Uniform floor *live loads* applied to selected spans are permitted to be reduced in accordance with Section 1607.12 .

~~**1607.14.1**~~ **1607.3.2** ~~**Distribution of roof loads**~~ **Partial loading of roofs.** Where uniform roof *live loads* are reduced to less than 20 psf (0.96 kN/m^2) in accordance with Section ~~1607.14.2.1~~ 1607.13.1 and are applied to the design of structural members arranged so as to create continuity, the reduced roof *live load* shall be applied to adjacent spans or to alternate spans, whichever produces the most unfavorable *load effect*. ~~See Section 1607.14.2 for reductions in minimum roof live loads and Section 7.5 of ASCE 7 for partial snow loading.~~

1607.12 Reduction in uniform live loads. Except for uniform *live loads* at roofs, all other minimum uniformly distributed *live loads*, L_o, in Table 1607.1 are permitted to be reduced in accordance with Section 1607.12.1 or 1607.12.2. Uniform *live loads* at roofs are permitted to be reduced in accordance with Section ~~1607.14.2~~ 1607.13.

~~**1607.14 Roof loads.** The structural supports of roofs and *marquees* shall be designed to resist wind and, where applicable, snow and earthquake loads, in addition to the *dead load* of construction and the appropriate *live loads* as prescribed in this section, or as set forth in Table 1607.1. The live loads acting on a sloping surface shall be assumed to act vertically on the horizontal projection of that surface.~~

- **SlopingSurfaceBackground_S92-22.pdf**
  https://www.cdpaccess.com/proposal/11329/35245/documentation/181953/attachments/download/9206/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The clarification is not expected to impact the cost of construction. See reason statement.

S73-25

IBC: 1607.8, 1607.8.1, 1607.8.2, 1607.8.3

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1607.8 Heavy vehicle loads. Floors and other surfaces that are intended to support ~~vehicle *loads*~~ vehicles with a gross vehicle weight rating greater than ~~a~~ 10,000-pounds (4536 kg) ~~gross vehicle weight rating~~ shall comply with Sections 1607.8.1 through 1607.8.5.

1607.8.1 Loads. Where a ~~any~~ *structure* does not restrict access for vehicles that exceed a 10,000-pound (4536 kg) gross vehicle weight rating, those portions of the *structure* subject to such ~~*loads*~~ vehicles shall be designed using the vehicular *live loads*, including consideration of impact and fatigue, in accordance with the codes and specifications required by the *jurisdiction* having authority for the design and construction of the roadways and bridges in the same location of the *structure*.

1607.8.2 Fire truck and emergency vehicles. Where a *structure* or portions of a *structure* are accessed by fire department vehicles and other ~~similar~~ emergency vehicles, those portions of the *structure* subject to such *loads* shall be designed for the greater of the following *loads*:

1. The actual operational *loads*, including outrigger reactions and contact areas of the vehicles as stipulated and *approved* by the *building official*.
2. The live loading specified in Section 1607.8.1.

Emergency vehicle *loads* need not be assumed to act concurrently with other uniform *live loads*.

1607.8.3 Heavy vehicle garages. Garages and portions of a building used for ~~designed to accommodate~~ vehicles ~~that exceed a~~ with a gross vehicle weight rating greater than 10,000-pounds (4536 kg) ~~gross vehicle weight rating,~~ shall be designed using the live loading specified by Section 1607.8.1; ~~. For garages the design~~ however provisions for impact and fatigue ~~is~~ are not required.

Exception: The vehicular *live loads* and *load* placement are allowed to be determined using the actual vehicle weights for the vehicles allowed onto the garage floors, provided that such *loads* and placement are based on rational engineering principles and are *approved* by the *building official*, but shall be not less than 50 psf (2.39 kN/m^2). This *live load* shall not be reduced.

Reason: The proposal makes changes to Section 1607.8 and the associated sub-sections.

1) The use of the term Gross Vehicle Weight Rating (GVWR) is revised. GVWR is not a load, it is vehicle rating. GVWR is the maximum weight a vehicle is designed for. It includes the self-weight of the vehicle (curb weight) and the weight of the passengers and cargo. The proposed wording more clearly distinguishes between vehicle weight ratings and loads.

2) Section 1607.8.3 is expanded to include “portions of a building” as there are buildings with limited heavy vehicle parking inside the footprint of the building that are not always called a garage space (loading docks, etc.). This change coordinates with the scope and phrasing used for passenger vehicle garages in IBC Section 1607.7 as well as the corresponding Truck & Bus section in ASCE 7-22.

3) The proposal changes the beginning of the first sentence of 1607.8.3 Heavy Vehicle Garages to use “used for” rather than “designed to accommodate” to be consistent with Section 1607.7 Passenger Vehicle Garages as well as the ASCE 7 section on Truck and Bus Garages.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes made are for consistency between IBC sections and better use of existing terminology and are not expected to affect the cost of construction.

S74-25

IBC: 1607.9, TABLE 1607.9 (New), 1607.9.1, 1607.9.1.1, 1607.9.1.2

Proponents: Richard Green, representing Green Facades PLLC (richard@greenfacadesllc.com); R. Scott Douglas, Douglas Engineering, representing Structural Engineers Association of Washington (sdouglasscott@gmail.com)

2024 International Building Code

Revise as follows:

1607.9 Loads on handrails, guards, grab bars and seats. *Handrails* and *guards* shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.1. Grab bars, shower seats and *accessible* benches shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.2. Glass *handrail* assemblies and guards shall also comply with Section 2407.

Add new text as follows:

TABLE 1607.9 LIVE LOAD TO HANDRAILS AND GUARDS

Handrail and Guard Design Category	Occupancy	Use examples	Handrail, top rail and guards		Components
			Concentrated Load (Pounds)	Uniform Load (plf)	Concentrated Load (Pounds)
A Limited access	Areas with limited or controlled access	Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and have an occupancy load less than 50	200	20	50
B Basic	Areas not subject to assembly or overcrowding	Areas and occupancies not in Categories A, C or D.	200	50	50
C Assembly	Areas where assembly and congregation may be anticipated and are not subject to over-crowding	Occupancies A-1, A-2, A-3, A-4, and public assembly areas including areas of banks/credit unions, shopping malls, restaurants, bars, theatres, cinemas, night clubs etc. (See also D for areas where over-crowding is reasonably anticipated); and assembly egress paths less than 9ft wide adjacent to sunken areas.	200	100	100
D Crowd	Areas susceptible to over-crowding.	All A-5 occupancy areas including, Amusement park structures, Bleachers, Grandstands, and Stadiums; and the following where subject to over-crowding is reasonably anticipated: Theaters, cinemas, night clubs, bars, auditoria, assembly areas, schools, universities, studios, shopping malls (see also C); and assembly egress paths exceeding 9ft width (perpendicular to the direction of handrail or guard) adjacent to sunken areas.	300	200	100

Revise as follows:

1607.9.1 Concentrated load. *Handrails* and *guards* shall be designed to resist ~~a concentrated *load* of 200 pounds (0.89 kN) in accordance with Section 4.5.1 of ASCE 7. Glass *handrail* assemblies and guards shall comply with Section 2407.~~ the maximum loads expected by the intended use or occupancy but shall not be less than the minimum concentrated *live loads* given in Table 1607.9. This load need not be assumed to act concurrently with the uniform load specified in Sections 1607.9.1.1 and guard component load in Section 1607.9.1.2.

1607.9.1.1 Uniform load. *Handrails* and *guards* shall be designed to resist the maximum loads expected by the intended use or occupancy but shall not be less than the minimum uniformly distributed *live loads* given in Table 1607.9.~~a linear *load* of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1.1 of ASCE 7.~~ This load need not be assumed to act concurrently with the concentrated load specified in Sections 1607.9.1.1 or the guard component load specified in 1607.9.1.2.

Exceptions:

1. For one- and two-family *dwellings*, only the single concentrated *load* required by Section 1607.9.1 shall be applied.

~~2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an *occupant load* less than 50, the minimum *load* shall be 20 pounds per foot (0.29 kN/m).~~

<u>2</u> ~~3~~. For roofs not intended for occupancy, only the single concentrated load required by Section 1607.9.1 shall be applied.

1607.9.1.2 Guard component loads. Balusters, panel fillers and guard infill components, including all rails except the *handrail, post* and the top rail, shall be designed to resist ~~a concentrated load of 50 pounds (0.22 kN) in accordance with Section 4.5.1.2 of ASCE 7.~~ <u>the maximum loads expected by the intended use or occupancy but shall not be less than the component concentrated *live loads* given in Table 1607.9. This load need not be assumed to act concurrently with the concentrated load specified in Sections 1607.9.1 or uniform load specified in Section 1607.9.1.1.</u>

Reason: 1607.9: Reference to 2407 for glass rails is moved up a level from 1607.9.1 because it applies to all load types, not just concentrated load. (Glass handrails and components are also used in occupancies that require uniform load.) The word "also" was added because 2407 does not replace these load requirements, it has additional requirements.

1607.9.1:Prior to 1985, guard loading criteria were consistent between the US and other international codes with uniform lateral loads of ~50lbf/ft (~0.75 kN/m). However, following a number of stadium and crowd disasters with multiple fatalities, guard design load for areas of public assembly was researched. This research included post-failure analysis and full-scale human testing, and concluded that loads on guards in areas of public assembly should be increased.

This recommendation for increased guard loading in areas of public assembly was widely adopted and is part of the following international standards and codes:

- National Building Code of Canada (for grandstands and stadiums),
- Eurocode EN 1991-1,
- Australian and New Zealand Standards AS 1170.1,
- British Standard BS6399 ,
- Brazilian Standard ABNT NBR 6120
- Indian Standard IS 875 pt 2
- etc.

Research has also been undertaken in 'crowd crush' and the resulting loads. Barrier collapse is a known cause of crowd collapse. The work of Prof G. Keith Still is available at Crowdrisks.com.

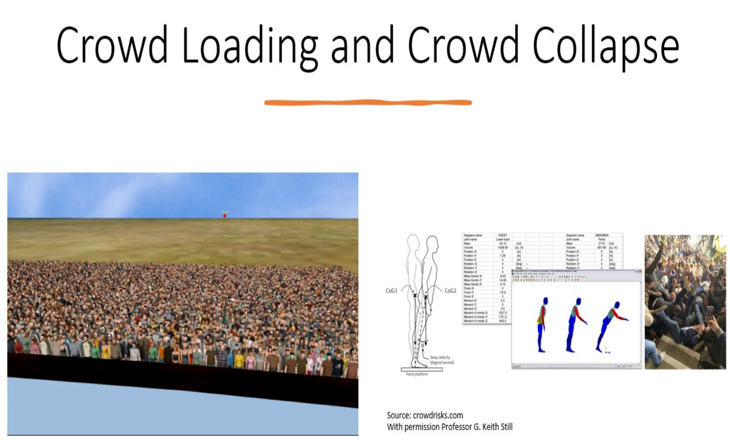


Figure 1: source https://www.crowdrisks.com/research.html

Behaviour and Mechanics of Crowd Crush Disasters - RISK FRONTIERS

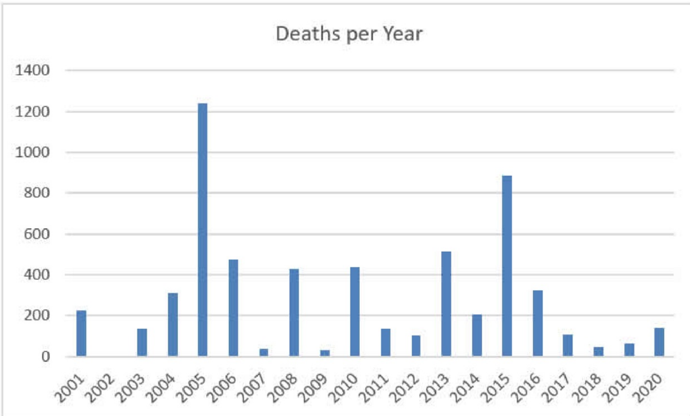


Figure 2. Crowd crush deaths per year from Wikipedia (2021) catalogue

Figure 2: source https://riskfrontiers.com/insights/behaviour-and-mechanics-of-crowd-crush-disasters/

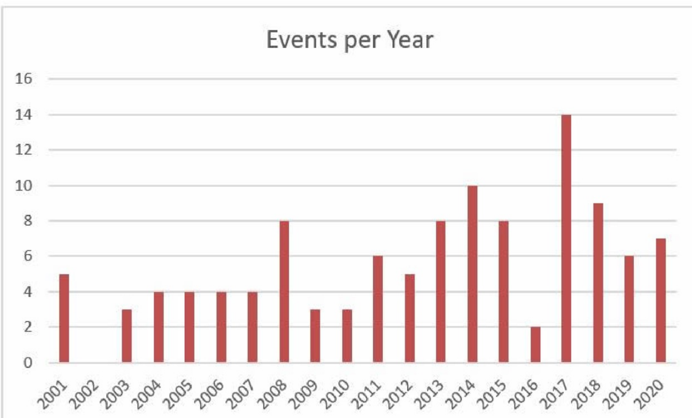


Figure 3. Crowd crush events per year from Wikipedia (2021) catalogue

Figure 3: source https://riskfrontiers.com/insights/behaviour-and-mechanics-of-crowd-crush-disasters/

Loads to guards have been validated by full-scale testing in the following study (by Styan, Masia and Kleeman 2007, Australian Journal of Structural Engineering.)

Are the Loads Valid?

Full-scale testing by Styan, Masia and Kleeman

- **Single Person**
- Design loads
  - **0.6 (AS/NZS)**
  - 0.75 (EN non assembly)
  - 0.89 kN (ASCE)

Table 1: Summary of maximum values attained for individual tests – single rail barrier.

Subject No.	Mass (kg)	Peak values atttained (N)							
		A1	B1	C1	D1	E1	F1	G1	H1
1	71	623	1090	313	222	604	–	590	378
2	72	553	790	170	300	339	–	410	487
3	72	358	712	196	170	429	–	390	436
4	75	706	860	287	248	300	–	604	500
5	76	693	1025	481	339	623	–	751	584
6	84	429	667	196	118	345	–	765	718
7	96	783	886	326	294	417	–	590	693
8	97	559	725	468	449	351	2450	707	770
9	106	539	999	287	157	332	–	840	527
10	107	*1032*	*1411*	*384*	*378*	*313*	–	*1102*	*1298*
11	109	436	718	209	300	293	–	507	410
	Average	610	898	302	270	395	2450	660	618
	Maximum	**1032**	**1411**	**481**	**449**	**623**	**2450**	**1102**	**1298**

Figure 5: Typical subject configuration for individual test: (a) A1, (b) B1 and (c) C1.

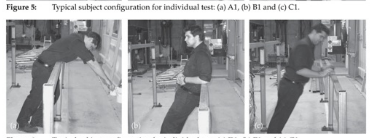


Figure 6: Typical subject configuration for individual test: (a) D1, (b) E1 and (c) G1.

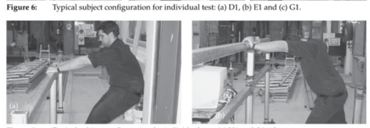


Figure 7: Typical subject configuration for individual test: (a) H1 and (b) A2.

Source: Styan, C.T., Masia, M.J., Kleeman, P.W., (2007) **Human Loadings on Handrails**, Australian Journal of Structural Engineering

Note: 200 lbf = 890N

Figure 4 - Single Person Loading

Are the Loads Valid?

- Full-scale testing
- **Line Loading - Single row**
- Design Load
  - 1500 N/m (AS/NZS, EN)
  - ~750 N/m (50 lbf/ft) (ASCE)

Table 2: Summary of maximum values attained for single row group tests – single rail barrier.

Description		Test value (N/m) 1	2	3	4	Average (N/m)	Maximum (N/m)
A1	Push	1476	1398	1453	1453	1445	1476
C1b	Lean sideways with push	650	862	812	–	775	862
A1	Push	1287	1328	1259	–	1291	1328
A1	Push	1266	1210	1301	–	1259	1301
C1a	Lean sideways	387	436	472	–	432	472
C1b	Lean sideways with push	726	797	790	–	771	797
D1	Lean forwards	428	578	428	–	478	578
E1a	Lean backwards	435	443	727	–	535	727
E1b	Lean backwards with push	1129	1213	1338	–	1227	1338
H1	Pull	1716	1210	1175	–	1367	1716

Source: Styan, C.T., Masia, M.J., Kleeman, P.W., (2007) **Human Loadings on Handrails**, Australian Journal of Structural Engineering

Figure 8: Typical subject configuration for group test C1.

Figure 5: Single Row Loading

Are the Loads Valid?

- Full-scale testing
- **Line Loading – Multiple rows of people**
- Design Load
  - 3000 N/m (AS/NZS, EN)
  - ~750 N/m (50 lbf/ft) (ASCE)

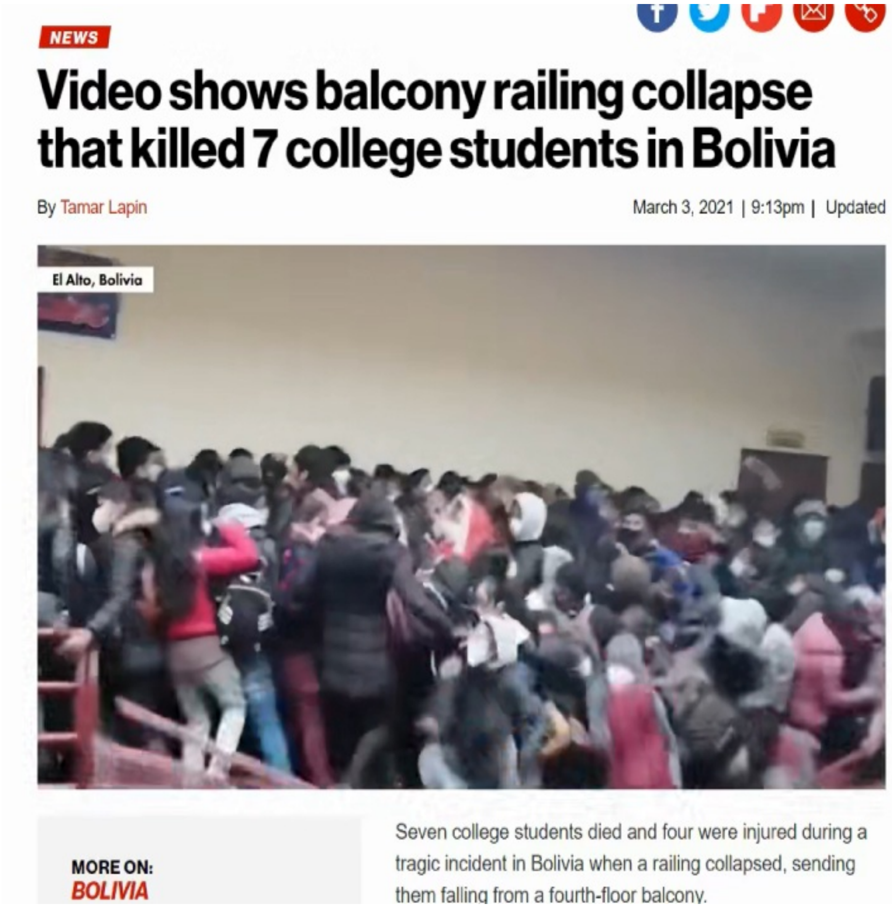
Table 4: Summary of maximum values attained for multiple row group test A1.

Description	Test value (N/m) 1	2	3	4	Average (N/m)	Maximum (N/m)
1 Deep – 72 kg average	1265	1279	1286	–	1277	1286
1 Deep – 78 kg average	1429	1268	1212	–	1303	1429
1 Deep – 85 kg average	1323	1426	1399	–	1383	1426
2 Deep – 100 & 78 kg	2121	2052	1914	1849	1984	2121
2 Deep – 78 & 72 kg	1914	1887	1883	–	1895	1914
3 Deep – 100, 78 & 85 kg	2342	2657	2379	–	2459	2657
4 Deep – 100, 85, 78 & 72 kg	2244	2430	–	–	2337	2430

Source: Styan, C.T., Masia, M.J., Kleeman, P.W., (2007) **Human Loadings on Handrails**, Australian Journal of Structural Engineering

Figure 9: Typical subject configuration for multiple row group test for (a) two deep and (b) three deep.

Figure 6: Crowd Loading - Multiple rows


NEWS

Video shows balcony railing collapse that killed 7 college students in Bolivia

By Tamar Lapin March 3, 2021 | 9:13pm | Updated

MORE ON: BOLIVIA

Seven college students died and four were injured during a tragic incident in Bolivia when a railing collapsed, sending them falling from a fourth-floor balcony.

Figure 7: Fatal railing collapse at university https://nypost.com/2021/03/03/video-shows-balcony-railing-collapse-that-killed-7-bolivian-students/

In crowd collapse, the push of the crowd behind the row at the handrail results in multiple people loading the guard rail, resulting in over-loading the guard. Then multiple people are pushed over the failed guard.

Design loading for balustrades in this jurisdiction is 1 kN/m = ~70lbf/ft or ***33% greater** t**han currently in IBC***. Research predicts design loads 3kN/m which is 3x the regional design load for this circumstance (4x the current IBC design load) and when the loading occurred the guard failed.**It appears evident that crowd loading on guards is greater than typical residential and office loading, thus justifying additional categories specifying greater design loads.**

Figure 8: FedEx Field Barrier Collapse 2022

Railing collapse at Lists of fatalities do not include other serious injuries, such as broken necks, which can occur, such as at the Army-Navy game at Veterans Stadium in 1998. (Styan, et.al 2007)

The changes and research that began in England following Hillsborough Disaster in 1989, where 96 people died and many more injured following the collapse of a crowd control barrier. Post-failure analysis reported by RA Smith in "Engineering Failure Analysis", found failure of the system under extreme crowding to be at
8kN/m (550 lbf/ft), so the proposed design load of 200 lbf/ft is not extreme and is reasonable. EN 1991-1 suggests a range of 3-5 kN/m (~200-340kN/m)

Figure 8: Hillsborough Braced railing collapse (Smith Report 1994)
IBC is not just used in the United States, and these failures do not just happen in 'other jurisdictions'.

THE UNIVERSITY OF TENNESSEE KNOXVILLE

Journal of Applied Sport Management

Volume 15
Issue 4 *Sport Facilities Planning, Design, Operation, and Management Trends* — Article 5

History of Railing Dangers

From 1969 to 2011, there were 22 fall-related fatalities at major league ballparks (Gorman & Weeks, 2015); Dunne et al. (2019) identified 20 incidents and 12 deaths between 1981 and 2017. More specifically, Steinbach (2009) highlighted three deaths and eight serious injuries associated with railing-related incidents from 2000 to 2009. The injuries primarily involved men in their early 20s, but some people who were injured in these incidents were those on a level below who had no warning someone might fall on them. Incidents included five falls at professional baseball games, one each at college and professional football games, one at a professional hockey game, as well as during two concerts staged at sports venues (Steinbach, 2009).

Parting Thoughts – Smith Report

Lord Justice Taylor [5] drew attention to the fact that prior to his report there had been eight official reports covering crowd safety and control at football grounds. These include the Shorth Report of 1924 (following disorder at the 1923 Cup Final), the Moelwyn Hughes Report of 1946 (following 33 deaths at Bolton Wanderers' ground), Lord Wheatley's Report of 1972 (66 deaths at Ibrox) and the Popplewell Report of 1986 (after a fire caused 56 deaths at the Bradford City ground). Taylor drew attention to the fact that 'previous reports went unheeded' and management complacency caused the attitude 'it couldn't happen here'. Certainly, after the initial reactions of horror after a disaster have subsided, there is a tendency to forget the lessons which should have been learned.

The proposed changes for assembly and crowd guard loading reflect international common practice based on a clear need and well researched science of human loading for specific occupancies that include assembly and areas with a potential for over-crowding.

- **Appendices - International Balustrade Loading-sml.pdf**
  https://www.cdpaccess.com/proposal/11759/35934/documentation/186794/attachments/download/9100/
- **Balustrade Pages from Structure August2024.pdf**
  https://www.cdpaccess.com/proposal/11759/35934/documentation/186794/attachments/download/9099/
- **Crowd Risks - Research Projects-sml.pdf**
  https://www.cdpaccess.com/proposal/11759/35934/documentation/186794/attachments/download/9096/

Bibliography: ASCE/SEI 7 – 22 Minimum Design Loads and Associated Criteria for Buildings and Other Structures

EN BS 1991-1-1: 2002 Eurocode 1: Actions on structures - Part 1-1: General actions - Densities, self-weight, imposed loads for buildings

BS 6399-1: 1996 Loading for Buildings

BS 6180:2011 Barriers in and about buildings

AS/NZS 1170.1 – 2002 Structural design actions - Part 1: Permanent, imposed and other actions

National Building Code of Canada, 2015

NB 1225002-1 Norma Boliviana - Actions on Structures - Part 1(translated)

ABNT NBR 6120:2010 Norma Brasileira - Design Loads for Structures (translated)

C T Styan, M J Masia & P W Kleeman (2007) Human Loadings on Handrails, Australian Journal of Structural Engineering, 7:3, 185-196, DOI: 10.1080/13287982.2007.11464975, https://doi.org/10.1080/13287982.2007.11464975

R.A. Smith "The Hillsborough Football Disaster: Stress Analysis and Design Codes for Crush Barriers", *Engineering Failure*

Analysis Vol1, No3 pp183-192, 1994 *https://www.sciencedirect.com/science/article/pii/1350630794900175*

Crowd Collapse Simulations: Crowd Risks.com https://www.crowdrisks.com/research.html

Behaviour and Mechanics of Crowd Crush *Disasters https://riskfrontiers.com/insights/behaviour-and-mechanics-of-crowd-crush-disasters/*

Fruin, J.J. (1993). The causes and prevention of crowd disasters*. First International Conference on Engineering for Crowd Safety, London, England, March 1993.*

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https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.28#:~:text=g)(2)(i).-,1910.28(b),-Protection%20from%20fall

https://riskfrontiers.com/insights/behaviour-and-mechanics-of-crowd-crush-disasters/

Philadelphia railing collapse*: https://www.youtube.com/watch?v=cBqyJPGZcdc*

Rogers Arena collapse June 2023: *https://globalnews.ca/video/9761158/railing-collapse-at-ufc-289-caught-on-video; https://www.youtube.com/watch?v=_tg0_23SgkI*

“Off the Rails” National Center for Spectator Sports Safety and Security- Dr Gil Fried, Dr Aneurin Grant Dr Salih Kocak: https://ncs4.usm.edu/research/research-seminar-series/#popup-2

El Alto University balustrade collapse:

https://en.wikipedia.org/wiki/Public_University_of_El_Alto

https://www.infobae.com/america/america-latina/2021/03/02/el-presidente-de-bolivia-lamento-la-tragedia-ocurrida-en-la-universidad-de-el-alto-y-aseguro-que-espera-el-pronto-esclarecimiento-de-los-hechos/

https://www.thenews.com.pk/print/798693-seven-students-plummet-to-death-at-bolivia-university

https://www.chicagotribune.com/espanol/sns-es-mueren-7-universitarios-al-caer-de-un-cuarto-piso-en-bolivia-20210302-6t2fwen3wjdifbczw7hyaaknde-story.html

https://metro.co.uk/2021/03/03/seven-students-dead-and-five-injured-after-university-railing-collapses-14182288/

Cost Impact: Increase

Estimated Immediate Cost Impact:

For typical use categories without assembly or over-crowding there is no cost impact and the changes are editorial in nature to account for assembly categories.

In major cities, the total cost of guard railing is approximately $550 per linear foot, being approximately 15% materials ($82.50), 30% fabrication ($165) and 45% site installation ($247.50).

For Category C, areas subject to assembly +3%

For Category D, areas subject to overcrowding +8%

Estimated Immediate Cost Impact Justification (methodology and variables):

Basis of Design - Steel balustrade post

Current load = 50 lbf/ft

$w := 50 \ \frac{lbf}{ft}$ Uniform Load to Guard/Handrail

$s := 5 \ ft$ Spacing of posts

$h := 42 \ in$ Height of posts

$M := w \cdot s \cdot h = 10.5 \ kip \cdot in$ Base moment

$M_u := M \cdot 1.5 = 15.75 \ kip \cdot in$ Ultimate Design Moment (Required)

$F_y := 36 \ ksi$ Yield Strength - Assuming a steel post

$b := 0.75 \ in \quad d := 1.625 \ in$ Assumed post size

$S_x := b \cdot \frac{d^2}{6} = 0.33 \ in^3$

$\phi_b M_n := 0.9 \cdot 1.6 \cdot F_y \cdot S_x = 17.111 \ kip \cdot in$ Capacity greater than demand OK

Category C, areas subject to assembly Assembly load = 100lbf/ft

$w := 100 \ \frac{lbf}{ft}$ Uniform Load to Guard/Handrail

$s := 5 \ ft$ Spacing of posts

$h := 42 \ in$ Height of posts

$M := w \cdot s \cdot h = 21 \ kip \cdot in$ Base moment

$M_u := M \cdot 1.5 = 31.5 \ kip \cdot in$ Ultimate Design Moment (Required)

$F_y := 36 \ ksi$ Yield Strength - Assuming a steel post

$b := 0.75 \ in \quad d := 2.25 \ in$ Assumed post size

$S_x := b \cdot \frac{d^2}{6} = 0.633 \ in^3$

$\phi_b M_n := 0.9 \cdot 1.6 \cdot F_y \cdot S_x = 32.805 \ kip \cdot in$ Capacity greater than demand OK

Material ratio relative to 50 lbf/ft $\frac{b \cdot d}{0.75 \ in \cdot 1.625 \ in} = 1.385$

Assume top rail and anchors increases by a similar proportion while infill elements remain unchanged.

Post, top rail and anchors as portion of materials 50%
(Post at 5ft on center, infill at 4in on center.)

Materials cost $82.50 \cdot 0.5 \cdot 1.385 + 82.50 \cdot 0.5 \cdot 1.0 = 98.381$

Materials increase $98.381 - 82.50 = 15.881$

Site Labor assumed to be similar and fabrication assumed to be similar

$New\_Cost := 550 + 15.88 = 565.88$

$Increase := \frac{New\_Cost}{550} = 1.029$ approx 3% increase.

Material

Category D, areas subject to assembly Crowd load = 200lbf/ft

$w := 200\ \frac{lbf}{ft}$	Uniform Load to Guard/Handrail
$s := 5\ ft$	Spacing of posts
$h := 42\ in$	Height of posts
$M := w \cdot s \cdot h = 42\ kip \cdot in$	Base moment
$M_u := M \cdot 1.5 = 63\ kip \cdot in$	Ultimate Design Moment (Required)
$F_y := 36\ ksi$	Yield Strength - Assuming a steel post
$b := 0.75\ in \quad d := 3.25\ in$	Assumed post size
$S_x := b \cdot \frac{d^2}{6} = 1.32\ in^3$	
$\phi_b M_n := 0.9 \cdot 1.6 \cdot F_y \cdot S_x = 68.445\ kip \cdot in$	Capacity greater than demand OK
Material ratio relative to 50 lbf/ft	$\frac{b \cdot d}{0.75\ in \cdot 1.625\ in} = 2$

Assume top rail and anchors increases by a similar proportion while infill elements remain unchanged.

Post, top rail and anchors as portion of materials 50%
(Post at 5ft on center, infill at 4in on center.)

Materials cost $82.50 \cdot 0.5 \cdot 2.0 + 82.50 \cdot 0.5 \cdot 1.0 = 123.75$

Materials increase $123.75 - 82.50 = 41.25$

Site Labor assumed to be similar and fabrication assumed to be similar

$$New\_Cost := 550 + 41.25 = 591.25$$

$$Increase := \frac{New\_Cost}{550} = 1.075$$ approx 8% increase.

Estimated Life Cycle Cost Impact:

Maintenance is unchanged.

For typical use categories without assembly or over-crowding there is no cost impact and the changes are editorial in nature to account for assembly categories.

For Category C, areas subject to assembly +3%

For Category D, areas subject to overcrowding +8%

Estimated Life Cycle Cost Impact Justification (methodology and variables):

The changes are consistent with changes made in Canada (crowd loading) and Europe, Britain, Australasia, Brazil, India and many other parts of the world (assembly and crowd loading.) In each case code boards, with similar cost objectives ("one added dollar of cost is one less person that can afford a home") found that the type of applications that this applies to do not affect typical construction and that the loadings are based on significant research into actual loads and were found to be necessary by many events resulting in multiple deaths and injuries.

Injury events result in extensive cost to the facility operator (often hundreds of thousands of dollars or millions of dollars per event.) Insurance costs affect the entire community. Injuries to the victims may be permanent.

Codes should provide realistic loads based on best knowledge to facilitate appropriate design and prevent catastrophic collapse.

Staff Analysis: CC # S76-25/CC #S77-25, CC S80-25 and CC # S74-25 addresses requirements in a different or contradicting manner.

The committee is urged to make their intensions clear with their actions on these proposals.

S74-25

S75-25

IBC: 1607.9, 1607.9.1

Proponents: John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

1607.9 Loads on handrails, guards, grab bars and seats. *Handrails* and *guards* shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.1. Glass handrail assemblies and guards shall comply with Section 2407. Grab bars, shower seats and *accessible* benches shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.2.

1607.9.1 Concentrated load. *Handrails* and *guards* shall be designed to resist a concentrated *load* of 200 pounds (0.89 kN) in accordance with Section 4.5.1 of ASCE 7. ~~Glass *handrail* assemblies and guards shall comply with Section 2407.~~

Reason: This proposal is editorial in nature. The proposal is relocating the pointer to glass assemblies from 1607.9.1 to section 1607.9. Having the pointer in the section only for the concentrated load may give the false impression that the glass assemblies do not need to also comply with the uniform load in section 1607.9.2.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The cost of construction will not be impacted. The proposal is to clarify the existing provisions.

S75-25

S76-25

IBC: 1607.9.1.1

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1607.9.1.1 Uniform load. *Handrails* and *guards* shall be designed to resist a linear *load* of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1.1 of ASCE 7. This load need not be assumed to act concurrently with the concentrated load specified in Section 1607.9.1.

Exceptions: The uniform load need not be considered for the following occupancies:

1. ~~For one~~ One- and two-family *dwellings*~~, only the single concentrated *load* required by Section 1607.9.1 shall be applied~~.
2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an *occupant load* less than 50~~, the minimum *load* shall be 20 pounds per foot (0.29 kN/m)~~.
3. ~~For roofs~~ Roofs not intended for occupancy ~~, only the single concentrated load required by Section 1607.9.1 shall be applied~~.

Reason: This proposal is a coordination proposal to bring the 2027 IBC up to date with the provisions of the 2022 edition of ASCE/SEI 7 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE/SEI 7-22). This change improves the coordination between the IBC and ASCE 7 by reducing the uniform load required by Exception 2 from 20 plf to zero to match the requirements of ASCE 7.

Removing the 20 plf load for guards and handrails in the limited occupant areas of Exception 2 means that only the 200 lb concentrated load applies to these guards and handrails. A uniform load on guards and handrails represents a load due to a group of people acting in unison, which is not expected in Group I-3, F, H and S occupancies with limited occupant loads.

Additionally, the concentrated load is deemed sufficient for guard and handrail designs in these occupancies as:

* Per the current exception (w/ the 20 plf load), the guard post design is controlled by the 200 lb load up to a post spacing of 10 feet. Guard post spacings of greater than 10 feet are not common. The horizontal rails strength demands are a function of the length squared ($M - wl^2/8$) and post spacings of 4 to 8 feet are typical in part due to the increased strength/member size required for horizontal rails with longer spans.

In researching this proposal, it was found that the 20 plf load for I-3, F, H, and S uses has been in the IBC since the inaugural 2000 edition. However, none of the three legacy codes contained this specific exception. As such the IBC rationale for requiring 20 plf for I-3, F, H, and S uses but allowing a zero uniform load for dwellings is not known. The limited occupant load and the factory/industrial use of the areas both support not requiring any uniform load resulting from a group of people acting in unison.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is a small potential for this change to decrease the cost of construction due to reducing the load in Exception 2, however as noted above the concentrated load, not the uniform load, likely control the design of the majority of guards and handrails using this exception.

Staff Analysis: CC # S76-25 and CC # S74-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S76-25

S77-25

IBC: 1607.9.1.1

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1607.9.1.1 Uniform load. *Handrails* and *guards* shall be designed to resist a linear *load* of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1.1 of ASCE 7. This load need not be assumed to act concurrently with the concentrated load specified in Section 1607.9.1.

Exceptions:

1. For one- and two-family *dwellings*, only the single concentrated *load* required by Section 1607.9.1 shall be applied.
2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an *occupant load* ~~less than~~ of 50 or less, the minimum *load* shall be 20 pounds per foot (0.29 kN/m).
3. For roofs not intended for occupancy, only the single concentrated load required by Section 1607.9.1 shall be applied.

Reason: This proposal is a coordination proposal to bring the 2027 IBC up to date with the provisions of the 2022 edition of ASCE/SEI 7 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE/SEI 7-22). These changes improve the coordination between the IBC and ASCE 7 by adding text in the IBC that appears in the corresponding section in ASCE 7.

This change improves the coordination between the IBC and ASCE 7 by changing the allowable occupant load from 49 to 50 which matches the occupant load permitted by ASCE 7.In researching the reason for the difference between the IBC and ASCE 7, it was noticed that the 2000 and 2003 editions of the IBC permitted an occupant load of 50, see the 2003 IBC text shown below (the text was "have an occupant load no greater than 50"). In the 2006 edition of the IBC the text was changed such that the permitted occupant load was reduced to 49 (changed to "have an occupant load less than 50"). However there is no margin marking in the 2006 edition to indicate a code change and a review of the code development archives did not find a code change proposal containing this change. In discussing the change to this section in the 2006 edition with ICC staff, it appears that the text was changed as part of an editorial effort by staff to remove the phrase “no greater than”. However the change inadvertently changed the meaning.

2003 IBC

1607.7.1 Handrails and guards. Handrail assemblies and guards shall be designed to resist a load of 50 plf (0.73 kN/m) applied in any direction at the top and to transfer this load through the supports to the structure.

Exceptions:

1. For one- and two-family dwellings, only the single, concentrated load required by Section 1607.7.1.1 shall be applied.
2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an occupant load no greater than 50, the minimum load shall be 20 pounds per foot (0.29 kN/m).

1607.7.1.1 Concentrated load. Handrail assemblies and guards shall be able to resist a single concentrated load of 200 pounds (0.89 kN), applied in any direction at any point along the top, and have attachment devices and supporting structure to transfer this loading to appropriate structural elements of the building. This load need not be assumed to act concurrently with the loads specified in the preceding paragraph.

1607.7.1.2 Components. Intermediate rails (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds (0.22 kN) on an area equal to 1 square foot ($0.093 m^2$), including openings and space between rails. Reactions due to this loading are not required to be superimposed with those of Section 1607.7.1 or 1607.7.1.1.

1607.7.1.3 Stress increase. Where handrails and guards are designed in accordance with the provisions for allowable stress design (working stress design) exclusively for the loads specified in Section 1607.7.1, the allowable stress for the members and their attachments are permitted to be increased by one-third.

1607.7.2 Grab bars, shower seats and dressing room bench seats. Grab bars, shower seats and dressing room bench seat systems shall be designed to resist a single concentrated load of 250 pounds (1.11 kN) applied in any direction at any point.

1607.7.3 Vehicle barriers. Vehicle barrier systems for passenger cars shall be designed to resist a single load of 6,000 pounds (26.70 kN) applied horizontally in any direction to

2003 INTERNATIONAL BUILDING CODE®

- **2006IBC-1607.pdf**
  https://www.cdpaccess.com/proposal/11230/34960/documentation/179953/attachments/download/8695/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The slight increase in permitted occupant load, from 49 to 50, is not expected to affect most designs.

Staff Analysis: CC # S77-25 and CC # S74-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S77-25

S78-25

IBC: 1607.9, 1607.9.1, 1607.9.1.1, 1607.9.1.2

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Building Code

1607.9 Loads on handrails, guards, grab bars and seats. *Handrails* and *guards* shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.1. Grab bars, shower seats and *accessible* benches shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.2.

Revise as follows:

1607.9.1 Concentrated load. *Handrails* and *guards* shall be designed to resist a concentrated *load* of 200 pounds (0.89 kN) in accordance with Section 4.5.1 of ASCE 7. Glass *handrail* assemblies and guards shall comply with Section 2407.

Exception: For one- and two-family dwellings and within dwelling units, where the top of a guard system is not required to serve as a handrail, the single concentrated load shall be applied at any point along the top, in the vertical downward direction and in the horizontal direction away from the walking surface. Where the top of a guard is also serving as the handrail, a single concentrated load shall be applied in any direction at any point along the top. Concentrated loads shall not be applied concurrently.

1607.9.1.1 Uniform load. *Handrails* and *guards* shall be designed to resist a linear *load* of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1.1 of ASCE 7. This load need not be assumed to act concurrently with the concentrated load specified in Section 1607.9.1.

Exceptions:

1. For one- and two-family *dwellings*, only the single concentrated *load* required by Section 1607.9.1 shall be applied.
2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an *occupant load* less than 50, the minimum *load* shall be 20 pounds per foot (0.29 kN/m).
3. For roofs not intended for occupancy, only the single concentrated load required by Section 1607.9.1 shall be applied.

1607.9.1.2 Guard component loads. Balusters, panel fillers and guard infill components, including all rails except the *handrail* and the top rail, shall be designed to resist a concentrated load of 50 pounds (0.22 kN) in accordance with Section 4.5.1.2 of ASCE 7.

Reason: This exception for residential dwelling units is verbatim from the IRC. It was added to the 2021 IRC and is proposed here to provide correlation between the IRC and IBC for certain residential applications and promote consistent interpretation and enforcement.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change will not increase the cost of construction and is a clarification in nature as the current requirement is not being enforced in the residential applications cited and will not affect a measurable decrease in the cost of construction

S78-25

S79-25

IBC: 1607.9, 1607.9.1, 1607.9.1.1, 1607.9.1.2

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Building Code

1607.9 Loads on handrails, guards, grab bars and seats. *Handrails* and *guards* shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.1. Grab bars, shower seats and *accessible* benches shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.2.

1607.9.1 Concentrated load. *Handrails* and *guards* shall be designed to resist a concentrated *load* of 200 pounds (0.89 kN) in accordance with Section 4.5.1 of ASCE 7. Glass *handrail* assemblies and guards shall comply with Section 2407.

Revise as follows:

1607.9.1.1 Uniform load. *Handrails* and *guards* shall be designed to resist a linear *load* of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1.1 of ASCE 7. This load need not be assumed to act concurrently with the concentrated load specified in Section 1607.9.1.

Exceptions:

1. For one- and two-family *dwellings*, and within individual dwelling units in R2 and R3 occupancies only the single concentrated *load* required by Section 1607.9.1 shall be applied.
2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an *occupant load* less than 50, the minimum *load* shall be 20 pounds per foot (0.29 kN/m).
3. For roofs not intended for occupancy, only the single concentrated load required by Section 1607.9.1 shall be applied.

1607.9.1.2 Guard component loads. Balusters, panel fillers and guard infill components, including all rails except the *handrail* and the top rail, shall be designed to resist a concentrated load of 50 pounds (0.22 kN) in accordance with Section 4.5.1.2 of ASCE 7.

Reason: Throughout the IBC the requirements for stairs and guards within R-2 and R-3 dwelling units have been justified as similar and in most cases are exactly the same as those in One- and Two-family dwellings. We believe that the load requirements should also change to reflect the considerable difference between these residential and public/commercial applications where large numbers of occupants prevail.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This will provide for a decrease in the cost of guard construction as the guards in question will not be required to resist the more stringent uniform 50 lb per linear foot point load. See cost impact justification below for $ amount.

Estimated Immediate Cost Impact Justification (methodology and variables):

A typical example of a residential 6foot long wood guard system comprised of commodity stair parts found in one and two family homes would be the most most economical and likely represent a minimum saving s of $300 in materials alone. Materials using 3 inch posts, 2.25 inch rail and 1,25 inch balusters for a 6 foot long guard would be ~$350. When compared to the same length guard with larger section components, e.g. increased post, rail and baluster sections to 3.5, 2.75, and 1.75 inches respectively to resist the 50 lb/ft load the cost is ~$650. This represents an minimal savings of $50/linear foot. This does not include any potential changes to the building structure which could represent additional savings.

S80-25

IBC: 1607.9, 1607.9.1, 1607.9.1.1, 1607.9.1.2, 1607.9.1.2.1 (New), 1607.9.1.2.2 (New)

Proponents: Thomas Zuzik Jr, Railingcodes.com, representing Feeney Inc. - Oakland, CA (https://feeneyinc.com) (coderep@railingcodes.com); Brad Adsit, representing Feeney, Inc. (badsit@feeneyinc.com)

2024 International Building Code

1607.9 Loads on handrails, guards, grab bars and seats. *Handrails* and *guards* shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.1. Grab bars, shower seats and *accessible* benches shall be designed and constructed for the structural loading conditions set forth in Section 1607.9.2.

1607.9.1 Concentrated load. *Handrails* and *guards* shall be designed to resist a concentrated *load* of 200 pounds (0.89 kN) in accordance with Section 4.5.1 of ASCE 7. Glass *handrail* assemblies and guards shall comply with Section 2407.

1607.9.1.1 Uniform load. *Handrails* and *guards* shall be designed to resist a linear *load* of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1.1 of ASCE 7. This load need not be assumed to act concurrently with the concentrated load specified in Section 1607.9.1.

Exceptions:

1. For one- and two-family *dwellings*, only the single concentrated *load* required by Section 1607.9.1 shall be applied.
2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an *occupant load* less than 50, the minimum *load* shall be 20 pounds per foot (0.29 kN/m).
3. For roofs not intended for occupancy, only the single concentrated load required by Section 1607.9.1 shall be applied.

Revise as follows:

1607.9.1.2 Guard infill component loads. All guard infill components except for the top rail and handrail shall meet the requirements in 1607.9.1.2.1 and 1607.9.1.2.2. These loads shall not be applied concurrently.~~Balusters, panel fillers and guard infill components, including all rails except the *handrail* and the top rail, shall be designed to resist a concentrated load of 50 pounds (0.22 kN) in accordance with Section 4.5.1.2 of ASCE 7.~~

Add new text as follows:

1607.9.1.2.1 Horizontally applied concentrated load. A horizontally applied concentrated load of 50 pounds (0.22 kN) designed in accordance with Section 4.5.1.2 of ASCE 7.

1607.9.1.2.2 Horizontally applied sphere penetration load. A horizontally applied concentrated load of 12 pounds (.0534kN) from a sphere shall not pass through the guard where openings greater than 1.25-inches (31.75 mm) exist in a guard's infill. The sphere shall have a diameter equal to the applicable infill opening limitation in Section 1015.4.

Attached Files

- **ICC Test Rail Pic S.png**
  https://www.cdpaccess.com/proposal/11752/35617/files/download/9261/
- **ICC Test Rail Pic C.png**
  https://www.cdpaccess.com/proposal/11752/35617/files/download/9260/
- **ICC Test Rail Pic A.png**
  https://www.cdpaccess.com/proposal/11752/35617/files/download/9259/

- **ICC Test Rail Pic B.png**
  https://www.cdpaccess.com/proposal/11752/35617/files/download/9258/

Reason: For over 30-years building officials, engineers, designers, contractors, manufactures and fabricators have been debating whether or not the sphere measurements delineated for guard opening limitations, currently in the 2024 IBC Section 1015.4 and prior editions, is simply a opening size measurement or is it an opening size measurement combined with a measured force load, citing "openings that allow passage". With a lack of language delineating no force load be applied, then the opposite is to define a specific infill penetration spread load in the model codes to cover this conflict with inspectors who routinely use many different non-codified techniques to determine if a guard meets a requirement that is not in the ICC-IBC model code.
This proposal is based on testing research done by the proponent to correlate a pound-force load on a sphere in relation to ASTM E935-00 "Test Method D - Application of horizontal static load to determine resistance to cone penetration by infill area of picket and panel railing systems", first published by ASTM in the designation: E 935 - 91 "Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings[1]", and then include this corelated cone load to a sphere load as a specific design load for infill spread for the model 2027 IBC. For those of you who are not familiar with this "Test Method" it was developed by the same group who also developed the method for testing the 1sqft area load test, published in one form or another, in every published model IBC since 2000, to the current 2024 in section "1607.9.1.2 Guard component loads", and pointing to ASCE 7 Section 4.5.1.2.

The information for this reason statement in the monograph is limited to the very basic's. For those parties interested in more detailed information on this proposal beyond the summary, we are publishing on going information though out the 2025 group "B" process at (https://railingcodes.com/infill/) to provide more up to date information and details, as this proposal progresses through the 2027 code cycle process.

ESTABLISHED ASTM TESTING METHOD HISTORY
The initial publication of ASTM E935 in 1983 included 2 test methods, "Test Method A - Horizontal Static Load Application" and "Test Method B - Vertical Static Load Application". Two additional test methods were then added to E935 in the 1991 publication of ASTM E935-91, which also includes the title changes to Test Methods A and B. In the 1991 publication, Test Method A was renamed "Application of Horizontal Static Load to Top Rail" and Test Method B was renamed "Application of Vertical Static Load to Top Rail", and the first of the 2 new test methods added in 1991 was "Test Method C - Application of Horizontal Static Load to Infill Areas of Picket and Panel Railing Systems", and the second was "Test Method D – Application of Horizontal Static Load to Determine Resistance to Cone Penetration by Infill Area of Baluster and Panel Railing Systems.", Test Method D was specifically developed to be able to test the spread between infill elements in guard systems. ASTM E935-91 cites ASTM E985 "Specifications for Permanent Metal Railing Systems and Rails for Buildings" for the specific loads to be used for each test method in E935.
ASTM E935-00 was Reapproved in 2006 and

- is the latest edition which included the test method for guard infill deflection as; "Test Method D – Application of Horizontal Static Load to Determine Resistance to Cone Penetration by Infill Area of Baluster and Panel Railing Systems".
- E935-00 also cites, as did the 1991 test method, to use
  - E985-00 for the load that will be applied for Test Method D, and
  - in section 7.1.8 "The minimum horizontal test load to be applied by a penetration cone to the infill area of a baluster or panel railing system (see Test Method D of Test Methods E935) shall be 220 N (50 lbf)."

Specifics of importance in ASTM E935-00, in Test Method D

- Test Method D specifies when testing to use a cone that is 1.25% the size of the opening limitation.
  - This translates to using a 5-inch Cone for testing an opening limitation of 4-inches in guard infill.
- The test method specifies that the cone's point be truncated to 1-inch in diameter.
  - For this reason we have limited the load requirement in this proposal to openings that allow a sphere 1.25-inches in diameter to pass through.
  - Openings smaller than the 1.25-inch sphere are exempt from this requirement

The current edition of ASTM E935-21 does not include "Test Method D". E935 was re-written to be more inline with only the sections of the "code" which were being used and removed sections that were never adopted and published as E935-13. The revisions in E935-13 of the Test Method Document outlined the test methods in Section 10 Procedure. Though some may argue that a lack of adoption means that "Test Method D" is not valid, we believe and present the fact that 3 of the 4 test methods first developed over 40 and 30 years ago are still used and that it took 30 years to add the 4th test method to clarify minimum compliance for infill spreading when the building code industry see's the need for the code to clarify the detail.

Identifying openings in Guard Infill most vulnerable to Spreading through Penetration

To simplify this code submittal which will apply to guard infill, the proposal will be focusing on wire cables as they are the most vulnerable and scrutinized type of guard infill for opening spreading/deflection concerns. Furthermore, we are narrowing the monograph reason statement even further to focus on the most vulnerable common wire cable used in the built environment, imported 1/8-inch diameter 1x19 type 316 stainless steel, arguably the most flexible type of infill commonly used in guard systems. Even though this proposal adds the requirement to all types of guard infill, and we are researching and testing different types of guard materials and construction, the ongoing results will be being published on the proponents website for public review. We stipulate for this proposal that the minimum required by code language should be based on the results of the most vulnerable and with wire cable guard infill being the most scrutinized by code officials and is likely the most affected by the addition of this proposed new model code requirement, we focused on finding this infill types pass/fail point for Test Method D of ASTM E935-00.

SAFE INFILL – SAFE CABLE DESIGN LOADS

The tensioning, stiffness and resistance that the guard infill preforms to is directly related to the material, and with wire cable this is directly related to safe cable design loads. Per industry manufacture Loos & Co. Inc., 1/8-inch diameter, 1x19 type 316 stainless steel imported wire cable, lists the minimum break point at 1,780lbf on their website. The cable's minimum break point is applied to the industry-based safety factors for designated Safe Workload and the Maximum Cable Pretension load for Cable Rail Installations. This results in a safe workload limit of 356lbf, based on 20% of the cable's minimum break load and a Maximum Cable Pretension limit of 445lbf which is 25% of the cable's minimum break load.

TRANSLATING THE ASTM E935-00 Test Method D PENETRATION CONE TEST METHOD TO SPHERE CODE

The proponent of this proposal erected a guard section 28 feet long, with cable infill and installed load cells to measure the lbf for each cable's tension that the cone and sphere were pulled between. The wire infill cables were tensioned uniformly until the infill met enough tension so the 50lbf on the cone's load cell sensor was met, (minus the drag load), without exceeding the cables work load maximum limit and pretension load. Once the guard's infill section met the Part D Test Method of E935-00, the proponent changed out the 5-inch cone designated in ASTM E935-00 with a 4-inch sphere. The 4-inch sphere was then pulled logging the tension through to failure while recording the results. Those results produced data which was then used to establish the proposed pound-force load to be applied to the sphere for the requirements listed in the code proposal.

There will be questions for how code officials might be able to verify that the infill will meet the designated new load. To start with, how are code officials inspecting the current loads for guards in IBC Section 1607.9? There are more than a few ways this can be done, of which one is manufactures specifications for guard systems. As for guards with cable infill, some cable fitting manufactures already publish charts in their installation instructions for tensioning based on cable construction, size, length, clear span, and centerline vertical spacing. There are a few ways that verifying these parameters are met if the field with simple hand tools. However, this information is different based on more than a few parameters as our research through testing is showing.

The amount of work product, information and documentation for this proposal has been document for public viewing with information, pictures and videos of the results and testing done to correlate the proposed code change on the proponents website at https://railingcodes.com/infill/

Of Note the proponent will begin holding monthly or bi-monthly working sessions, though zoom in the middle of February 2025, to discuss the proposal and the on going research as this proposal progresses through the 2027 code cycle. Those interested in joining in the group meetings can fill out a form on the proponents website.

Bibliography: ASTM Editions:

- ASTM E935-83 Initial edition Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings[1]A
- ASTM E935-91 Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings[1]
- ASTM E935-00ε1 Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings[1]
- ASTM E935-13 Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings[1]
- ASTM E985-91 Standard Specification for Performance of Permanent Metal Railing Systems and Rails for Buildings[1]
- ASTM E985-00 Standard Specification for Performance of Permanent Metal Railing Systems and Rails for Buildings[1]

ICC Evaluation Service:

- ICC ES-AC273 Acceptance Criteria for Handrails and Guards.
  - Originally approved 2004.
  - Last Approved 2017
  - Editorially revised May 2021

Websites:

- Loos & Co. Inc - Stainless Steel Strand, Bare 1x19, Import
  - https://loosco.com/product/cable/stainless-steel-strand-bare-1x19-import/
- Railingcodes.com - Proponent Research & Testing Information
  - https://railingcodes.com/infill/
- Feeney Inc. - Guard system for Testing Provided by
  - https://feeneyinc.com/product/metal/

Cost Impact: Increase

Estimated Immediate Cost Impact:

The estimated cost impact is between $0.00 & $320.00

Estimated Immediate Cost Impact Justification (methodology and variables):

The proponent of this proposal does not believe that there will be a cost increase, let alone any significant increase in cost because we believe that an estimated 98%, if not higher, of the guards being installed today are being built to comply and all ready meet or exceed the minimum requirements set forth in this code change proposal. However, per ICC requirements if we see any possible increase we need to provide justification of that cost increase in details.

So for those guards that possibly don't meet the minimums proposed can do so at minimum cost with minor changes to the design and installation of the guard system.

As stipulated in the proposal's main reason statement the most affected type of guard infill is, imported 1x19 1/8-inch diameter stainless steel cable, and the following examples are based on an installation of the cable infill guard system on an exterior deck 24 feet wide by 15 feet projection of 2 sides, and the other 24 foot side being a building.

The following summaries are supported by the breakdowns that follow after the summary examples.

- WOOD POST GUARD INSTALLATION:
  - The 24ft guard section is divided by 4ft, this equals 6 sections, which then translates to 7 support posts.
    Next if we divide the same 24ft section by 3ft we now have 8 sections, which translates to 9 support posts.
    This is an additional 2 posts at an estimated $80.00 each
  - Then if we look at the 2 sides being 15ft and divide that by 4ft, this equals 4 sections, which translates to 5 support posts
    Next is we divide the same 15ft section by 3ft we now have 5 sections, which translates to 6 support posts per side.
    This is an additional 2 posts at an estimated $80.00 each
  - This example summary produces (4) posts at $80.00 each for a estimated total of $320.00

- WIDE SPAN POST GUARD INSTALLATION:
  - The 24ft section is divided by 5ft, this equals 5 sections, which then translates to 6 support posts.
    Next we add a midspan vertical tension baluster into each of the 5 sections
    This is an additional 5 balusters estimated at $47.49 each
    This minuses 1 post at an estimated $80.00 each
  - Then if we look at the 2 sides being 15ft and divide that by 5ft, this equals 3 sections, which translates to 4 support posts
    Next we add a midspan vertical tension baluster into each of the 3 sections on each side
    This is an additional 6 balusters estimated at $47.49 each
    This minuses 2 posts at an estimated $80.00 each
  - This example summary produces
    (3) less posts at $80.00 each and equals a credit of $240.00
    and adds (11) balusters at $47.49 each and equals a total of $522.39

This equals \$522.39 - \$240.00 for an additional estimated cost of \$282.39
The \$282.39 is less than the \$320.00 estimated cost increase

Cost Reference Supporting Documentation:

- Wood post costs
  - Wood Post Added to Wood Deck Estimated Cost
    Wood post prices pulled from lowes.com at the time of code proposals submittal.
    Severe Weather 4-in x 4-in x 6-ft 2 Southern yellow pine
    Ground contact pressure treated lumber
    Lowe's Item #312530 | Model #Y240406-GC \$9.18 each
    Simpson Strong-Tie 2-in x 4-in 14-gauge ZMAX Tension tie
    Lowe's Item #2132165 | Model #DTT2Z \$10.88 each
    Deck Plus 1/2-in x 7-in Coated Coarse Thread Hex Bolt
    Lowe's Item #756045 | Model #260735 \$4.05 each x (2) = \$8.10
    Deck Plus 1/2-in Coated Standard Washer
    Lowe's Item #756041 | Model #260724 \$0.49 each x (4) = \$1.96
    Deck Plus 1/2-in x 13 Coated Steel Hex Nut
    Lowe's Item #756033 | Model #260704 \$4.05 each x (2) = \$0.59
    Per post estimated added cost:
    Material Estimated at \$31.30 plus local sales tax
    \$25.00 Installation Labor cost
    Combined Estimate of \$56.30 Each Post
    Misc. Contingency labor/materials \$23.70
    Proposal Budget per post \$80.00
- Option for keeping wide metal or wood post spans:
  - Adding Vertical Mid-Span Baluster based on Feeney Inc. Retail Pricing
    Feeney 42-in-level baluster \$40.00 each
    Mounting Hardware estimated at \$2.49 each
    Labor cost added per baluster for installation \$5.00
    Estimated \$47.49 added for each baluster.

Labor costs will vary depending on the area of the country the work is being done.

Estimated Life Cycle Cost Impact:

We estimate no increase in life cycle cost

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Guards are a fixed building material that requires no change in the cost of the life cycle with this type of requirement.

Staff Analysis: CC # S80-25 and CC # S74-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S80-25

S81-25

IBC: 1607.12.4

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1607.12.4 Fall arrest, lifeline, and rope descent system anchorages. In addition to any other applicable *live loads*, fall arrest, lifeline, and rope descent system anchorages and structural elements that support these anchorages shall be designed for a *live load* of ~~not less than~~ 3,100 pounds (13.8 kN) for each attached line, in any direction that the *load* can be applied.

Anchorages of horizontal lifelines and the structural elements that support these anchorages shall be designed for the maximum tension that develops in the horizontal lifeline from these *live loads*.

Reason: This proposal is a coordination proposal to bring the 2027 IBC up to date with the provisions of the 2022 edition of ASCE/SEI 7 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE/SEI 7-22).

These changes improve the coordination between the IBC and ASCE 7 by removing text in the IBC that does not appear in the corresponding section in ASCE 7.

The phrase “not less than” is unnecessary as the live loads provided in Section 1607 are minimum design loads. There is no reason for this particular section to specifically reiterate that the provided live load is a minimum load.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clarification which does not change the required load and is not expected to affect the cost of construction.

S81-25

S82-25

IBC: 1607.13, 1607.13.1.2, 1607.13.2

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

1607.13 Reduction in uniform live loads. Except for uniform roof live loads, all other minimum uniformly distributed *live loads*, L_o, in Table 1607.1 are permitted to be reduced in accordance with Section 1607.13.1 or 1607.13.2. Uniform roof *live loads* are permitted to be reduced in accordance with Section 1607.14.

Revise as follows:

1607.13.1.2 Heavy live loads. *Live loads* that exceed 100 psf (4.79 kN/m^2) shall not be reduced.

Exceptions:

1. The *live loads* for members supporting two or more floors are permitted to be reduced by not greater than 20 percent, but the reduced *live load* shall be not less than *L* as calculated in Section 1607.13.1.
2. For uses other than storage, where *approved* by the *building official*, ~~additional *live load* reductions shall be permitted~~ the *live load* is permitted to be reduced where shown by the *registered design professional* that a rational approach has been used and that such reductions are warranted. The reduced live load shall not be less than L as calculated in Section 1607.13.1. A member shall only be permitted to have its live load reduced where the full live load will not be applied to the member's entire influence area.

1607.13.2 Alternative uniform live load reduction. As an alternative to Section 1607.13.1 and subject to the limitations of Table 1607.1, uniformly distributed *live loads* are permitted to be reduced in accordance with the following provisions. Such reductions shall apply to slab systems, beams, girders, columns, piers, walls and foundations.

1. For *live loads* not exceeding 100 pounds per square foot (4.79 kN/m^2), the design *live load* for structural members supporting 150 square feet (13.94 m^2) or more is permitted to be reduced in accordance with Equation 16-8.

$$R = 0.08(A - 150) \quad \textbf{(Equation 16-8)}$$

For SI: $R = 0.861(A - 13.94)$

where:

A = Area of floor supported by the member, square feet (m^2).

R = Reduction in percent.Such reduction shall not exceed the smallest of:

1.1. 40 percent for members supporting one floor.

1.2. 60 percent for members supporting two or more floors.

1.3. R as determined by the following equation:

$$R = 23.1(1 + D/L_o) \quad \textbf{(Equation 16-9)}$$

where:

D = *Dead load* per square foot (m^2) of area supported.

L_o = Unreduced *live load* per square foot (m^2) of area supported.

2. A reduction shall not be permitted where the *live load* exceeds 100 pounds per square foot (4.79 kN/m^2) except that the design *live load* for members supporting two or more floors is permitted to be reduced by not greater than 20 percent.

   Exception: For uses other than storage, where *approved* by the *building official*, ~~additional *live load* reductions shall be permitted~~ the *live load* is permitted to be reduced where shown by the *registered design professional* that a rational approach has been used and that such reductions are warranted. The reduction shall not be greater than permitted by Item 1. A member shall only be permitted to have its live load reduced where the full live load will not be applied to the member's entire influence area.

3. A reduction shall not be permitted in passenger vehicle parking garages except that the *live loads* for members supporting two or more floors are permitted to be reduced by not greater than 20 percent.
4. For one-way slabs, the area, *A*, for use in Equation 16-8 shall not exceed the product of the slab span and a width normal to the span of 0.5 times the slab span.

Reason: This proposal helps to clarify the intended use of the exceptions that permit reduction of heavy live loads. The changes make it clear that 1) heavy live loads can not be reduced more than would be permitted by the equations for reducing all other live loads, and that 2) the reduction approach must consider whether the heavy live load occurs over the member's entire influence area. Additionally, adding the phrase "by the building official" makes the text consistent with the typical way that Chapter 16 refers to code official approval.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides clarification on the use of the heavy live load reduction exceptions and is not expected to impact the cost of construction.

S82-25

S83-25

IBC: 1607.13.2

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Delete without substitution:

~~**1607.13.2 Alternative uniform live load reduction.** As an alternative to Section 1607.13.1 and subject to the limitations of Table 1607.1, uniformly distributed *live loads* are permitted to be reduced in accordance with the following provisions. Such reductions shall apply to slab systems, beams, girders, columns, piers, walls and foundations.~~

1. ~~For *live loads* not exceeding 100 pounds per square foot (4.79 kN/m^2), the design *live load* for structural members supporting 150 square feet (13.94 m^2) or more is permitted to be reduced in accordance with Equation 16-8.~~

   $$\cancel{R = 0.08(A - 150)} \qquad \text{(Equation 16-8)}$$

   ~~For SI: $R = 0.861(A - 13.94)$~~
   ~~where:~~
   ~~A = Area of floor supported by the member, square feet (m^2).~~
   ~~R = Reduction in percent.Such reduction shall not exceed the smallest of:~~

   1.1. ~~40 percent for members supporting one floor.~~

   1.2. ~~60 percent for members supporting two or more floors.~~

   1.3. ~~R as determined by the following equation:~~

   $$\cancel{R = 23.1(1 + D/L_o)} \qquad \text{(Equation 16-9)}$$

   ~~where:~~
   ~~D = *Dead load* per square foot (m^2) of area supported.~~
   ~~L_o = Unreduced *live load* per square foot (m^2) of area supported.~~

2. ~~A reduction shall not be permitted where the *live load* exceeds 100 pounds per square foot (4.79 kN/m^2) except that the design *live load* for members supporting two or more floors is permitted to be reduced by not greater than 20 percent.~~

   ~~**Exception:** For uses other than storage, where *approved*, additional *live load* reductions shall be permitted where shown by the *registered design professional* that a rational approach has been used and that such reductions are warranted.~~

3. ~~A reduction shall not be permitted in passenger vehicle parking garages except that the *live loads* for members supporting two or more floors are permitted to be reduced by not greater than 20 percent.~~

4. ~~For one-way slabs, the area, *A*, for use in Equation 16-8 shall not exceed the product of the slab span and a width normal to the span of 0.5 times the slab span.~~

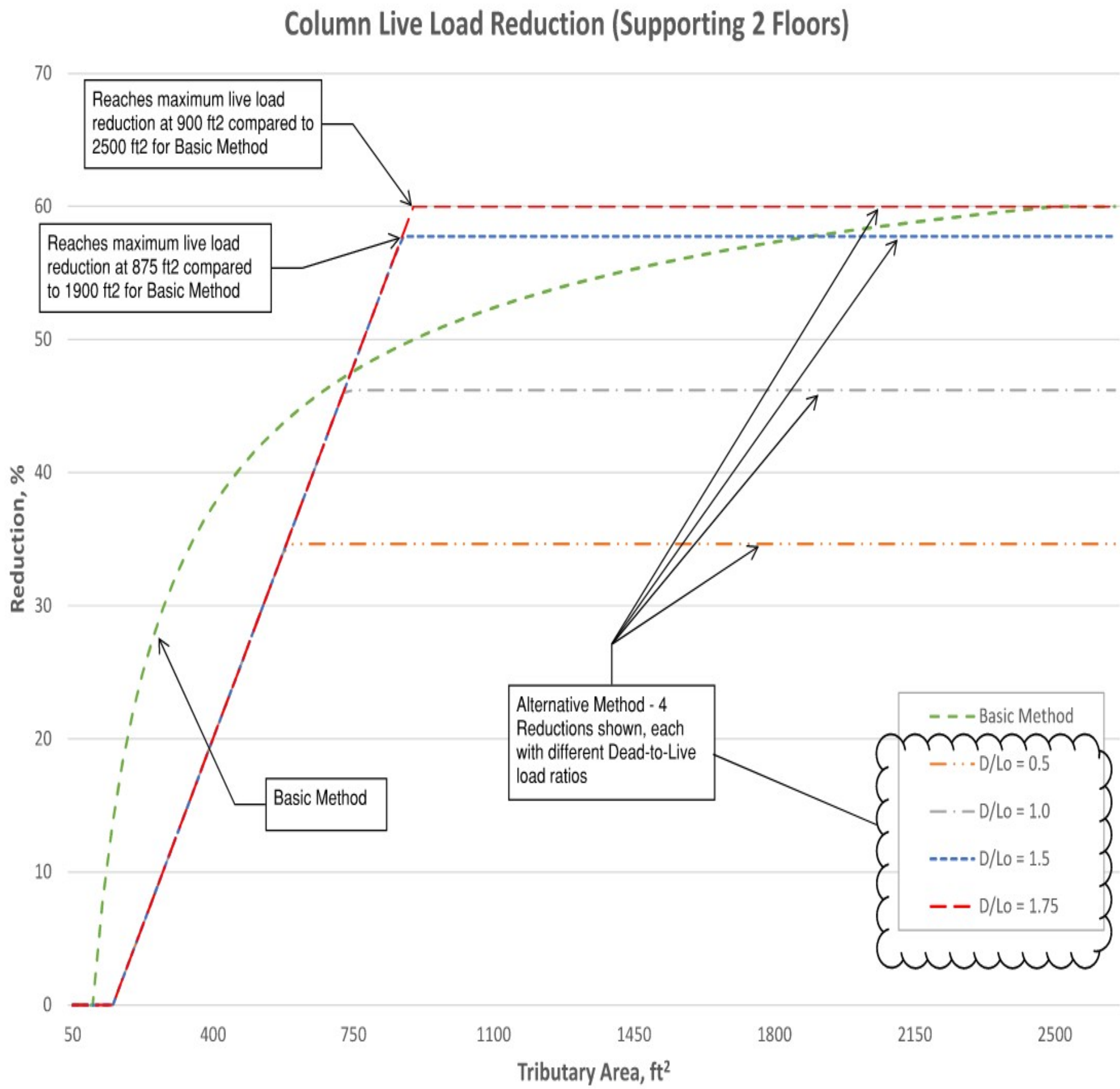
Reason: This proposal is a coordination proposal to bring the 2027 IBC up to date with the provisions of the 2022 edition of ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-22). This proposal improves the coordination between the IBC and ASCE 7 by removing a provision in the IBC that does not appear in ASCE 7. The IBC contains two methods to reduce the live load on a structural member, the Basic method (1607.13.1) and the Alternative method (1607.13.2). However ASCE 7 only contains one method to reduce live loads which corresponds to the IBC Basic method.

The Alternative method used to be in ASCE 7, however it was replaced by the Basic method in the 1982 edition. The Alternative method was developed in the late 1940's and was based on value judgements and the professional experience available at that time. It allows the live load to be reduced at a flat rate of 0.08% per square foot of area up to the maximum permitted reduction, see attached chart. The maximum permitted reduction is limited by the Dead to Live Load ratio (as well as the number of floors supported by the structural member).

The Basic method was developed approximately 30 years after the Alternative method and is based on statistical analysis and modeling considering structural reliability theory to approximate the probability of structural failure. The analysis and modeling incorporated load surveys of actual buildings, some which were available when the Alternative method was formulated, but some which were newer and not available at that time. Many of the newer surveys were also more extensive, collecting more data then had been done in the past.

The Basic method is reported to give more consistent structural reliability across the range of structural members to which live load reduction is applied (columns, beams, slabs). The attached chart shows that the rate of live load reduction is similarly steep for both the Basic and Alternative methods at relatively low tributary areas. However the rate of live load reduction for the Basic method reduces at higher areas, meaning that it takes much larger areas to achieve the largest live load reduction compared to the Alternative method. This behavior is preferred from a reliability perspective.

The Basic method also does not depend upon on the Dead to Live load ratio. This is more logical as the statistical likelihood of having the full design live load on a structural member has nothing to do with the weight of the structural member. Heavier structural framing (think concrete or masonry) is not more likely to have less live load than comparatively lighter framing (think wood or cold-formed steel). This appears to have been an value judgement applied at the time the Alternative method was developed, however structural reliability theory showed that this was not relevant. Removing the Dead to Live load ratio from the calculations also makes the live load reduction easier to calculate.In discussions within the ASCE 7 Dead & Live Load Subcommittee and with the NCSEA General Requirements Subcommittee, it does not appear that the Alternative method is widely used and thus removing it is not likely to have a significant affect on the structural design profession. However removing it will ensure that where live load reduction is applied, is it applied consistently and with consideration of modern day structural reliability concepts.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Based on feedback from the ASCE 7 Dead and Live Load Subcommittee and the NCSEA General Requirements Subcommittee the Alternative Live Load Reduction provisions are not widely used and therefore removing them from the IBC would have very little impact on structural design.

S84-25

IBC: 1607.13.2

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1607.13.2 Alternative uniform live load reduction. As an alternative to Section 1607.13.1 and subject to the limitations of Table 1607.1, uniformly distributed *live loads* are permitted to be reduced in accordance with the following provisions. Such reductions shall apply to slab systems, beams, girders, columns, piers, walls and foundations.

1. For *live loads* not exceeding 100 pounds per square foot (4.79 kN/m^2), the design *live load* for structural members supporting 150 square feet (13.94 m^2) or more is permitted to be reduced in accordance with Equation 16-8.

   $R = 0.08(A_{\underline{T}} - 150)$ **(Equation 16-8)**

   For SI: $R = 0.861(A_{\underline{T}} – 13.94)$
   where:
   $A_{\underline{T}}$ = ~~Area of floor~~ Tributary area supported by the member, square feet (m^2).
   R = Reduction in percent. Such reduction shall not exceed the smallest of:

   1.1. 40 percent for members supporting one floor.

   1.2. 60 percent for members supporting two or more floors.

   1.3. R as determined by the following equation:

   $R = 23.1(1+ D/L_o)$ **(Equation 16-9)**

   where:
   D = *Dead load* per square foot (m^2) of area supported.
   L_o = Unreduced *live load* per square foot (m^2) of area supported.

2. A reduction shall not be permitted where the *live load* exceeds 100 pounds per square foot (4.79 kN/m^2) except that the design *live load* for members supporting two or more floors is permitted to be reduced by not greater than 20 percent.

   Exception: For uses other than storage, where *approved*, additional *live load* reductions shall be permitted where shown by the *registered design professional* that a rational approach has been used and that such reductions are warranted.

3. A reduction shall not be permitted in passenger vehicle parking garages except that the *live loads* for members supporting two or more floors are permitted to be reduced by not greater than 20 percent.

4. For one-way slabs, the area, *A*, for use in Equation 16-8 shall not exceed the product of the slab span and a width normal to the span of 0.5 times the slab span.

Reason: Both "tributary area" and "influence area" are common terms in building design. This proposal makes it clear which area is intended to be used in the Alternative live load reduction method. The basic live load reduction provisions clearly indicate that the area is the tributary area, however the alternative live load reduction provisions are not currently clear. This is likely because the Alternative live load reduction method predates common usage of the term influence area in structural design. At that time the term influence area was not commonly used. Now that tributary area, A_T, and influence area, $K_{LL}A_T$, are in common usage it is necessary to more clearly describe the intended area in the alternative live load reduction provisions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The clarification contained in this proposal is not likely have an impact on the cost of construction.

S84-25

S85-25

IBC: 1607.14.3, 1607.14.3.1, 1607.14.3.2, 1607.14.3.3, 1607.14.3.4, 1607.14.3.5, 1607.14.4 (New)

Proponents: Julie C. Furr, PE, Smith Seckman Reid, Inc, representing Self (jcfurr@ssr-inc.com)

2024 International Building Code

Revise as follows:

1607.14.3 Photovoltaic panel systems. Roof structures that provide support for *photovoltaic panel systems* shall be designed in accordance with this code, as modified by Sections 1607.14.3.1 through 1607.14.3.5~~, as applicable~~.

1607.14.3.1 Roof live load. Roof structures that support *photovoltaic panel systems* shall be designed to resist each of the following conditions:

1. Applicable uniform and concentrated roof *loads* with the *photovoltaic panel system dead loads*.

   Exceptions: *Roof live loads* need not be applied to the area covered by *photovoltaic panels* where: ~~the vertical clear space between the panels and the roof surface is 24 inches (610 mm) or less.~~

   1. ~~the~~ The vertical clear space between the panels and the roof surface is 24 inches (610 mm) or less.
   2. The horizontal clear space between the panel supports is 12 inches (305 mm) or less.

2. Applicable uniform and concentrated roof loads without the *photovoltaic panel system* present.

1607.14.3.2 Photovoltaic panels or modules. The *structure* of a roof that supports solar *photovoltaic panels* or modules shall be designed to accommodate the full solar *photovoltaic panels* or modules and ballast *dead load*, including concentrated *loads* from support frames in combination with the *loads* from Section 1607.14.3.1 and other applicable *loads*. Where applicable, snow drift *loads* created by the *photovoltaic panels* or modules shall be included.

1607.14.3.3 Photovoltaic panels installed on open grid roof structures ~~Elevated photovoltaic (PV) support structures with open grid framing~~. ~~Elevated photovoltaic (PV) support structures~~ Structures with open grid framing and without a *roof deck* or sheathing supporting photovoltaic panel systems shall be designed to support the uniform and concentrated *roof live loads* specified in Section 1607.14.3.1, except that the uniform *roof live load* shall be permitted to be reduced to 12 psf (0.57 kN/m^2).

1607.14.3.4 Ground-mounted photovoltaic (PV) panel systems. Ground-mounted photovoltaic (PV) panel systems that are independent structures and do not have accessible/occupied space underneath are not required to accommodate a *roof photovoltaic live load*. Other *loads* and combinations in accordance with Section 1605 shall be accommodated.

1607.14.3.5 Ballasted photovoltaic panel systems. Roof structures that provide support for ballasted *photovoltaic panel systems* shall be designed, or analyzed, in accordance with Chapter 16, except as modified by Section 1607.14.3. ~~Section 1604.4; checked in accordance with Section 1604.3.6 for deflections; and checked in accordance with Section 1611 for ponding.~~

Add new text as follows:

1607.14.4 Uncovered open-frame roof structures. Uncovered open-frame roof structures shall be designed for a vertical live load of not less than 10 psf (0.48 kN/m^2) of the total area encompassed by the framework.

Attached Files

- **PV California Solar News and Statistics for 2025 – Forbes Home.pdf**
  https://www.cdpaccess.com/proposal/12150/35887/files/download/9481/

Reason: This proposal aligns IBC design criteria for structures supporting photovoltaic panel systems with the 2022 California Building Code (July 2024 Supplement). Additional clarification has been added to 1607.14.3.1 to identify that supporting structures must still be designed to include typical roof live loads, unless aisles between panel support groups are too narrow to allow maintenance access.

Having experienced strong growth in solar power over the last decade, California has been afforded ample opportunity to implement, evaluate, and revise PV building code requirements. It is reasonable to expect that current CBC PV building code requirements which have already been implemented in the "nation's top solar producer" (Forbes, *California Solar Statistics for 2025,* 08-28-2024), have achieved the balance between public safety and allowing innovation within the industry.

- **CA PV IR_16-8_2022 CBC.pdf**
  https://www.cdpaccess.com/proposal/12150/35887/documentation/186459/attachments/download/9469/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The revisions clarify code language to match the prevailing standard of practice in California (largest solar producer) and as asserted by the industry.

S85-25

S86-25

IBC: 1607.16.2

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1607.16.2 Fire walls. In order to meet the structural stability requirements of Section 706.2 where the *structure* on either side of the wall has collapsed, *fire walls* and their supports shall be designed to withstand a minimum horizontal ~~allowable stress~~ *load* of 5 psf (0.240 kN/m^2).

Reason: Currently Section 1607.16.2 specifies an allowable stress load, however structural loads in the IBC are not classified as allowable stress loads or strength loads. Loads are classified as live loads, snow loads, wind loads, etc. The loads are then required to be combined (Section 1605) and the required combinations vary depending upon whether LRFD design or ASD design is utilized. Therefore the term “allowable stress” is struck from this section for consistency with the rest of Chapter 16.

While a similar section is not contained within ASCE 7, the changes in this proposal are consistent with how loads are classified in ASCE 7.

As an example, the proposed revisions make the text of this section consistent with the text in the similar Section 1607.16, which is shown below:

1607.16 Interior walls and partitions. Interior walls and partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength and stiffness to resist the loads to which they are subjected but not less than a horizontal load of 5 psf (0.240 kN/m2).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The clarification made in the proposal does not change existing requirements and will not affect the cost of construction.

S86-25

S87-25

IBC: 1607.16, 1607.16.3 (New)

Proponents: John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

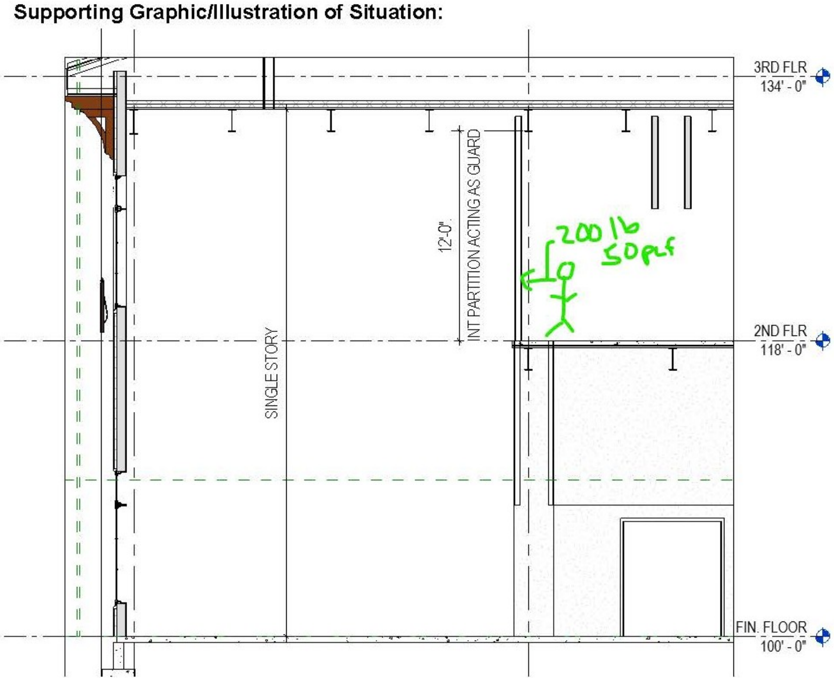
1607.16 Interior walls and partitions. Interior walls and partitions that exceed 6 feet (1829 mm) in height, including their finish materials, shall have adequate strength and stiffness to resist the *loads* to which they are subjected but not less than a horizontal *load* of 5 psf (0.240 kN/m^2).

Add new text as follows:

1607.16.3 Guards. Interior walls and partitions separating a floor or walking surface located more than 30 inches measured vertically to the floor below shall serve as *guards* in accordance with section 1015.1. For the design of interior walls and partitions serving as *guards*, loading set forth in section 1607.9 shall be applied at any location along the wall length at a height of 42" above the floor or walking surface.

Reason: There are instances in which light framed interior partitions or insulated metal panel walls (IMP) separate a multistory section from a single-story section (i.e. an interior partition in an industrial building that separates a multistory office space from a single-story warehouse/production space). In these cases, the interior partition will need to have adequate strength and stiffness to be able to support guard loads to prevent a potential failure of the light framed wall or its connection to the structure and prevent the fall of a person off what would then become an open-sided walking surface that is located more than 30 inches above the level or ground below. There are instances of light framed walls or insulated metal panels with common inter-story heights of 10 to 12 feet in which the 200 pound concentrated load will exceed the loading and stiffness demands of the 5 psf horizontal load of section 1607.16.

Supporting Graphic/Illustration of Situation:



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The new text is a clarification for the proper design of an interior partition / wall for the condition mentioned. The criteria is currently in the code, but this addition provides clarity.

S87-25

S88-25

IBC: 1609.1.1, 1609.4, 1609.4.1, 1609.4.2, 1609.4.3

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1609.1.1 Determination of wind loads. Wind *loads* on every *building* or *structure* shall be determined in accordance with Chapters 26 to 30 of ASCE 7. The type of opening protection required, the basic wind speed, *V*, and the exposure category for a *site* shall ~~is permitted to~~ be determined in accordance with Section 1609 ~~or ASCE 7~~. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

Exceptions:

1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 *buildings*.
2. Subject to the limitations of Section 1609.1.1.1, residential *structures* using the provisions of AWC WFCM.
3. Subject to the limitations of Section 1609.1.1.1, residential *structures* using the provisions of AISI S230.
4. Designs using NAAMM FP 1001.
5. Designs using TIA-222 for antenna-supporting *structures* and antennas, provided that the horizontal extent of Topographic Category 2 escarpments in Section 2.6.6.2 of TIA-222 shall be 16 times the height of the escarpment.
6. Wind tunnel tests in accordance with ASCE 49 and Sections 31.4 and 31.7 of ASCE 7.
7. *Temporary structures* complying with Section 3103.6.1.2.

The wind speeds in Figures 1609.3(1) through 1609.3(4) are basic wind speeds, *V*, and shall be converted in accordance with Section 1609.3.1 to *allowable stress design* wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions 4 and 5 are used.

1609.4 Exposure category. For each wind direction considered, an exposure category that adequately reflects the characteristics of ground surface irregularities shall be determined for the *site* at which the *building* or *structure* is to be constructed in accordance with Section 26.7 of ASCE 7. Account shall be taken of variations in ground surface roughness that arise from natural topography and vegetation as well as from constructed features.

Delete without substitution:

~~**1609.4.1 Wind directions and sectors.** For each selected wind direction at which the wind *loads* are to be evaluated, the exposure of the *building* or *structure* shall be determined for the two upwind sectors extending 45 degrees (0.79 rad) either side of the selected wind direction. The exposures in these two sectors shall be determined in accordance with Sections 1609.4.2 and 1609.4.3 and the exposure resulting in the highest wind *loads* shall be used to represent winds from that direction.~~

~~**1609.4.2 Surface roughness categories.** A ground surface roughness within each 45-degree (0.79 rad) sector shall be determined for a distance upwind of the *site* as defined in Section 1609.4.3 from the following categories, for the purpose of assigning an exposure category as defined in Section 1609.4.3. **Surface Roughness B.** Urban and suburban areas, wooded areas or other terrain with numerous closely spaced obstructions having the size of single-family *dwellings* or larger. **Surface Roughness C.** Open terrain with scattered obstructions having heights generally less than 30 feet (9144 mm). This category includes flat open country, and grasslands. **Surface Roughness D.** Flat, unobstructed areas and water surfaces. This category includes smooth mud flats, salt flats and unbroken ice.~~

~~**1609.4.3 Exposure categories.** An exposure category shall be determined in accordance with the following: **Exposure B.** For *buildings* with a mean roof height of less than or equal to 30 feet (9144 mm), Exposure B shall apply where the ground surface roughness, as defined by Surface Roughness B, prevails in the upwind direction for a distance of not less than 1,500 feet (457 m). For *buildings* with a mean roof height greater than 30 feet (9144 mm), Exposure B shall apply where Surface Roughness B prevails in the upwind direction for a distance of not less than 2,600 feet (792 m) or 20 times the height of the *building*, whichever is greater. **Exposure C.** Exposure C shall apply for all cases where Exposure B or D does not apply. **Exposure D.** Exposure D shall apply where the ground surface roughness, as defined by Surface Roughness D, prevails in the upwind direction for a distance of not less than 5,000 feet (1524 m) or 20 times the height of the building, whichever is greater. Exposure D shall apply where the ground surface roughness immediately upwind of the *site* is B or C, and the *site* is within a distance of 600 feet (183 m) or 20 times the *building height*, whichever is greater, from an Exposure D condition as defined in the previous sentence.~~

Reason: The proposal includes modification to Section 1609.4. The modification to Section 1609.4 strikes out the detailed language and provisions for determining Exposure Category in IBC and requires use of Section 26.7 of ASCE/SEI 7. The IBC 2024 1609.4 language for Exposure Category is identical to ASCE/SEI 7-22 Section 26.7. The proposed removal of exposure classifications would verify that exposure classifications are always consistent between the building code and the standard. This approach is consistent with all other wind design parameters (wind speed, elevator factor, topographic factor, directionality factor, etc.).

The change to Section 1609.1 modifies the optional language (i.e., “permitted to be”) to be charging language (i.e., “shall be”) and removed the reference to ASCE 7 as this is now referenced in Section 1609.4.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposed IBC code changes are generally editorial clarifications that improve the thoroughness of IBC for alignment to ASCE 7.

S88-25

S89-25

IBC: 1609.2

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1609.2 Protection of openings. In *windborne debris regions*, glazing in *buildings* shall be impact resistant or protected with an impact-resistant covering meeting the requirements of an *approved* impact-resistant standard or ASTM E1996 referenced herein as follows:

1. Glazed openings located within 30 feet (9144 mm) of grade shall meet the requirements of the large missile test of ASTM E1996.
2. Glazed openings located more than 30 feet (9144 mm) above grade shall meet the provisions of the small missile test of ASTM E1996.

<u>In the tornado-prone region, glazed openings shall be protected as required by Chapter 32 of ASCE/SEI 7.</u>

Exceptions:

1. *Wood structural panels* with a minimum thickness of $^{7}/_{16}$ inch (11.1 mm) and maximum panel span of 8 feet (2438 mm) shall be permitted for opening protection in *buildings* with a mean roof height of 33 feet (10 058 mm) or less that are classified as a Group R-3 or R-4 occupancy. Panels shall be precut so that they shall be attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be predrilled as required for the anchorage method and shall be secured with the attachment hardware provided. Attachments shall be designed to resist the components and cladding *loads* determined in accordance with the provisions of ASCE 7, with corrosion-resistant attachment hardware provided and anchors permanently installed on the *building*. Attachment in accordance with Table 1609.2 with corrosion-resistant attachment hardware provided and anchors permanently installed on the *building* is permitted for *buildings* with a mean roof height of 45 feet (13 716 mm) or less where V_{asd} determined in accordance with Section 1609.3.1 does not exceed 140 mph (63 m/s).
2. Glazing in *Risk Category* I *buildings*, including *greenhouses* that are occupied for growing plants on a production or research basis, without public access shall be permitted to be unprotected.
3. Glazing in *Risk Category* II, III or IV *buildings* located over 60 feet (18 288 mm) above the ground and over 30 feet (9144 mm) above *aggregate* surface roofs located within 1,500 feet (457 m) of the *building* shall be permitted to be unprotected.

Reason: ASCE 7-22 introduced Chapter 32 Tornado Loads and related provisions in Chapter 1 General, Chapter 2 Combination of Loads, and Chapter 26 Wind Loads: General Requirements. While IBC 2024 generally adopted and incorporated the new ASCE/SEI 7-22 provisions, several sections of IBC 2024 do not adequately clarify the tornado design requirements in ASCE/SEI 7-22. This proposal includes adding language to Section 1609.2 that clarifies the opening protection requirements in the tornado-prone region in ASCE 7, in addition to windborne debris region requirements. This language is consistent with the requirements of ASCE/SEI 7.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposed IBC code changes aligns the IBC 2027 requirements with pre-existing ASCE/SEI 7-22 requirements.

S89-25

S90-25

IBC: 1609.2.1

Proponents: Amanda Hickman, The Hickman Group, representing AMCA International (amanda@thehickmangroup.com)

2024 International Building Code

Revise as follows:

1609.2.1 Louvers. Louvers protecting intake and exhaust ventilation ducts not assumed to be open that are located within 30 feet (9144 mm) of grade shall ~~meet the requirements of~~ be listed to indicate compliance with AMCA 540.

Reason: The IBC already requires louvers to comply with AMCA 540. However, to ensure code officials are able to enforce this provision, the revised language to require a *listing* is being proposed. Additionally, including a *listing* requirement will ensure that products will perform as rated and meet the performance requirements for the specified application.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Because listing is common practice and that the cost to list/certify a product is incurred by the manufacturer and divided across multiple projects, there is no cost increase associated with this proposal.

S90-25

S91-25

IBC: 1609.8 (New), Figure 1609.8 (New), TABLE 1609.8 (New)

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Self (jcrandell@aresconsulting.biz); Art DeGaetano, representing Northeast Regional Climate Center, Cornell University (atd2@cornell.edu)

2024 International Building Code

Add new text as follows:

1609.8 Wind-driven rain. Minimum design wind pressures used to evaluate the wind-driven rain resistance of building assemblies and components shall be permitted to be determined in accordance with Figure 1609.8 and Table 1609.8.

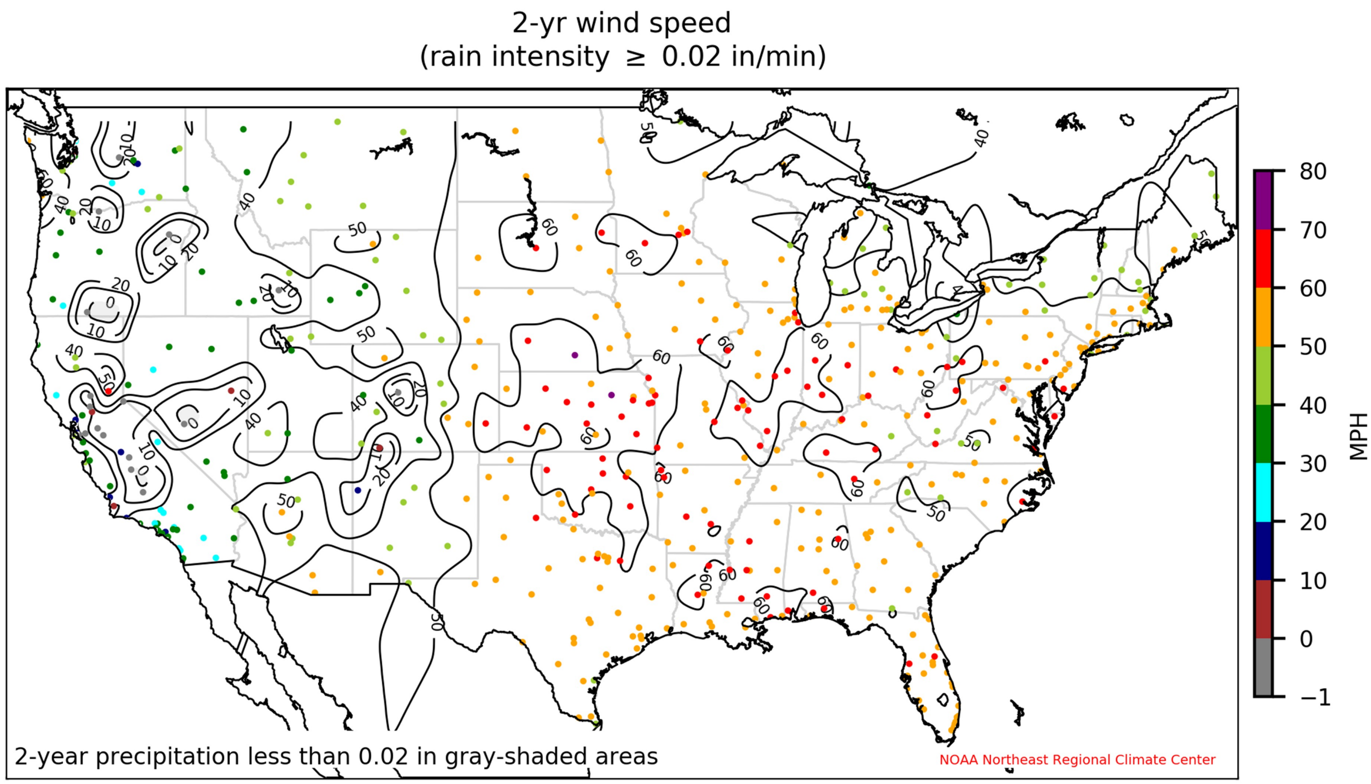


Figure 1609.8 Wind-driven rain wind speed (mph, 3 sec gust)
[For SI: 1 mph = 0.447 m/s]

TABLE 1609.8 MINIMUM WIND-DRIVEN RAIN DESIGN PRESSURE (PSF)[a,b]

		Wind-driven Rain Wind Speed (mph, 3-sec gust) from Figure 1609.8					
		≤ 30	40	50	60	70	80
Wind Exposure	Mean Roof Height (ft)						

	15	2.86	2.86	2.86	3.21	4.37	5.71
	20	2.86	2.86	2.86	3.50	4.76	6.21
	25	2.86	2.86	2.86	3.72	5.06	6.61
B	30	2.86	2.86	2.86	3.95	5.37	7.02
	40	2.86	2.86	2.98	4.28	5.83	7.62
	50	2.86	2.86	3.17	4.57	6.22	8.12
	60	2.86	2.86	3.33	4.79	6.52	8.52
	15	2.86	2.86	4.01	5.77	7.85	10.3
	20	2.86	2.86	4.24	6.11	8.31	10.9
	25	2.86	2.86	4.43	6.38	8.68	11.3
C	30	2.86	2.96	4.62	6.65	9.05	11.8
	40	2.86	3.14	4.90	7.06	9.61	12.6
	50	2.86	3.29	5.14	7.40	10.1	13.2
	60	2.86	3.41	5.33	7.67	10.4	13.6
	15	2.86	3.35	5.23	7.53	10.3	13.4
	20	2.86	3.51	5.48	7.90	10.8	14.0
	25	2.86	3.64	5.69	8.19	11.2	14.6
D	30	2.86	3.77	5.89	8.48	11.6	15.0
	40	2.86	3.96	6.20	8.92	12.1	15.0
	50	2.86	4.13	6.45	9.29	12.6	15.0
	60	2.86	4.26	6.65	9.58	13.0	15.0

For SI: 1 psf = 47.9 Pa; 1 mph = 0.447 m/s; 1 ft = 0.305 m

a. Wind-driven rain wind speed is to be obtained from Figure 1609.8 which provides 3-second gust wind speeds at standard conditions of wind exposure C (open, flat terrain) at a height of 33 ft (10m) above ground.

b. The tabulated pressures are positive components and cladding pressures calculated in accordance with ASCE 7 for a windward wall for the indicated exposure condition and building mean roof height. Wind directionality is not used to reduce the wind-driven rain pressure. The wind speed obtained from Figure 1609.8 used for this pressure calculation is adjusted from a 3-sec gust basis to a 1-min average wind speed using the following wind speed averaging time conversion factors: 0.72 (Exposure B), 0.79 (Exposure C), and 0.82 (Exposure D). Wind-driven rain pressures for different exposure and mean roof height conditions shall be permitted to be calculated in a consistent manner in accordance with ASCE 7 and Figure 1609.8. The calculated pressure shall not be less than 2.86 psf and need not exceed 15.0 psf.

Reason: The code lacks a risk-consistent basis for addressing wind-driven rain and resistance to water intrusion. This proposal provides a wind-driven rain hazard map (i.e., annual extreme 3-sec gust wind speeds coincidental with a minimum rainfall rate threshold) to properly characterize the hazard as it varies across wind-driven rain climatology of the U.S. Coordinating proposals have been submitted for the IBC and IRC.

First, the proposal "permits" and does not mandate use of these wind-driven rain wind speeds and associated minimum design pressures for evaluation water penetration resistance. This approach is necessary because various other code referenced product standards will need time to consider and re-align with this new hazard-based approach to wind-driven rain resistance. The proposed map and table requirements are somewhat more conservative than, but generally consistent with, current industry minimum and maximum pressure values used in practice. But now the selection of a design pressure for specification of water penetration resistance is properly related to variation in actual hazard across the US (and variation in fundamental wind load parameters such as exposure and building height).

The two key components of this proposal are further explained as follows:

Figure 1609.8 / R301.2.1.6 - The wind-driven rain wind speed map is based on the JAMC article referenced in the Bibliography as a joint effort of the University of Florida and Cornell University's Northeast Climate Data Center with support from other interested parties, including the Insurance Institute for Business and Home Safety (IBHS). Additional work to extend the research to develop a US map was funded by NOAA at Cornell University. The climatology of wind-driven rain is developed from recently available 1-min weather observations from National Weather Service Automated Surface Observing Systems (ASOS). One-minute data better represent the joint occurrence of the extremes that define wind-driven rain occurrence than hourly data, which previously was the shortest available temporal resolution. After adjusting the winds speeds to standardize for exposure and anemometer type, the wind data corresponding to specific rainfall thresholds were fit to a statistical distribution to obtain estimates of the recurrence of wind speeds associated with different rainfall intensities. The values serve as the basis for a wind-driven rain climatology for the United States that is analogous to climatologies that exist and inform building codes in Europe and Canada. The wind-driven rain map represents a 3-sec gust wind speed (miles per hour) for a 2-yr mean recurrence interval with a threshold coincidental rainfall rate of 0.02 in/min (0.5 mm/min). For additional information, refer to the JAMC article referenced in Bibliography.

Table 1609.8 / **R301.2.1.6** - The main purpose of the mapped wind-driven rain hazard is to provide a wind-driven rain wind speed from which an appropriate, risk-consistent pressure differential can be determined as a means to specify or evaluate water-resistance of wall assemblies and exterior wall covering assemblies or components. The pressure differential may be determined in two ways. One way is to use pre-calculated values as shown in the table. The other way is to calculate the pressure using the ASCE 7 provisions for wind loads, but substituting the appropriate wind-driven rain wind speed from Figure 1609.8 / R301.2.1.6 for the basic wind speed used for structural design purposes in ASCE 7.

The latter method was how the table values were generated (as detailed for transparency and repeatability in the table footnotes). An example of calculating the wind-driven rain wind pressure using Figure 1609.8 / R301.2.1.6 and the wind load provisions of ASCE 7 is as follows:

Wind-driven rain wind speed: 60 mph, 3sec gust (Figure 1609.8 / R301.2.1.6)

Wind Exposure: B (suburban/wooded)

Building Height: 30 feet

Wall Pressure coefficients – GCp = 1.0 (positive); GCpi = -0.18 (negative internal pressure)

Kz = 0.7 (exposure B, 30' height)

Kd = 1.0 (directionality not considered)

Kzt = 1.0 (no topographic wind speed up effects considered)

Ke = 1.0 (no elevation effects considered w/r to lower density of air at higher elevations)

V1-min/V3-sec conversion factor: 0.72

p = [0.00256 Kz Kzt Kd Ke $(0.72 \times V)^2$] x [GCp – GCpi]

= $0.00256(0.7)(1.0)(1.0)(1.0)(0.72 \times 60)^2$ x [1.0 + 0.18]

= (3.34 psf) x [1.18] = **3.95 psf**

The range of calculated pressures are shown in the following supplemental table without inclusion of the minimum and maximum pressure values consistent with the extremes of current practice as discussed later below. This table is provided for transparency and informational purposes.

Pressures (psf) for Water Resistance Evaluation (based on conversion to 1-min average wind speed)											
Wind Exposure	Mean Roof Height (ft)	WDR Wind Speed (MPH - 3 sec gust)									
		10	20	30	40	50	60	70	80	90	100
	15	0.09	0.36	0.80	1.43	2.23	3.21	4.37	5.71	7.23	8.93
	20	0.10	0.39	0.87	1.55	2.43	3.50	4.76	6.21	7.86	9.71
	25	0.10	0.41	0.93	1.65	2.58	3.72	5.06	6.61	8.37	10.34
B	30	0.11	0.44	0.99	1.75	2.74	3.95	5.37	7.02	8.88	10.96
	40	0.12	0.48	1.07	1.90	2.98	4.28	5.83	7.62	9.64	11.90
	50	0.13	0.51	1.14	2.03	3.17	4.57	6.22	8.12	10.27	12.68
	60	0.13	0.53	1.20	2.13	3.33	4.79	6.52	8.52	10.78	13.31
	15	0.16	0.64	1.44	2.56	4.01	5.77	7.85	10.26	12.98	16.02
	20	0.17	0.68	1.53	2.71	4.24	6.11	8.31	10.86	13.74	16.97
	25	0.18	0.71	1.59	2.84	4.43	6.38	8.68	11.34	14.35	17.72
C	30	0.18	0.74	1.66	2.96	4.62	6.65	9.05	11.82	14.97	18.48
	40	0.20	0.78	1.76	3.14	4.90	7.06	9.61	12.55	15.88	19.61
	50	0.21	0.82	1.85	3.29	5.14	7.40	10.07	13.15	16.65	20.55
	60	0.21	0.85	1.92	3.41	5.33	7.67	10.44	13.63	17.26	21.30
	15	0.21	0.84	1.88	3.35	5.23	7.53	10.25	13.39	16.95	20.92
	20	0.22	0.88	1.97	3.51	5.48	7.90	10.75	14.04	17.77	21.94
	25	0.23	0.91	2.05	3.64	5.69	8.19	11.15	14.56	18.43	22.75
D	30	0.24	0.94	2.12	3.77	5.89	8.48	11.55	15.08	19.09	23.56
	40	0.25	0.99	2.23	3.96	6.20	8.92	12.14	15.86	20.07	24.78
	50	0.26	1.03	2.32	4.13	6.45	9.29	12.64	16.51	20.89	25.80
	60	0.27	1.06	2.39	4.26	6.65	9.58	13.04	17.03	21.55	26.61

Second, it is important to note that the failure mode that this proposal addresses is the initiation of a leak (onset of water intrusion) at the most extreme (worst) 1-minute of coincidental wind and rain that would typically occur in a given year on average. Therefore, it provides protection for routine and lesser extreme events that have equal or lower wind-driven rain wind speed (even if the rainfall rate is substantially greater than the threshold used to develop the map). Events that exceed the wind-driven rain wind speed tend to have lower coincidental rainfall rates as based on the natural tendency or shape of the hazard curves in the climatological data (see JAMC article referenced in Bibliography).

Finally, as shown in the tabulated pressure values in the proposal, the lower limit of 2.86 psf (137 Pa) for test pressure is used to correspond with the minimum test pressure used in recognized standards addressing wind-driven rain resistance (e.g., ASTM E331) despite the table above showing that lower pressure could be justified in regions of low wind-driven rain hazard. The upper limit of 15.0 psf (718 Pa) also is based on current accepted practice for worst-case wind-driven rain climate conditions in the U.S. and ensures the availability of solutions (it also ensures equivalency with current accepted practices for regions or conditions considered to have high wind-driven rain hazard). This range of WDR pressures also is consistent with that used in Canada. These limits ensure that this new approach is “calibrated” to accepted practice and that solutions are available while also better aligning solutions with actual variation in U.S. wind-driven rain hazard. Even so, the 15 psfcap will provide substantial protection against significant water intrusion and contents damage in greater wind-driven rain hazard conditions or events (higher wind speed at greater return periods) up to the point where structural failures begin to occur and the general integrity of the building envelope is compromised. Such extreme structural safety-level events are beyond the scope of a serviceability concern underlying the current and proposed approach to water resistance. Regardless, the proposed approach deals with the matter of wind-driven rainwater resistance in a much more risk-consistent fashion based on the variation in hazard across the U.S. (wind-driven rain wind speed) and for different building conditions (e.g., wind exposure and building height).

Bibliography: Belcher, B.N., DeGaetano, A.T., Masters, F.J., Crandell, J., and Morrison, M.J. (2023). Development of an Extreme Wind-Driven Rain Climatology for the Southeastern United States Using 1-Min Rainfall and Peak Wind Speed Data. Journal of Applied Meteorology and Climatology, American Meteorological Society, DOI: https://doi.org/10.1175/JAMC-D-22-0156.1

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0 - While the cost impact indicates “increased cost” (there was no suitable default answer in cdpACCESS), the proposal does not mandate any new requirements. It provides a new means or option to evaluate building wall assemblies and components for water resistance using an improved methodology based on actual wind-driven rain hazard. If voluntarily used, it could result in an increase or decrease cost for material or assembly qualification purposes relative to existing practices. But, the increase or decrease in cost to the end user may be very small. This proposal also does not require any existing materials or methods recognized in the code to alter current requirements, methods, or standards. So, it should be considered cost neutral.

Estimated Immediate Cost Impact Justification (methodology and variables):

$0 - see cost impact statement above.

Estimated Life Cycle Cost Impact:

$0 - see cost impact statement above (although improved risk-consistency of wind-driven rain performance can result in improved durability and reduced life-cycle cost impacts).

Estimated Life Cycle Cost Impact Justification (methodology and variables):

See cost impact statement.

S91-25

S92-25

IBC: 1609.8 (New), TABLE 1609.8(1) (New), TABLE 1609.8(2) (New)

Proponents: Dave Monsour, THOMAS ASSOCIATES, INC. (DASMA), representing DASMA (Door & Access Systems Manufacturers Assoc.) (dmonsour@thomasamc.com)

2024 International Building Code

Add new text as follows:

1609.8 Vehicle Access Doors. For buildings designed as enclosed, design wind pressures for vehicle access doors shall be obtained using Table 1609.8(1). Table values shall be adjusted for height and exposure by multiplying by the adjustment coefficient in Table 1609.8(2). The resulting positive and negative design wind pressures shall not be less than 10 psf.

TABLE 1609.8(1) VEHICLE ACCESS DOOR WIND LOADS FOR AN ENCLOSED BUILDING WITH A MEAN ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B (ASD) (psf)[a, b, c, d, e, f, g]

DOOR SIZE		DOOR AREA (ft^2)	BASIC DESIGN WIND SPEED, V (mph)																							
			90		100		110		120		130		140		150		160		170		180		190		200	
WIDTH (ft)	HEIGHT (ft)		**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**
ROOF ANGLE 0-10 DEGREES																										
8	**8**	**64**	6.9	-7.9	8.6	-9.7	10.4	-11.7	12.3	-14.0	14.5	-16.4	16.8	-19.0	19.3	-21.8	21.9	-24.8	24.8	-28.0	27.8	-31.4	30.9	-35.0	34.3	-38.8
10	**10**	**100**	6.7	-7.5	8.3	-9.3	10.0	-11.2	11.9	-13.4	14.0	-15.7	16.2	-18.2	18.6	-20.9	21.2	-23.8	24.0	-26.9	26.9	-30.1	29.9	-33.6	33.2	-37.2
14	**14**	**196**	6.4	-7.1	7.9	-8.8	9.5	-10.6	11.3	-12.6	13.3	-14.8	15.4	-17.2	17.7	-19.7	20.1	-22.4	22.7	-25.3	25.5	-28.4	28.4	-31.6	31.5	-35.1
ROOF ANGLE > 10 DEGREES																										
9	**7**	**63**	7.6	-8.6	9.3	-10.6	11.3	-12.8	13.5	-15.2	15.8	-17.9	18.3	-20.7	21.0	-23.8	23.9	-27.0	27.0	-30.5	30.3	-34.2	33.7	-38.1	37.4	-42.3
16	**7**	**112**	7.2	-8.1	9.0	-10.0	10.8	-12.1	12.9	-14.4	15.1	-16.9	17.5	-19.6	20.1	-22.5	22.9	-25.5	25.9	-28.8	29.0	-32.3	32.3	-36.0	35.8	-39.9

For SI: 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = .0479 kPa

a. Interpolation shall be permitted for door areas or basic design wind speeds between those given above. For larger door areas, the values in this table shall be used.

b. Positive and negative values signify, respectively, pressures acting toward and away from the exterior surface of the door

c. Negative pressures assume the door overlaps the building's end zone by 2 feet. For overlaps less than 2 feet, the values in this table shall be used.

d. For Risk Category III and IV structures in the tornado prone region, the door shall meet the load requirements of this table or the design tornado pressure determined in accordance with Section 1609.5, whichever is greater

e. Tabulated values are calculated in accordance with ASCE 7 using the 0.6 factor for ASD and an elevation factor of 1.0. Lower elevation factors shall be permitted to be used in accordance with ASCE 7 Table 26.9-1.

f. Design wind pressures shall be determined in accordance with ASCE 7 in the following cases:

1. Buildings designed as open, partially open, or partially enclosed.
2. Door areas less than 63 ft^2.
3. Basic wind speeds greater than 200 mph.
4. Doors overlapping the building end zone more than 2 feet.
5. Building mean roof height greater than 60 feet.
6. Building types and conditions not within the scope (Section 30.1) of Chapter 30 of ASCE 7.

g. Topographic Factor, Kzt, is taken as 1. Determine design wind pressure in accordance with ASCE 7 where the topographic conditions of ASCE 7 Section 26.8 apply.

TABLE 1609.8(2) ADJUSTMENT FACTOR FOR BUILDING HEIGHT AND EXPOSURE

MEAN ROOFHEIGHT (ft)	EXPOSURE CATEGORY		
	B	C	D
15	0.82	1.21	1.47
20	0.89	1.29	1.55
25	0.94	1.35	1.61
30	1.00	1.40	1.66
35	1.05	1.45	1.70
40	1.06	1.49	1.74
45	1.10	1.53	1.78
50	1.13	1.56	1.81
55	1.16	1.59	1.84
60	1.19	1.62	1.87

For SI:1 foot= 304.8 mm

Reason: Vehicle access doors (e.g., sectional garage doors, rolling doors, and high-speed doors) are critical in maintaining building structural integrity during windstorms. If a vehicle access door gives way, internal pressure can build up on the roof, leading to building collapse. This phenomenon has been demonstrated in many field and laboratory studies over the years by NIST, IBHS, FEMA, and others. Yet these same organizations, as well as DASMA, report a general lack of wind-rated doors being specified and enforced in many regions throughout the country. This proposal requests a new table for vehicle access door design wind pressures. The table highlights and simplifies existing design wind pressure requirements for vehicle access doors, currently subsumed under “wall components & cladding.” The new table does not create any new requirements. We believe this new table will foster greater compliance with existing provisions of the code. A version of this table has been used for the past several editions of the Florida Building Code and in several residential codes, such as ICC 600-2020 Standard for Residential Construction in High-Wind Regions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only clarifies existing requirements, and does not change them. The tabulated pressures are calculated in accordance with existing IBC requirements.

S92-25

S93-25

IBC: SECTION 1610, 1610.1

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

SECTION 1610
SOIL LOADS AND HYDROSTATIC PRESSURE

Revise as follows:

1610.1 Lateral pressures. *Structures* below grade shall be designed to resist lateral soil *loads* from adjacent soil. The lateral soil ~~Soil~~ *loads* specified in Table 1610.1 shall be used as the minimum design lateral soil *loads* unless determined otherwise by a geotechnical investigation in accordance with Section 1803. Foundation walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure. Walls that are free to move and rotate at the top, such as retaining walls, shall be permitted to be designed for active pressure.

Where applicable, lateral pressure from fixed or moving surcharge *loads* shall be added to the lateral soil *load*. Lateral pressure shall be increased if expansive soils are present at the *site*. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of undrained backfill unless a drainage system is installed in accordance with Sections 1805.4.2 and 1805.4.3.

Exception: Foundation walls extending not more than 8 feet (2438 mm) below grade and laterally supported at the top by flexible *diaphragms* shall be permitted to be designed for active pressure.

Reason: This proposal is a coordination proposal to bring the 2027 IBC up to date with the provisions of the 2022 edition of ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-22). This proposal improves the coordination between the IBC and ASCE 7 by changing text in the IBC to match text in ASCE 7. Specifically the subject of the sentence is made more clear by stating "lateral soil loads" rather than "soil loads". Table 1610.1 and the corresponding ASCE 7 table provide only lateral soil loads.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Clarification change that will not impact the cost of construction. See reason statement.

S93-25

S94-25

IBC: 1610.2

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

1610.2 Uplift loads on floor and foundations. Basement floors, slabs on ground, foundations, and similar approximately horizontal elements below grade shall be designed to resist uplift *loads* where applicable. The upward pressure of water shall be taken as the full hydrostatic pressure applied over the entire area. The hydrostatic *load* shall be ~~measured from~~ determined based on the elevation of the underside of the element being evaluated. The design for upward *loads* caused by expansive soils shall comply with Section 1808.6.

Reason: This proposal is a coordination proposal to bring the 2027 IBC up to date with the provisions of the 2022 edition of ASCE/SEI 7 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE/SEI 7-22).

These changes improve the coordination between the IBC and ASCE 7 by changing text in the IBC to match text that appears in ASCE 7. IBC Section 1610.2 states that the hydrostatic load shall be measured from the underside of the element, however what is measured is actually the difference in height between the underside of the element and the water level. The hydrostatic load is calculated based on the measured difference in height. The proposed change more closely aligns with how the load is determined.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The clarification contained in the proposal, which also improves coordination with ASCE 7, is not expected to affect the cost of construction.

S94-25

S95-25

IBC: 1611.1, 1611.2 (New); IPC: [BS] 1101.7

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

1611.1 Design rain loads. Each portion of a roof shall be designed to sustain the *load* of rainwater as per the requirements of Chapter 8 of ASCE 7. Rain loads shall be based on the summation of the static head, d_s, hydraulic head, d_h, and ponding head, d_p, using Equation 16-20. The hydraulic head shall be based on hydraulic test data or hydraulic calculations assuming a flow rate corresponding to a rainfall intensity equal to or greater than the 15-minute duration storm with return period given in Table 1611.1. Rainfall intensity shall be determined in inches per hour for 15-minute duration storms for the risk categories given in Table 1611.1. The ponding head shall be based on structural analysis as the depth of water due to deflections of the roof subjected to unfactored rain load and unfactored *dead load*.

$$R = 5.2(d_s + d_h + d_p) \qquad \textbf{(Equation 16-20)}$$

For SI: $R = 0.0098(d_s + d_h + d_p)$ where:

d_h = Hydraulic head equal to the depth of water on the undeflected roof above the inlet of the secondary drainage system for structural loading (SDSL) required to achieve the design flow, in inches (mm). d_p = Ponding head equal to the depth of water due to deflections of the roof subjected to unfactored rain load and unfactored *dead load*, in inches (mm). d_s = Static head equal to the depth of water on the undeflected roof up to the inlet of the secondary drainage system for structural loading (SDSL), in inches (mm). R = Rain load, in pounds per square foot (kN/m^2).

SDSL is the roof drainage system through which water is drained from the roof when the drainage systems listed in ASCE 7 Section 8.2 (a) through (d) are blocked or not working.

Add new text as follows:

1611.2 Design of roof drains. The design of the roof drainage system shall comply with the requirements of the *International Plumbing Code* based on the rainfall rates specified in the *International Plumbing Code*.

2024 International Plumbing Code

Revise as follows:

[BS] 1101.7 Roof design. Roofs shall be designed for the rain load in accordance with the *International Building Code*.~~maximum possible depth of water that will pond thereon as determined by the relative levels of roof deck and overflow weirs, scuppers, edges or serviceable drains in combination with the deflected structural elements. In determining the maximum possible depth of water, all primary roof drainage means shall be assumed to be blocked. The maximum possible depth of water on the roof shall include the height of the water required above the inlet of the secondary roof drainage means to achieve the required flow rate of the secondary drainage means to accommodate the design rainfall rate as required by Section 1106.~~

Reason: This change will clarify that there is a difference in rainfall rates between the Building Code and the Plumbing Code, however, each code needs to apply the rainfall rates specified in that particular code. The concern with the Building Code is the structural loading from the ponding of water on the roof. The Plumbing Code is concerned with the drainage of the water from the roof.

A more conservative rainfall rate is selected in the Building Code which will result in a greater structural loading on the roof. The Building Code rainfall rate is considered a microburst. This heavy rainfall in a short period of time, can result in a greater amount of water ponding near the roof drain when compared to the rainfall rates used in the Plumbing Code.

The Plumbing Code rainfall rates are designed for a greater overall amount of water during the storm incident. Hence, if there is a microburst, the plumbing storm drainage system can still drain the water within a reasonable period of time, there just may be a greater amount of ponding on the roof for a short duration.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposed change is editorial without any change in the technical requirements of either code.

Staff Analysis: CC # S95-25 and CC # P1-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S95-25

S96-25

IBC: 1611.1, 1611.1.1 (New)

Proponents: Erik Madsen, representing NCSEA (emadsen@dci-engineers.com); John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

1611.1 Design rain loads. Each portion of a roof shall be designed to sustain the *load* of rainwater as per the requirements of Chapter 8 of ASCE 7. Rain loads shall be based on the summation of the static head, d_s, hydraulic head, d_h, and ponding head, d_p, using Equation 16-20. The hydraulic head shall be based on hydraulic test data or hydraulic calculations assuming a flow rate corresponding to a rainfall intensity equal to or greater than the 15-minute duration storm with return period given in Table 1611.1. Rainfall intensity shall be determined in inches per hour for 15-minute duration storms for the risk categories given in Table 1611.1. The ponding head shall be based on structural analysis as the depth of water due to deflections of the roof subjected to unfactored rain load and unfactored *dead load*.

$$R = 5.2(d_s + d_h + d_p) \qquad \textbf{(Equation 16-20)}$$

For SI: $R = 0.0098(d_s + d_h + d_p)$where:

d_h = Hydraulic head equal to the depth of water on the undeflected roof above the inlet of the secondary drainage system for structural loading (SDSL) required to achieve the design flow, in inches (mm). d_p = Ponding head equal to the depth of water due to deflections of the roof subjected to unfactored rain load and unfactored *dead load*, in inches (mm). d_s = Static head equal to the depth of water on the undeflected roof up to the inlet of the secondary drainage system for structural loading (SDSL), in inches (mm). R = Rain load, in pounds per square foot (kN/m^2).

SDSL is the roof drainage system through which water is drained from the roof when the drainage systems listed in ASCE 7 Section 8.2 (a) through (d) are blocked or not working.

Add new text as follows:

1611.1.1 Vertical walls. In determining the hydraulic head, d_h, one-half of the vertical surface area of any wall that diverts rainwater onto the roof shall be added to the projected roof area.

Reason: The requirement to include a portion of the vertical wall area in the rain tributary area is specified in the IPC Section 1106.4 and in the ASCE 7 Commentary Section C8.1.2, but not in the IBC or ASCE 7 provisions. It should be added to IBC for clarity and consistency.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This requirement exists in ASCE 7 and IPC but is not formally identified in IBC. This proposal clarifies that.

S96-25

S97-25 Part I

IBC: [A] 104.2.4.1, [A] 107.2.6, [A] 107.2.6.1, SECTION 202 (New), 802.4, 1108.7.5, 1202.4.4, [BS] 1402.9, [BS] 1402.10, 1603.1, 1603.1.7, 1612.1, 1612.2, 1612.3, 1612.3.1 (New), 1612.3.1, 1612.3.2, 1612.4, 1804.5, 1805.1.2.1, [F] 2702.1.8, CHAPTER 35

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org); Roderick Scott, Board Chair, representing Flood Mitigation Industry Association (roderick.scott75@aol.com); Natalie Enclade, representing BuildStrong America; Jiqiu yuan, representing National Institute of Building Sciences (jyuan@nibs.org); Joel Scata, representing NRDC (jscata@nrdc.org)

THIS IS A 7 PART CODE CHANGE. PART I, II, III, IV, & V WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART VI & VII WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION 202 DEFINITIONS

Add new definition as follows:

500-YEAR FLOODPLAIN. Land in the *floodplain* subject to a 0.2% or greater chance of *flooding* in any given year; area delineated on the *Flood Insurance Rate Map* (FIRM) as Shaded Zone X or Zone B.
[BS] BASE FLOOD. The *flood* having a 1-percent chance of being equaled or exceeded in any given year.

Revise as follows:

[BS] BASE FLOOD ELEVATION. The elevation of the *base flood*, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the *Flood Insurance Rate Map* (*FIRM*). In areas designated on the *Flood Insurance Rate Map* as Zone AO, the *base flood elevation* is the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number is taken as being equal to 2 feet (610 mm).
[BS] COASTAL A ZONE. Area within a *special flood hazard area*, landward of a V zone or landward of an open coast without mapped *coastal high-hazard areas*. In a *coastal A zone*, the principal source of *flooding* must be astronomical tides, storm surges, seiches or tsunamis, not riverine *flooding* . During the *base flood* conditions, ~~the potential for breaking~~ wave heights ~~shall be~~ are greater than or equal to $1^1/_2$ feet (457 mm). The inland limit of the *coastal A zone* is (a) the *Limit of Moderate Wave Action* if delineated on a *FIRM*, or (b) designated by the authority having *jurisdiction*.
[BS] DESIGN FLOOD. Flood corresponding to the elevations specified in Section 1.5.2 of ASCE 24 and acting over the *flood hazard area* specified in Section 1.3 of ASCE 24 or otherwise legally designated. ~~The *flood* associated with the greater of the following two areas:~~

1. ~~Area with a flood plain subject to a 1-percent or greater chance of *flooding* in any year.~~
2. ~~Area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.~~

[BS] DESIGN FLOOD ELEVATION. The elevation of the "*design flood*," including wave height, relative to the datum specified on the community's legally designated flood hazard map. ~~In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).~~
[BS] FLOOD HAZARD AREA. The greater of the following ~~two~~ three areas:

1. The area within a flood plain subject to a 1-percent or greater chance of *flooding* in any year, including *special flood hazard areas* delineated on the *Flood Insurance Rate Map.*

2. The 500-year floodplain, when delineated on the *Flood Insurance Rate Map*.

~~2~~ 3. The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.

[BS] SPECIAL FLOOD HAZARD AREA. ~~The land area subject to flood hazards and shown on a~~ Land in the *floodplain* subject to a 1% or greater chance of *flooding* in any given year; area delineated on the *Flood Insurance Rate Map* ~~or other flood hazard map~~ as Zone A, AE, A1-30, A99, AR, AO, AH, V, VO, VE or V1-30.

2024 International Existing Building Code

Revise as follows:

[BS] FLOOD HAZARD AREA. The greater of the following ~~two~~three areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any year~~.~~ , including special flood hazard areas delineated on the Flood Insurance Rate Map.

2. The 500-year floodplain, when delineated on the Flood Insurance Rate Map.

~~2.~~ 3. The area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

2024 International Mechanical Code

Revise as follows:

[BS] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard area map. ~~In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the *building 's* perimeter plus the depth number, in feet (mm), specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).~~

2024 International Plumbing Code

Revise as follows:

[BS] BASE FLOOD ELEVATION. ~~A reference point, determined in accordance with the building code, based on the depth or peak elevation of flooding, including wave height, which has a 1-percent (100-year flood) or greater chance of occurring in any given year.~~ The elevation of the*base flood*, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the*Flood Insurance Rate Map*(*FIRM*). In areas designated on the*Flood Insurance Rate Map*as Zone AO, the*base flood elevation*is the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number is taken as being equal to 2 feet (610 mm).

[BS] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. ~~In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) (mm) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).~~

[BS] FLOOD HAZARD AREA. The greater of the following ~~two~~three areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any given year~~.~~ , including special flood hazard areas delineated on the Flood Insurance Rate Map.

2. The 500-year floodplain, when delineated on the*Flood Insurance Rate Map*.

~~2.~~3. The area designated as a *flood hazard area* on a community's flood hazard map or as otherwise legally designated.

2024 International Fuel Gas Code

Revise as follows:

[BS] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. ~~In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the *building's* perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).~~

[BS] FLOOD HAZARD AREA. The greater of the following ~~two~~three areas:

1. The area within a floodplain subject to a 1 percent or greater chance of flooding in any given year~~.~~ , including special flood hazard areas delineated on the Flood Insurance Rate Map.
2. The 500-year floodplain, when delineated on the *Flood Insurance Rate Map*.

~~2.~~3. The area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

2024 International Residential Code

CHAPTER 24 FUEL GAS

SECTION G2403 (202) GENERAL DEFINITIONS

Revise as follows:

DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. ~~In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the *building's* perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).~~

FLOOD HAZARD AREA. The greater of the following ~~two~~ three areas:

1. The area within a floodplain subject to a 1 percent or greater chance of flooding in any given year

   ~~.~~ , including special flood hazard areas delineated on the Flood Insurance rate Map.
2. The 500-year floodplain, when delineated on the Flood Insurace Rate Map.

~~2.~~ 3. The area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

2024 International Private Sewage Disposal Code

Revise as follows:

[BS] DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. ~~In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the *building's* perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet~~

~~(610 mm).~~

[BS] FLOOD HAZARD AREA. The greater of the following ~~two~~three areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any given year~~.~~ , including special flood hazard areas delineated on the Flood Insurance Rate Map.

2. The 500-year floodplain, when delineated on the Flood Insurance Rate Map.

~~2.~~3. The area designated as a flood hazard area on a community's flood hazard map or as otherwise legally designated.

2024 International Swimming Pool and Spa Code

Revise as follows:

[BS] FLOOD HAZARD AREA. The greater of the following ~~two~~three areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any year~~.~~ , including speical flood hazard areas delineated on the Flood Insruance Rate Map.

2. The 500-year floodplain, when delineated on the Flood Insurance Rate Map.

~~2.~~3. The area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

Reason: This proposal is a coordination proposal to bring the 2027 edition of the I-Codes up to date with the provisions in the 2022 edition of *ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, Supplement 2* (ASCE/SEI 7-22, Supplement 2) as well as the 2024 edition of *ASCE/SEI 24 Flood Resistant Design and Construction* (ASCE/SEI 24-24) --- specifically for the codes primarily affected such as the International Building Code (IBC), the International Residential Code (IRC), and the International Existing Building Code (IEBC), in Group B, but also every I-Code affected by a coordinating code change that will need to be updated. ASCE/SEI 7-22 is the current reference in 2024 I-Codes and Supplement 2 has been submitted as an Administrative Update. ASCE/SEI 24-24 has also been submitted as an Administrative Update to the 2027 I-Codes.

This proposal has been organized into Part I to Part VII and includes technical updates as well as editorial coordination. The specific changes to each section included in this proposal are outlined in Overview below, and a detailed summary of the technical updates are explained in Technical Rationale below that. In addition to the strike out/underline for the code change proposals , the MS Word documents for each affected I-Code have been provided as Attached Files for clarity.

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Overview:

All Codes, All Chapter: Add phase "including special flood hazard areas and 500-year floodplain" following flood area for clarity. And change to clarify term definitions and when "base flood" applies and when "design flood" applies. Also aligns definitions of "base flood elevation" and "design flood elevations". "Flood Hazard Area" is updated with a new definition. These two changes are carried out throughout the series of these comprehensive code change proposal for clarification and consistency.

Since many of the I-Codes point back to the IBC for the definition, Part I has been organized to include all of the proposed changes to all of the definitions in all of the affected I-Codes.

PART I:

Section 202 Definitions: Adds a new definition for "500-year Floodplain" to distinguish it from the existing definition. While "Base Flood" remains the same, "Base Flood Elevation" is updated along with "Design Flood" and "Design Flood Elevation". "Flood Hazard Area" is updated and a new definition for "Special Flood Hazard Area" is added.

PART II:

Section 104, 107 Scope: Add phase "including special flood hazard areas" for clarity. And change to "base flood elevations" from "design flood elevations" to clarify the applicable requirements for the two separate terms. See Section 202 for the updated definitions. These two changes are carried out throughout the code change proposal for clarification and consistency.

Section 202 Definitions: Adds a new definition for “500-year Floodplain” to distinguish it from the existing definition. While “Base Flood” remains the same, “Base Flood Elevation” is updated along with “Design Flood” and “Design Flood Elevation”. “Flood Hazard Area” is updated and a new definition for “Special Flood Hazard Area” is added.

Section 802 Interior Finishes: Removes the pointer that is too specific.

Section 1108 Accessibility: Add phase “including special flood hazard areas” for clarity.

Section 1202 Interior Environment: Removes the pointer that is too specific.

Section 1402 Exterior Walls: Removes the pointer that is too specific.

Section 1603 General Structural Loads: Add phase “including special flood hazard areas” for clarity. Add pointers to ASCE/SEI 24.

Section 1612 Flood Loads: Add phase “including special flood hazard areas” for clarity. Removes the pointer that is too specific. Clarifies and aligns “Establishing the Flood Hazard Area” and the “Design Flood Elevation” with the standards. Clarifies where the requirements are for the Base Flood versus the Design Flood Elevation. Also clarifies and aligns what is required for the documentation.

Section 1804, 1805 Soils and Foundations: Add phase “including special flood hazard areas” for clarity. Removes the pointer that is too specific.

Section 2702 Electrical: Add phase “including special flood hazard areas” for clarity. Removes the pointer that is too specific. [NOTE - This will need to be updated in the International Fire Code. If this section falls in Group A Hearings, this will need to be coordinated next cycle.]

Chapter 35: Update references for ASCE/SEI 7-22 and ASCE/SEI 24.

Appendix G and J: These changes are provided in a separate Code Change Proposal but must be included for a comprehensive proposal.

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Technical Rationale:

The American Society of Civil Engineers (ASCE) is proposing revisions to the International Code Council’s I-Codes for the 2027 Cycle to align the national codes with the current ASCE/SEI design standards including:

ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2022 edition; Supplement 2 (ASCE/SEI 7-22 S2)

ASCE/SEI 24 Flood Resistant Design and Construction, 2024 edition (ASCE/SEI 24-24)

The loading standard ASCE/SEI 7-22 S2 and the design standard ASCE/SEI 24-24 work together – these documents have been developed to be consistent and coordinated so they can be required and used together. There are three significant changes in the national loading standard ASCE/SEI 7-22 S2 including (1) an extension of the defined Flood Hazard Area to the 500-year floodplain for Rick Category II, III, and IV structures, (2) an inclusion of risk-based design for loads, and (3) requirements to include relative sea level change into design load calculations for coastal sites; see below for more technical details. There are three significant changes in the national design standard ASCE/SEI 24-24 including (1) alignment with ASCE/SEI 7-22 S2, (2) alignment with FEMA Technical Bulletins, and (3) updates for elevations, materials, and floodproofing.

Both ASCE/SEI Standards are available for purchase and the Supplement available as a free download from the ASCE Library:

ASCE/SEI 7-22 (https://doi.org/10.1061/9780784415788)

ASCE/SEI 7-22 Supplement 2 (https://doi.org/10.1061/9780784415788.sup2)

ASCE/SEI 24-24 (https://doi.org/10.1061/9780784485781)

Flood Hazard:

The ASCE 7-22 S2 updates the design requirements to define the flood hazard area for the given Risk Category of structure. Addionally, the flood hazard depth is tied to the mean recurrence interval for a given Risk Category of structure. The design flood hazard is related to Risk Category (e.g., RC II will be designed to 500-year MRI), which is consistent with the way other environmental hazards (such as wind and snow loads) relate the hazard to Risk Category. This is in contrast to the current code requirements, which only considers only 100-year MRI flood for all structures regardless of Risk Category. In some areas in the U.S., the Authority Having Jurisdiction is already requiring a higher design requirement for the flood hazard. The city of Houston, for example, moved to requiring use of the 500-year MRI as the design basis for flood following the devastation from Hurricane Harvey. At a national level, FEMA is considering the use of the 500-year flood as the basis for floodplain management.

The coordinated code change proposals submitted for Group B are drafted to bring the IBC, IRC, and IEBC into alignment with the recent changes in ASCE 7-22 Supplement 2 and ASCE 24-24. The significant changes from the updates to these standards are to differentiate between the base flood (also described as the 100-year flood, or the 1% or greater chance of flooding in any given year) and the design flood, which could be different, and is defined in the standards for each Risk Category. The design flood must include considerations for loading specified in ASCE/SEI 7-22 S2 and design specified in ASCE/SEI 24-24.

Flood damage, and associated loss dollars, has significantly expanded since the last major updates of ASCE 7 Chapter 5 and ASCE 24. Their revisions attempt to close that gap and align the risks across other hazards.

FEMA cites that flood damage cost approximately $17 billion each year between 2010 and 2018, and with rising sea levels and extreme weather could cause $20 billion of flood damage to at-risk US homes this year, rising to $32 billion by 2051. Data from 2018 Hurricane Michael shows that 42% of claimed damage amounts were in the Shaded X-Zone (500-year floodplain), exceeding the amounts in both the A and V-Zones. (FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020).

This is further supported by FEMA's recent report “A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains,” which evaluated the potential avoided losses (benefits) for 8 building types in 19 coastal floodplains and 14 riverine floodplains in the 100-year floodplain and the Shaded X Zone. The report shows that there are significant benefits to most buildings in the 100-year floodplain, particularly in steep/narrow floodplains. There were also significant benefits to buildings in the Shaded X Zone where there are currently no elevation requirements. These findings are supported by evidence from the National Flood Insurance Program (NFIP), which stated, “People outside of high-risk areas file more than 25 percent of NFIP claims and receive one-third of disaster assistance for flooding. The NFIP's preferred risk policies are designed for residential properties located in low- to moderate-risk flood zones.” Additional reports from the NFIP indicate that 40% of companies fail to reopen after a disaster, with another 25% closing within a year. These problems are only further exacerbated by the influence of development and associated runoff, changes in precipitation rates, local subsidence, and sea level change. All of which are not accounted for by FEMA's flood maps, which only account for historic flood data and not future projections. All of this data supports the need to move from a fixed freeboard approach to a risk-based elevation approach that provides consistent protection from flat/wide floodplains to steep/narrow floodplains and more appropriately addresses the influence of wave action in coastal floodplains. This recognizes that true resiliency for communities is continuity of local businesses and making sure that public services are maintained and that adaptation to changes in precipitation, development, and sea level change must be incorporated into new buildings rather than relying on often prohibitively expensive retrofit options.

The ASCE changes consider the frequency of recent and predicted events and the significant damage recorded in the Shaded X-Zone. But, while significant, the addition of the Shaded X-Zone to the standards represents a change to only 4% of the U.S. population.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

ASCE Consensus Process:

ASCE established and maintains an ANSI-accredited, consensus process for standard development. The open process includes selection of a balanced committee, including representation of all affected stakeholders, and public review of the draft standard prior to publication. The ASCE consensus process follows the *ASCE Rules for Standards Committees*, which is published on the ASCE website. The ASCE/SEI 7-22 S2 was developed by the ASCE 7-22 Standard Committee, which included approximately 50 voting members and hundreds more associate members. The ASCE/SEI 24-24 standard was developed by the ASCE 24-24 Standard Committee, which included approximately 25 voting members and 15 associate members.

Supporting Organizations:

This code change proposal has many supporters, included but not limited to the following organizations:

American Flood Coalition

Association of State Flood Plain Managers (ASFPM)

BuildStrong America

Federal Emergency Management Association

Flood Mitigation Industry Association (FMIA)

National Institute of Building Science (NIBS)

Registered Designer Professionals and planners of buildings and other infrastructure projects, Code Officials, and Authorities Having Jurisdiction owe it to the public and have an ethical obligation to provide a framework for safe, reliable structures. The public expects that the buildings in which they live, work, and play are designed consistently, with the same risk approach for all environmental hazards. Flooding is disruptive to families, businesses, and communities and it takes years to recover from these devastating disasters and overcome the losses incurred. The flood hazard must be taken seriously and incorporated into our design standards and building codes in a manner that is consistent with all of the other environmental hazards.

Bibliography: FEMA. A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains. January 2025 (https://www.researchgate.net/publication/388556202_A_Cost_and_Benefits_Analysis_of_Increased_Elevation_Requirements_for_Publ

FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida, February 2020 (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf)

Cost Impact: Increase

- **2025 Cost and Benefit Analysis for ASCE 24-24.PDF**
  https://www.cdpaccess.com/proposal/11717/35911/documentation/186635/attachments/download/9868/

Estimated Immediate Cost Impact:

ASCE 7 and ASCE 24 are national minimum design standards. The effects will vary depending upon the local flood conditions and flood risk across the country and among building types. For nearly 90% of all affected structures in Numbered A Zones, the estimated immediate costs impact can be understood in analysis of the mitigation cost as a percentage of building replacement value from 0.2-6.6% for coastal sites and 0.0-4.0% for riverine sites. Additionally, average benefits per square foot range from $51-$336 for both riverine and coastal flooding, which are dependent on building type and location. See the attached “Cost and Benefits Analysis” for additional information.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

Estimated Immediate Cost Impact Justification (methodology and variables):

A building cost study was considered for 14 riverine locations and 19 coastal locations. Examples consider A Zone and X Zone conditions to understand how the ASCE changes impact the overall cost. However, since most buildings are riverine, the study focused there, but similar trends appear in coastal buildings.

Table 1 is a summary of the buildings that were considered in the study, accounting for the building type, building sizes (and average), and Flood Design Classes. The difference between a commercial and government office building plays a larger role in the losses avoided portion of the study. The cost analysis is grouped by Flood Design Class since this is the grouping used in ASCE 24 for elevation criteria.

Table 1 - Building Types Considered in Study

Building Type	Flood Design Class	Small SF	Medium SF	Large SF	Average SF
Hospital 2-3 Stories	4	25,000	70,000	145,000	80,000
Elementary School	3	25,000	40,000	65,000	43,333
Police Station	4	7,000	13,000	23,000	14,333
Office 1-Story (Government)	2	2,000	7,000	25,000	11,333
Office 3-Story (Government)	2	5,000	16,000	80,000	33,667
Office 1-Story (Commercial)	2	2,000	7,000	25,000	11,333
Office 3-Story (Commercial)	2	5,000	16,000	80,000	33,667
Retail Store	2	4,000	10,000	22,000	12,000

Table 2 provides an overview of A Zone conditions for increased building costs within the 100-yr floodplain. The values represent the breakdown of example floodplains using the numbered A Zone range to categorize how much rise there is between the various flood events. A low numbered A Zone represents a flat floodplain and a high number represents a steeper floodplain where there can be a large difference in flood elevations. The percent of numbered A Zones throughout the country based on an NFIP flood insurance policy analysis per census tract.

This provides a breakdown of how various floodplains impact the increased building cost. It's important to note that in A01-A03 the freeboard requirements equal or exceed the MRI based design flood event. Since ASCE did not change the minimum freeboard requirements for FDC 2 and FDC 4, those values are the same for ASCE 24-14 and ASCE 24-24 and therefore there is no cost increase. Additionally, for FDC 4 the analysis selected the higher of the 500-yr and BFE+2, so the delta between the ASCE 24-14 and ASCE 24-24 wasn't as high in the higher numbered A Zones as it would have been with FDC 2 and 3 where they were locked with ASCE 24-14 at BFE+1.

Table 2 - Average Building Cost Increase Percentage for Riverine A Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC3	FDC4
A01-A03	26%	0.00%	1.20%	0.00%
A04-A06	41%	1.50%	1.90%	0.50%
A07-A10	20%	2.40%	2.90%	0.60%
A11-A14	9%	4.80%	5.50%	1.00%
A15-A17	2%	8.90%	10.00%	1.60%
A18-A30	2%	11.90%	13.20%	2.10%
	Weighted Average:	1.97%	2.65%	0.49%

Table 3 provides an overview of X Zone conditions for increased building costs within the 500-yr floodplain. The 500-year floodplain represents the area between the 100-year floodplain and the 500-year flood extent, this therefore represents protection from the 101-year to the 500-year flood. In X Zones it is assumed that buildings are built on the ground as compared to elevated foundations in Zone

A. Since the X Zone represents the difference between the 100-year and the 500-year flood, the 300-year flood elevation was used as an average ground elevation. The ASCE 24-24 elevations represent the minimum required elevations required per the standard. The increased elevation is therefore the difference between ground (at the 300-year flood elevation) and the ASCE 24-24 elevation requirements. Similar to Table 2, Table 3 data is provided per Flood Design Class per grouped numbered A Zone designation.

Table 3 - Average Building Cost Increase Percentage for Riverine X Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC 3	FDC 4
A01-A03	26%	0.60%	1.70%	0.70%
A04-A06	41%	1.00%	1.50%	0.80%
A07-A10	20%	1.20%	1.80%	1.00%
A11-A14	9%	1.90%	3.00%	1.70%
A15-A17	2%	3.20%	5.00%	2.80%
A18-A30	2%	4.40%	6.70%	3.70%
	Weighted Average:	1.14%	1.93%	1.00%

It is believed that the presentation of percent increase in building cost provided a better representation of the overall cost impacts rather than providing dollar values. While the percent increase does get rather large in those areas with high numbered A Zones, this is a much smaller overall percentage of land area, so this represents a smaller portion of the floodplains in the US. However, recent events have shown that when these areas experience a flood event above the 100-year or 1% annual chance flood, that they often experience deep flooding. Experience from Western NC following Hurricane Helene demonstrated that when floods occur in areas with high numbered A Zones that significant flood damage occurs in the X Zone. There were examples of buildings elevated in the X Zone that performed very well in Hurricane Helene and had little to no observed damage. But many buildings in the X Zone that were constructed at grade were severely damaged or destroyed. While this is observational, there is substantial evidence to suggest that the percent cost increase is offset by the avoided losses. Two key factors that impact the avoided loss calculation is the impact of when the original flood insurance studies and associated maps were created (older mapping data), which can mean that the mapped risk is underestimated (increased runoff due to development and updated precipitation data) and then looking forward the impact of future changes in precipitation rates over the 50-year life of riverine buildings. Similarly, these impacts can impact coastal flooding heights as well as the impact of sea level change.

Attached Files

- **ATT - IEBC and OTHER I-Codes.docx**
  https://www.cdpaccess.com/proposal/11717/35911/files/download/9500/
- **ATT - IBC APP G J.docx**
  https://www.cdpaccess.com/proposal/11717/35911/files/download/9453/
- **ATT - IBC.docx**
  https://www.cdpaccess.com/proposal/11717/35911/files/download/9452/

Staff Analysis: Chapter 24 of the IRC is copied from the IFGC, therefore, everything in that Chapter is controlled by the scoping in the IFGC.

CC # G9-25 and CC # S97-25 Part I addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S97-25 Part I

S97-25 Part II

IBC: [A] 104.2.4.1, [A] 107.2.6, [A] 107.2.6.1, SECTION 202 (New), 802.4, 1108.7.5, 1202.4.4, [BS] 1402.9, [BS] 1402.10, 1603.1, 1603.1.7, 1612.1, 1612.2, 1612.3, 1612.3.1 (New), 1612.3.1, 1612.3.2, 1612.4, 1804.5, 1805.1.2.1, [F] 2702.1.8, CHAPTER 35

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org); Roderick Scott, Board Chair, representing Flood Mitigation Industry Association (roderick.scott75@aol.com); Natalie Enclade, representing BuildStrong America; Jiqiu yuan, representing National Institute of Building Sciences (jyuan@nibs.org); Joel Scata, representing NRDC (jscata@nrdc.org)

2024 International Building Code

CHAPTER 1
SCOPE AND ADMINISTRATION

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The *building official* shall not grant modifications to any provision required in *flood hazard areas*, including special flood hazard areas, as established by Section 1612.3 unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the *site* render the elevation standards of Section 1612 inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the *lot* undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the *flood* hazard.
5. Submission to the applicant of written notice specifying the difference between the ~~*design*~~ base *flood elevation* and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the ~~*design*~~ base *flood elevation* increases risks to life and property.

[A] 107.2.6 Site plan. The *construction documents* submitted with the application for *permit* shall be accompanied by a site plan showing to scale the size and location of new construction and *existing structures* on the *site*, distances from *lot lines*, the established street grades and the proposed finished grades and, as applicable, *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains*, *floodways*, and ~~*design*~~ base *flood elevations*; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of *existing structures* and construction that are to remain on the *site* or plot. The *building official* is authorized to waive or modify the requirement for a site plan where the application for *permit* is for *alteration* or *repair* or where otherwise warranted.

[A] 107.2.6.1 ~~Design~~ Base flood elevations. Where ~~*design*~~ base *flood elevations* are not specified, they shall be established in accordance with Section 1612.3.~~1~~2.

CHAPTER 8
INTERIOR FINISHES

802.4 Applicability. For *buildings* in *flood hazard areas* ~~as established in Section 1612.3~~, *interior finishes*, *trim* and *decorative materials* below the elevation required by Section 1612 shall be *flood-damage-resistant materials*.

CHAPTER 11

ACCESSIBILITY

1108.7.5 Flood hazard areas. *Type A units* and *Type B units* shall not be required for *buildings* without elevator service that are located in *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains* ~~as established in Section 1612.3~~, where the minimum required elevation of the *lowest floor* or lowest supporting horizontal structural member, as applicable, results in all of the following:

1. A difference in elevation between the minimum required floor elevation at the primary entrances and vehicular and pedestrian arrival points within 50 feet (15 240 mm) exceeding 30 inches (762 mm).
2. A slope exceeding 10 percent between the minimum required floor elevation at the primary entrances and vehicular and pedestrian arrival points within 50 feet (15 240 mm).

Where such arrival points are not within 50 feet (15 240 mm) of the primary entrances, the closest arrival points shall be used.

CHAPTER 12
INTERIOR ENVIRONMENT

1202.4.4 Flood hazard areas. For *buildings* in *flood hazard areas* ~~as established in Section 1612.3~~, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 provided that the ventilation openings are designed and installed in accordance with ASCE 24.

CHAPTER 14
EXTERIOR WALLS

[BS] 1402.9 Flood resistance. For *buildings* in *flood hazard areas* ~~as established in Section 1612.3~~, *exterior walls* extending below the elevation required by Section 1612 shall be constructed with *flood-damage-resistant materials*.

[BS] 1402.10 Flood resistance for coastal high-hazard areas and coastal A zones. For *buildings* in *coastal high-hazard areas* and coastal A zones ~~as established in Section 1612.3~~, electrical, mechanical and plumbing system components shall not be mounted on or penetrate through *exterior walls* that are designed to break away under *flood loads*.

CHAPTER 16
STRUCTURAL DESIGN

1603.1 General. *Construction documents* shall show the material, size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design *loads* and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.9 shall be indicated on the *construction documents*.

Exception: *Construction documents* for *buildings* constructed in accordance with the *conventional light-frame construction* provisions of Section 2308 shall indicate the following structural design information:

1. Floor and roof dead and *live loads*.
2. Ground snow load, p_g , and *allowable stress design* ground snow load, $p_{g(asd)}$.
3. Basic *wind speed* , V, mph (m/s), and *allowable stress design* wind speed, V_{asd}, as determined in accordance with Section 1609.3.1 and wind exposure.
4. *Seismic design category* and *site class*.
5. Flood design data, if located in *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains* ~~established in Section 1612.3~~.

6. Design load-bearing values of soils.
7. Rain load data.

1603.1.7 Flood design data. For *buildings* located in whole or in part in *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains* ~~as established in Section 1612.3~~, the documentation pertaining to design, if required in Section 1612.4, shall be included and the following information, referenced to the datum on the community's *Flood Insurance Rate Map* (*FIRM*), shall be shown, regardless of whether *flood loads* govern the design of the *building*:

1. *Flood design* class assigned according to ASCE 24.
2. In *flood hazard areas* other than *coastal high hazard areas* or *coastal A zones*, the elevation of the proposed *lowest floor*, including the basement, determined in accordance with ASCE 24.
3. In *flood hazard areas* other than *coastal high hazard areas* or *coastal A zones*, the elevation to which any nonresidential *building* will be dry floodproofed, determined in accordance with ASCE 24.
4. In *coastal high hazard areas* and *coastal A zones*, the proposed elevation of the bottom of the lowest horizontal structural member of the *lowest floor*, including the basement, determined in accordance with ASCE 24.

SECTION 1612
FLOOD LOADS

1612.1 General. Within *flood hazard areas,* including *special flood hazard areas* and *500-year floodplains* ~~as established in Section 1612.3~~, all new construction of *buildings*, *structures* and portions of *buildings* and *structures*, including *substantial improvement* and restoration of *substantial damage* to *buildings* and *structures*, shall be designed and constructed to resist the effects of flood hazards and *flood loads*. For *buildings* that are located in more than one *flood hazard area*, the provisions associated with the most restrictive *flood hazard area* shall apply.

1612.2 Design and construction. The design and construction of *buildings* and *structures* located in *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains* ~~*coastal high hazard areas* and *coastal A zones*~~, shall be in accordance with Chapter 5 of ASCE 7 and ASCE 24. Elevators, escalators, conveying systems and their components shall conform to ASCE 24 and ASME A17.1/CSA B44 as applicable.

Exception: *Temporary structures* complying with Section 3103.6.1.3.

1612.3 Establishment of flood hazard areas. ~~To establish *flood hazard areas*, the~~ The applicable governing authority shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, ~~areas of~~ special flood hazard areas and *500-year floodplains* as identified by the Federal Emergency Management Agency in an engineering report entitled "The *Flood Insurance Study* for **[INSERT NAME OF JURISDICTION]**," dated **[INSERT DATE OF ISSUANCE]**, as amended or revised with the accompanying *Flood Insurance Rate Map* (*FIRM*) and Flood Boundary and *Floodway* Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

Add new text as follows:

1612.3.1 Establishing the design flood elevations. Within *special flood hazard areas* and *500-year floodplains*, the elevation of the *design flood* determined in accordance with ASCE 24 is the *design flood elevation* that determines elevation requirements as a function of Flood Design Class assigned according to ASCE 24. In no case shall the elevation of the *design flood* be taken as lower than the elevation of the *base flood.*

Revise as follows:

1612.3.~~1~~2 ~~Design~~ Base flood elevations. Where ~~*design*~~ *base flood elevations* are not ~~included in~~ determined for the *special flood hazard areas* established in Section 1612.3, or where *floodways* are not designated, the *building official* is authorized to require the applicant to do one of the following and use the resulting *base flood elevation* in the design and construction requirements of Section 1612.2:

1. Obtain and reasonably utilize any ~~*design*~~ *base flood elevation* and *floodway* data available from a federal, state or other source.
2. Determine the ~~*design*~~ *base flood elevation* or *floodway* in accordance with accepted hydrologic and hydraulic engineering practices used to define special *flood hazard areas*. Determinations shall be undertaken and sealed by a *registered design professional* who shall document that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted in sufficient detail to allow review and *approval*.

1612.3.~~2~~3 Determination of impacts. In riverine *special flood hazard areas* where ~~*design*~~ *base flood elevations* are specified but *floodways* have not been designated, the applicant shall provide a *floodway* analysis that demonstrates that the proposed work will not increase the ~~*design*~~ *base flood elevation* more than 1 foot (305 mm) at any point within the *jurisdiction* of the applicable governing authority.

1612.4 Flood hazard documentation. The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in *flood hazard areas,* including *special flood hazard areas* and *500-year floodplains,* other than *coastal high hazard areas* or *coastal A zones*:
   1.1. The elevation of the *lowest floor*, including the basement, as required by the *lowest floor* elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.12.1.

   1.2. For fully enclosed areas below the lowest floor elevation required by ASCE 24 ~~*design flood elevation*~~ where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.~~7~~ 8.2.1 of ASCE 24, *construction documents* shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.~~7~~ 8.2.2 of ASCE 24.

   1.3. For *dry floodproofed* nonresidential *buildings*, *construction documents* shall include a statement that the *dry floodproofing* is designed in accordance with ASCE 24 and shall include the ~~*flood* emergency~~ Inspection, Maintenance, and Operations plans specified in Chapter 6 of ASCE 24.

   1.4. For dry floodproofed nonresidential buildings, the elevation to which the building is dry floodproofed as required for the final inspection in Section 110.3.12.1.
2. For construction in *coastal high hazard areas* and *coastal A zones*:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the *lowest floor* elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.12.1.

   2.2. *Construction documents* shall include a statement that the *building* is designed in accordance with ASCE 24, including that the pile or column foundation and *building* or *structure* to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and *flood loads* acting simultaneously on all building components, and other *load* requirements of Chapter 16.

   2.3. For breakaway walls designed to have a resistance of more than ~~20~~ 16 psf (~~0.96~~ 0.76 kN/m^2) determined using *allowable stress design* or a resistance to an ultimate load of more than ~~33 pounds per square foot~~ 26 psf (~~1.58~~ 1.24 kN/m^2) *, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.*

   2.4 For breakaway walls where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.~~7~~ 8.2.1 of ASCE 24, *construction documents* shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.~~7~~ 8.2.2 of ASCE 24.

CHAPTER 18
SOILS AND FOUNDATIONS

1804.5 Grading and fill in flood hazard areas. In *flood hazard areas,* including *special flood hazard areas* and *500-year floodplains* ~~established in Section 1612.3~~, grading, fill, or both, shall not be *approved*:

1. Unless such fill is placed, compacted and sloped to minimize shifting, slumping and erosion during the rise and fall of *flood* water and, as applicable, wave action.
2. In *floodways*, unless it has been demonstrated through hydrologic and hydraulic analyses performed by a *registered design professional* in accordance with standard engineering practice that the proposed grading or fill, or both, will not result in any increase in *flood* levels during the occurrence of the ~~*design*~~ *base flood.*
3. In *coastal high hazard areas,* unless such fill is used for minimal site grading, landscaping, or to meet local drainage requirements and is conducted or placed to avoid diversion of water and waves toward any *building* or *structure*.
4. Where ~~*design*~~ *base flood elevations* are specified but *floodways* have not been designated, unless it has been demonstrated that the cumulative effect of the proposed *flood hazard area* encroachment, when combined with all other existing and anticipated *flood hazard area* encroachment, will not increase the ~~*design*~~ *base flood elevation* more than 1 foot (305 mm) at any point.

1805.1.2.1 Flood hazard areas. For *buildings* and *structures* in *flood hazard areas,* including *special flood hazard areas* and *500-year floodplains* ~~as established in Section 1612.3~~, the finished ground level of an under-floor space such as a crawl space shall be equal to or higher than the outside finished ground level on one side or more.

Exception: Under-floor spaces of Group R-3 *buildings* that meet the requirements of FEMA TB 11.

CHAPTER 27
ELECTRICAL

[F] 2702.1.8 Group I-2 occupancies. In Group I-2 occupancies located in *flood hazard areas,* including *special flood hazard areas* and *500-year floodplains* ~~established in Section 1612.3~~, where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hookup of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24.

CHAPTER 35
REFERENCED STANDARDS

ASCE/SEI

American Society of Civil Engineers Structural Engineering Institute
1801 Alexander Bell Drive
Reston, VA 20191

Update standard(s) as follows:

7—22, including Supplements 1, 2, and 3	Minimum Design Loads and Associated Criteria for Buildings and Other Structures
24~~—14~~ 24	Flood Resistant Design and Construction

Reason: REASON STATEMENT:

This proposal is a coordination proposal to bring the 2027 edition of the I-Codes up to date with the provisions in the 2022 edition of *ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, Supplement 2* (ASCE/SEI 7-22, Supplement 2) as well as the 2024 edition of *ASCE/SEI 24 Flood Resistant Design and Construction* (ASCE/SEI 24-24) --- specifically for the codes primarily affected such as the International Building Code (IBC), the International Residential Code (IRC), and the International Existing Building Code (IEBC), in Group B, but also every I-Code affected by a coordinating code change that will need to be updated. ASCE/SEI 7-22 is the current reference in 2024 I-Codes and Supplement 2 has been submitted as an Administrative Update. ASCE/SEI 24-24 has also been submitted as an Administrative Update to the 2027 I-Codes.

This proposal has been organized into Part I to Part VII and includes technical updates as well as editorial coordination. The specific changes to each section included in this proposal are outlined in Overview below, and a detailed summary of the technical updates are explained in Technical Rationale below that. In addition to the strike out/underline for the code change proposals, the MS Word documents for each affected I-Code have been provided as Attached Files for clarity.

Overview:

All Codes, All Chapter: Add phase “including special flood hazard areas and 500-year floodplain” following flood area for clarity. And change to clarify term definitions and when “base flood” applies and when “design flood” applies. Also aligns definitions of “base flood elevation” and “design flood elevations”. “Flood Hazard Area” is updated with a new definition. These two changes are carried out throughout the series of these comprehensive code change proposal for clarification and consistency.

Since many of the I-Codes point back to the IBC for the definition, Part I has been organized to include all of the proposed changes to all of the definitions in all of the affected I-Codes.

PART I:

Section 202 Definitions: Adds a new definition for “500-year Floodplain” to distinguish it from the existing definition. While “Base Flood” remains the same, “Base Flood Elevation” is updated along with “Design Flood” and “Design Flood Elevation”. “Flood Hazard Area” is updated and a new definition for “Special Flood Hazard Area” is added.

PART II:

Section 104, 107 Scope: Add phase “including special flood hazard areas” for clarity. And change to “base flood elevations” from “design flood elevations” to clarify the applicable requirements for the two separate terms. See Section 202 for the updated definitions. These two changes are carried out throughout the code change proposal for clarification and consistency.

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Section 802 Interior Finishes: Removes the pointer that is too specific.

Section 1108 Accessibility: Add phase “including special flood hazard areas” for clarity.

Section 1202 Interior Environment: Removes the pointer that is too specific.

Section 1402 Exterior Walls: Removes the pointer that is too specific.

Section 1603 General Structural Loads: Add phase “including special flood hazard areas” for clarity. Add pointers to ASCE/SEI 24.

Section 1612 Flood Loads: Add phase “including special flood hazard areas” for clarity. Removes the pointer that is too specific. Clarifies and aligns “Establishing the Flood Hazard Area” and the “Design Flood Elevation” with the standards. Clarifies where the requirements are for the Base Flood versus the Design Flood Elevation. Also clarifies and aligns what is required for the documentation.

Section 1804, 1805 Soils and Foundations: Add phase “including special flood hazard areas” for clarity. Removes the pointer that is too specific.

Section 2702 Electrical: Add phase “including special flood hazard areas” for clarity. Removes the pointer that is too specific. [NOTE - This will need to be updated in the International Fire Code. If this section falls in Group A Hearings, this will need to be coordinated next cycle.]

Chapter 35: Update references for ASCE/SEI 7-22 and ASCE/SEI 24.

Appendix G and J: These changes are provided in a separate Code Change Proposal but must be included for a comprehensive proposal.

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Technical Rationale:

The American Society of Civil Engineers (ASCE) is proposing revisions to the International Code Council’s I-Codes for the 2027 Cycle to align the national codes with the current ASCE/SEI design standards including:

ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2022 edition; Supplement 2

(ASCE/SEI 7-22 S2)

ASCE/SEI 24 Flood Resistant Design and Construction, 2024 edition (ASCE/SEI 24-24)

The loading standard ASCE/SEI 7-22 S2 and the design standard ASCE/SEI 24-24 work together – these documents have been developed to be consistent and coordinated so they can be required and used together. There are three significant changes in the national loading standard ASCE/SEI 7-22 S2 including (1) an extension of the defined Flood Hazard Area to the 500-year floodplain for Rick Category II, III, and IV structures, (2) an inclusion of risk-based design for loads, and (3) requirements to include relative sea level change into design load calculations for coastal sites; see below for more technical details. There are three significant changes in the national design standard ASCE/SEI 24-24 including (1) alignment with ASCE/SEI 7-22 S2, (2) alignment with FEMA Technical Bulletins, and (3) updates for elevations, materials, and floodproofing.

Both ASCE/SEI Standards are available for purchase and the Supplement available as a free download from the ASCE Library:

ASCE/SEI 7-22 (https://doi.org/10.1061/9780784415788)

ASCE/SEI 7-22 Supplement 2 (https://doi.org/10.1061/9780784415788.sup2)

ASCE/SEI 24-24 (https://doi.org/10.1061/9780784485781)

Flood Hazard:

The ASCE 7-22 S2 updates the design requirements to define the flood hazard area for the given Risk Category of structure. Addionally, the flood hazard depth is tied to the mean recurrence interval for a given Risk Category of structure. The design flood hazard is related to Risk Category (e.g., RC II will be designed to 500-year MRI), which is consistent with the way other environmental hazards (such as wind and snow loads) relate the hazard to Risk Category. This is in contrast to the current code requirements, which only considers only 100-year MRI flood for all structures regardless of Risk Category. In some areas in the U.S., the Authority Having Jurisdiction is already requiring a higher design requirement for the flood hazard. The city of Houston, for example, moved to requiring use of the 500-year MRI as the design basis for flood following the devastation from Hurricane Harvey. At a national level, FEMA is considering the use of the 500-year flood as the basis for floodplain management.

The coordinated code change proposals submitted for Group B are drafted to bring the IBC, IRC, and IEBC into alignment with the recent changes in ASCE 7-22 Supplement 2 and ASCE 24-24. The significant changes from the updates to these standards are to differentiate between the base flood (also described as the 100-year flood, or the 1% or greater chance of flooding in any given year) and the design flood, which could be different, and is defined in the standards for each Risk Category. The design flood must include considerations for loading specified in ASCE/SEI 7-22 S2 and design specified in ASCE/SEI 24-24.

Flood damage, and associated loss dollars, has significantly expanded since the last major updates of ASCE 7 Chapter 5 and ASCE 24. Their revisions attempt to close that gap and align the risks across other hazards.

FEMA cites that flood damage cost approximately $17 billion each year between 2010 and 2018, and with rising sea levels and extreme weather could cause $20 billion of flood damage to at-risk US homes this year, rising to $32 billion by 2051. Data from 2018 Hurricane Michael shows that 42% of claimed damage amounts were in the Shaded X-Zone (500-year floodplain), exceeding the amounts in both the A and V-Zones. (FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020).

This is further supported by FEMA's recent report "A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains," which evaluated the potential avoided losses (benefits) for 8 building types in 19 coastal floodplains and 14 riverine floodplains in the 100-year floodplain and the Shaded X Zone. The report shows that there are significant benefits to most buildings in the 100-year floodplain, particularly in steep/narrow floodplains. There were also significant benefits to buildings in the Shaded X Zone where there are currently no elevation requirements. These findings are supported by evidence from the National Flood Insurance Program (NFIP), which stated, "People outside of high-risk areas file more than 25 percent of NFIP claims and receive one-third of disaster assistance for flooding. The NFIP's preferred risk policies are designed for residential properties located in low- to moderate-risk flood zones." Additional reports from the NFIP indicate that 40% of companies fail to reopen after a disaster, with another 25% closing within a year. These problems are only further exacerbated by the influence of development and associated runoff, changes in precipitation rates, local subsidence, and sea level change. All of which are not accounted for by FEMA's flood maps, which only account for historic flood data and not future projections. All of this data supports the need to move from a fixed freeboard approach to a risk-based elevation approach that provides consistent protection from flat/wide floodplains to steep/narrow floodplains and more appropriately addresses the influence of wave action in coastal floodplains. This recognizes that true resiliency for communities is continuity of local businesses and making sure that public services are maintained and that adaptation to changes in precipitation, development, and sea level change must be incorporated into new buildings rather than relying on often prohibitively expensive retrofit options.

The ASCE changes consider the frequency of recent and predicted events and the significant damage recorded in the Shaded X-Zone. But, while significant, the addition of the Shaded X-Zone to the standards represents a change to only 4% of the U.S. population.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

ASCE Consensus Process:

ASCE established and maintains an ANSI-accredited, consensus process for standard development. The open process includes selection of a balanced committee, including representation of all affected stakeholders, and public review of the draft standard prior to publication. The ASCE consensus process follows the *ASCE Rules for Standards Committees*, which is published on the ASCE website. The ASCE/SEI 7-22 S2 was developed by the ASCE 7-22 Standard Committee, which included approximately 50 voting members and hundreds more associate members. The ASCE/SEI 24-24 standard was developed by the ASCE 24-24 Standard Committee, which included approximately 25 voting members and 15 associate members.

Supporting Organizations:

This code change proposal has many supporters, included but not limited to the following organizations:

American Flood Coalition

Association of State Flood Plain Managers (ASFPM)

BuildStrong America

Federal Emergency Management Association

Flood Mitigation Industry Association (FMIA)

National Institute of Building Science (NIBS)

Registered Designer Professionals and planners of buildings and other infrastructure projects, Code Officials, and Authorities Having Jurisdiction owe it to the public and have an ethical obligation to provide a framework for safe, reliable structures. The public expects that the buildings in which they live, work, and play are designed consistently, with the same risk approach for all environmental hazards. Flooding is disruptive to families, businesses, and communities and it takes years to recover from these devastating disasters and overcome the losses incurred. The flood hazard must be taken seriously and incorporated into our design standards and building codes in a manner that is consistent with all of the other environmental hazards.

Bibliography: FEMA. A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains. January 2025 (https://www.researchgate.net/publication/388556202_A_Cost_and_Benefits_Analysis_of_Increased_Elevation_Requirements_for_Publ
FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida, February 2020 (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf)

Cost Impact: Increase

- **2025 Cost and Benefits Analysis of ASCE 24-24.PDF**
  https://www.cdpaccess.com/proposal/12229/36061/documentation/187648/attachments/download/9869/

Estimated Immediate Cost Impact:

ASCE 7 and ASCE 24 are national minimum design standards. The effects will vary depending upon the local flood conditions and flood risk across the country and among building types. For nearly 90% of all affected structures in Numbered A Zones, the estimated immediate costs impact can be understood in analysis of the mitigation cost as a percentage of building replacement value from 0.2-6.6% for coastal sites and 0.0-4.0% for riverine sites. Additionally, average benefits per square foot range from $51-$336 for both riverine and coastal flooding, which are dependent on building type and location. See the attached “Cost and Benefits Analysis” for additional information.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

Estimated Immediate Cost Impact Justification (methodology and variables):

A building cost study was considered for 14 riverine locations and 19 coastal locations. Examples consider A Zone and X Zone conditions to understand how the ASCE changes impact the overall cost. However, since most buildings are riverine, the study focused there, but similar trends appear in coastal buildings.

Table 1 is a summary of the buildings that were considered in the study, accounting for the building type, building sizes (and average), and Flood Design Classes. The difference between commercial and government office building plays a larger role in the losses avoided portion of the study. The cost analysis is grouped by Flood Design Class since this is the grouping used in ASCE 24 for elevation criteria.

Table 1 - Building Types Considered in Study

Building Type	Flood Design Class	Small SF	Medium SF	Large SF	Average SF
Hospital 2-3 Stories	4	25,000	70,000	145,000	80,000
Elementary School	3	25,000	40,000	65,000	43,333
Police Station	4	7,000	13,000	23,000	14,333
Office 1-Story (Government)	2	2,000	7,000	25,000	11,333
Office 3-Story (Government)	2	5,000	16,000	80,000	33,667
Office 1-Story (Commercial)	2	2,000	7,000	25,000	11,333
Office 3-Story (Commercial)	2	5,000	16,000	80,000	33,667
Retail Store	2	4,000	10,000	22,000	12,000

Table 2 provides an overview of A Zone conditions for increased building costs within the 100-yr floodplain. The values represent the breakdown of example floodplains using the numbered A Zone range to categorize how much rise there is between the various flood events. A low numbered A Zone represents a flat floodplain and a high number represents a steeper floodplain where there can be a large difference in flood elevations. The percent of numbered A Zones throughout the country based on an NFIP flood insurance policy analysis per census tract.

This provides a breakdown of how various floodplains impact the increased building cost. It’s important to note that in A01-A03 the freeboard requirements equal or exceed the MRI based design flood event. Since ASCE did not change the minimum freeboard requirements for FDC 2 and FDC 4, those values are the same for ASCE 24-14 and ASCE 24-24 and therefore there is no cost increase. Additionally, for FDC 4 the analysis selected the higher of the 500-yr and BFE+2, so the delta between the ASCE 24-14 and ASCE 24-24 wasn’t as high in the higher numbered A Zones as it would have been with FDC 2 and 3 where they were locked with ASCE 24-14 at BFE+1.

Table 2 - Average Building Cost Increase Percentage for Riverine A Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC3	FDC4
A01-A03	26%	0.00%	1.20%	0.00%
A04-A06	41%	1.50%	1.90%	0.50%
A07-A10	20%	2.40%	2.90%	0.60%
A11-A14	9%	4.80%	5.50%	1.00%
A15-A17	2%	8.90%	10.00%	1.60%
A18-A30	2%	11.90%	13.20%	2.10%
	Weighted Average:	1.97%	2.65%	0.49%

Table 3 provides an overview of X Zone conditions for increased building costs within the 500-yr floodplain. The 500-year floodplain represents the area between the 100-year floodplain and the 500-year flood extent, this therefore represents protection from the 101-year to the 500-year flood. In X Zones it is assumed that buildings are built on the ground as compared to elevated foundations in Zone A. Since the X Zone represents the difference between the 100-year and the 500-year flood, the 300-year flood elevation was used as an average ground elevation. The ASCE 24-24 elevations represent the minimum required elevations required per the standard. The increased elevation is therefore the difference between ground (at the 300-year flood elevation) and the ASCE 24-24 elevation requirements. Similar to Table 2, Table 3 data is provided per Flood Design Class per grouped numbered A Zone designation.

Table 3 - Average Building Cost Increase Percentage for Riverine X Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC 3	FDC 4
A01-A03	26%	0.60%	1.80%	0.70%
A04-A06	41%	1.00%	1.50%	0.80%
A07-A10	20%	1.20%	1.80%	1.00%
A11-A14	9%	1.90%	3.00%	1.70%
A15-A17	2%	3.20%	5.00%	2.80%
A18-A30	2%	4.40%	6.70%	3.70%
	Weighted Average:	1.14%	1.93%	1.00%

It is believed that the presentation of percent increase in building cost provided a better representation of the overall cost impacts rather than providing dollar values. While the percent increase does get rather large in those areas with high numbered A Zones, this is a much smaller overall percentage of land area, so this represents a smaller portion of the floodplains in the US. However, recent events have shown that when these areas experience a flood event above the 100-year or 1% annual chance flood, that they often experience deep flooding. Experience from Western NC following Hurricane Helene demonstrated that when floods occur in areas with high numbered A Zones that significant flood damage occurs in the X Zone. There were examples of buildings elevated in the X Zone that performed very well in Hurricane Helene and had little to no observed damage. But many buildings in the X Zone that were constructed at grade were severely damaged or destroyed. While this is observational, there is substantial evidence to suggest that the percent cost increase is offset by the avoided losses. Two key factors that impact the avoided loss calculation is the impact of when the original flood insurance studies and associated maps were created (older mapping data), which can mean that the mapped risk is underestimated (increased runoff due to development and updated precipitation data) and then looking forward the impact of future changes in precipitation rates over the 50-year life of riverine buildings. Similarly, these impacts can impact coastal flooding heights as well as the impact of sea level change.

Attached Files

- **ATT - IBC.docx**
  https://www.cdpaccess.com/proposal/12229/36061/files/download/9716/

Staff Analysis: This proposal includes technical revisions to the code text to coordinate with an update of an existing referenced standard. This standard must be completed and readily available prior to the Public Comment Hearing. See CP28 Section 4.6.3.1.2.

CC # S97-25 Part II and CC # S99-25 Part I addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S97-25 Part II

S97-25 Part III

IBC: G101.1, G101.2, G101.3, G103.1, G103.2, G104.3, G104.4, G104.8, G104.9, G104.10, G105.1, G105.2, G106.4, G107.1, G107.2, G109.1, G109.3, G109.4, G110.2, G112.1, G112.3, G114.2, G114.4, G114.5, G114.6, TABLE G115.1, J101.2

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org); Natalie Enclade, representing BuildStrong America (natalie@buildstrongamerica.com); Jiqiu yuan, representing National Institute of Building Sciences (jyuan@nibs.org); Joel Scata, representing NRDC (jscata@nrdc.org)

2024 International Building Code

APPENDIX G FLOOD-RESISTANT CONSTRUCTION

SECTION G101 ADMINISTRATION

Revise as follows:

G101.1 Purpose. The purpose of this appendix is to promote the public health, safety and general welfare and to minimize public and private losses due to *flood* conditions in specific *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains*, through the establishment of comprehensive regulations for management of *flood hazard areas* designed to:

1. Prevent unnecessary disruption of commerce, access and public service during times of *flooding*.
2. Manage the alteration of natural flood plains, stream channels and shorelines.
3. Manage filling, grading, dredging and other *development* that may increase flood damage or erosion potential.
4. Prevent or regulate the construction of flood barriers that will divert floodwaters or that can increase flood hazards.
5. Contribute to improved construction techniques in the flood plain.

G101.2 Objectives. The objectives of this appendix are to protect human life, minimize the expenditure of public money for flood control projects, minimize the need for rescue and relief efforts associated with *flooding*, minimize prolonged business interruption, minimize damage to public *facilities* and utilities, help maintain a stable tax base by providing for the sound use and *development* of flood-prone areas, contribute to improved construction techniques in the flood plain and ensure that potential *owners* and occupants are notified that property is within *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains*.

G101.3 Scope. The provisions of this appendix shall apply to all proposed *development* in ~~a~~ *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains*, established in Section 1612 of this code, including certain building work exempt from *permit* under Section 105.2.

SECTION G103 APPLICABILITY

G103.1 General. This appendix, in conjunction with this code, provides minimum requirements for *development* located in *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains*,including:

1. The subdivision of land.
2. Site improvements and installation of utilities.
3. Placement and replacement of *manufactured homes*.

4. Placement of *recreational vehicles*.
5. New construction and *repair*, reconstruction, rehabilitation or *additions* to new construction.
6. *Substantial improvement* of *existing buildings* and *structures*, including restoration after damage.
7. Installation of tanks.
8. *Temporary structures*.
9. Temporary or permanent storage, utility and miscellaneous Group U *buildings* and *structures*.
10. Certain building work exempt from *permit* under Section 105.2 and other *buildings* and *development* activities.

G103.2 Establishment of flood hazard areas. *Flood hazard areas*, including *special flood hazard areas* and *500-year floodplains*, are established in Section 1612.3 of this code, adopted by the applicable governing authority on **[INSERT DATE]**.

SECTION G104
POWERS AND DUTIES

G104.3 Determination of ~~design~~ base flood elevations. If *~~design~~* *base* *flood elevations* are not specified for *special flood hazard areas* , the floodplain administrator is authorized to require the applicant to ~~meet~~ do one of the following:

1. Obtain, review and reasonably utilize *base flood elevation* data available from a federal, state or other source.
2. Determine the *~~design~~* *base* *flood elevation* in accordance with accepted hydrologic and hydraulic engineering ~~techniques~~ practices used to define *special flood hazard areas*. Such analyses shall be performed and sealed by a *registered design professional*. Studies, analyses and computations shall be submitted in sufficient detail to allow review and approval by the floodplain administrator. The accuracy of data submitted for such determination shall be the responsibility of the applicant.

G104.4 Activities in riverine flood hazard areas. In riverine *special flood hazard areas* where *~~design~~* *base* *flood elevations* are specified but *floodways* have not been designated, the floodplain administrator shall not permit any new construction, *substantial improvement* or other *development*, including fill, unless the applicant submits an engineering analysis prepared by a *registered design professional*, demonstrating that the cumulative effect of the proposed *development*, when combined with all other existing and anticipated *special flood hazard area* encroachment, will not increase the *~~design~~* *base* *flood elevation* more than 1 foot (305 mm) at any point within the community.

G104.8 Records. The floodplain administrator shall maintain a permanent record of all *permits* issued in *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains*, including supporting certifications and documentation required by this appendix and copies of inspection reports, design certifications and documentation of elevations required in Section 1612 of this code and Section R306of the *International Residential Code*.

G104.9 Inspections. *Development* for which a *permit*under this appendix is required shall be subject to inspection. The floodplain administrator or the floodplain administrator's designee shall make, or cause to be made, inspections of all *development* in *flood hazard areas*, including *special flood hazard areas* and *500-year floodplains*, authorized by issuance of a *permit*under this appendix.

G104.10 Use of changed technical data. The floodplain administrator and the applicant shall not use changed *flood hazard area* boundaries, or changed *base flood elevations* or 500-year flood elevations, for proposed *buildings* or *developments* unless the floodplain administrator or applicant has applied for a conditional *Flood Insurance Rate Map* (*FIRM*) revision and has received the approval of the Federal Emergency Management Agency (FEMA).

SECTION G105
PERMITS

G105.1 Required. Any *person*, *owner* or *owner*'s authorized agent who intends to conduct any *development* in a *flood hazard area*, including *special flood hazard areas* and *500-year floodplains*, shall first make application to the floodplain administrator and shall obtain the required *permit*.

G105.2 Application for permit. The applicant shall file an application in writing on a form furnished by the floodplain administrator. Such application shall:

1. Identify and describe the *development* to be covered by the *permit*.
2. Describe the land on which the proposed *development* is to be conducted by legal description, street address or similar description that will readily identify and definitely locate the *site*.
3. Include a site plan showing the delineation of *special flood hazard areas*, *500-year floodplains*, *floodway* boundaries, *flood* zones, ~~*design*~~ *base flood elevations*, ground elevations, proposed fill and excavation and drainage patterns and *facilities*.
4. Include in subdivision proposals and other proposed *developments* with more than 50 *lots* or larger than 5 acres (20 234 m^2), *base flood elevation* data in accordance with Section 1612.3.~~1~~ 2 if such data are not identified for the *flood hazard areas* established in Section G103.2.
5. Indicate the use and occupancy for which the proposed *development* is intended.
6. Be accompanied by *construction documents*, grading and filling plans and other information deemed appropriate by the floodplain administrator.
7. State the valuation of the proposed work.
8. Be signed by the applicant or the applicant's authorized agent.

SECTION G106
VARIANCES

G106.4 Functionally dependent facilities. A *variance* is authorized to be issued for the construction or *substantial improvement* of a *functionally dependent facility* provided that the criteria in Section 1612.1 are met and the *variance* is the minimum necessary to allow the construction or *substantial improvement*, and that all due consideration has been given to methods and materials that minimize *flood* damages during the ~~*design*~~ *base flood* and do not create additional threats to public safety.

SECTION G107
SUBDIVISIONS

G107.1 General. Any subdivision proposal, including proposals for manufactured home parks and subdivisions, or other proposed new *development* in a *flood hazard area*, including *special flood hazard areas* and *500-year floodplains*, shall be reviewed to verify all of the following:

1. Such proposals are consistent with the need to minimize *flood* damage.
2. Public utilities and *facilities*, such as sewer, gas, electric and water systems, are located and constructed to minimize or eliminate *flood* damage.
3. Adequate drainage is provided to reduce exposure to *flood* hazards.

G107.2 Subdivision requirements. The following requirements shall apply in the case of any proposed subdivision, including proposals for manufactured home parks and subdivisions, any portion of which lies within a *flood hazard area*, including *special flood hazard areas* and *500-year floodplains*:

1. The *special flood hazard area* and *500-year floodplain*, including *floodways*, *coastal high-hazard areas* and coastal A zones, as appropriate, shall be delineated on tentative and final subdivision plats.

2. ~~*Design*~~ *Base flood elevations* and flood elevations in *500-year floodplains* shall be shown on tentative and final subdivision plats.
3. Residential *building lots* shall be provided with adequate buildable area outside the *floodway*.
4. The design criteria for utilities and *facilities* set forth in this appendix and appropriate International Codes shall be met.

SECTION G109
MANUFACTURED HOMES

G109.1 Required elevation ~~Elevation~~. All new and replacement *manufactured homes* to be placed or substantially improved in a *flood hazard area*, including *special flood hazard areas* and *500-year floodplains*, shall be elevated such that the top of the foundation for the *manufactured home* is at or above the ~~*design*~~ *base flood elevation* plus 2 feet.

G109.3 Anchoring. All new and replacement *manufactured homes* to be placed or substantially improved ~~in a *flood hazard area*~~ shall be installed using methods and practices that minimize *flood* damage. *Manufactured homes* shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement. Methods of anchoring are authorized to include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

G109.4 Protection of mechanical equipment and outside appliances. Mechanical equipment and outside appliances shall be elevated to or above the required elevation. ~~*design flood elevation*.~~

Exception: Where such equipment and appliances are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic *loads* and stresses, including the effects of buoyancy, during the occurrence of *flooding* up to the elevation required by Section R306 of the *International Residential Code*, the systems and equipment shall be permitted to be located below the elevation required by Section R306 of the *International Residential Code*. Electrical wiring systems shall be permitted below the required elevation ~~design *flood* elevation~~ provided that they conform to the provisions of NFPA 70.

SECTION G110
RECREATIONAL VEHICLES

G110.2 Temporary placement. *Recreational vehicles* ~~in *flood hazard areas*~~ shall be fully licensed and ready for highway use, or shall be placed on a *site* for less than 180 consecutive days.

SECTION G112
OTHER BUILDING WORK

G112.1 Garages and accessory structures. Garages and accessory *structures* shall be designed and constructed in accordance with ASCE 24, subject to the following limitations:

1. In *special flood hazard areas* and *500-year floodplains* other than *coastal high-hazard areas* and coastal A Zones, the floors of detached garages and detached accessory storage *structures* are permitted below the elevations specified in ASCE 24, provided that such *structures* are used solely for parking or storage, are one *story* and not larger than 600 square feet (55.75 m^2).
2. In *coastal high-hazard areas* and coastal A Zones, the floors of detached garages and detached accessory storage *structures* are permitted below the elevations specified in ASCE 24, provided that such *structures* are used solely for parking or storage, are one *story* and are not larger than 100 square feet (9.29 m^2). Such *structures* shall not be required to have breakaway walls or flood openings.

G112.3 Oil derricks. Oil derricks l~~ocated in *flood hazard areas*~~ shall be designed in conformance with the *flood loads* in Sections 1603.1.7 and 1612.

SECTION G114 UTILITY AND MISCELLANEOUS GROUP U

G114.2 Flood loads. Utility and miscellaneous Group U *buildings* and *structures*, including *substantial improvement* of such *buildings* and *structures*, shall be anchored to prevent flotation, collapse or lateral movement resulting from *flood loads*, including the effects of buoyancy, during conditions of the ~~*design*~~ base *flood.*

G114.3 Required elevation ~~Elevation~~. Utility and miscellaneous Group U *buildings* and *structures*, including *substantial improvement* of such *buildings* and *structures*, shall be elevated such that the *lowest floor*, including *basement*, is elevated to or above the elevation required by ASCE 24 ~~*design flood elevation* in accordance with Section 1612 of this code~~.

G114.4 Enclosures below ~~design flood~~ the required elevation. Fully enclosed areas below the required elevation ~~*design flood elevation*~~ shall be constructed in accordance with ASCE 24.

G114.5 Flood-damage-resistant materials. *Flood-damage-resistant materials* shall be used below the required elevation ~~*design flood elevation*~~.

G114.6 Protection of mechanical, plumbing and electrical systems. Mechanical, plumbing and electrical systems, including plumbing fixtures, shall be elevated to or above the required elevation ~~*design flood elevation*~~.

Exception: Electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances; plumbing fixtures, duct systems and other service equipment shall be permitted to be located below the required elevation ~~*design flood elevation*~~ provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic *loads* and stresses, including the effects of buoyancy, during the occurrence of flooding to the required elevation ~~*design flood elevation*~~ in compliance with the flood-resistant construction requirements of this code. Electrical wiring systems shall be permitted to be located below the required elevation ~~*design flood elevation*~~ provided that they conform to the provisions of NFPA 70.

SECTION G115 REFERENCED STANDARDS

G115.1 General. See Table G115.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix referenced in the standard.

TABLE G115.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ASCE 24— ~~14~~ 24	*Flood Resistant Design and Construction*	G104.1, G108.3, G108.4, G111.1, G112.1, G112.5, G112.6, G112.7, G113.1, G114.4
HUD 24 CFR Part 3285 (2008)	*Manufactured Home Construction and Safety Standards*	G102
IBC—24	*International Building Code®*	G103.2, G114.1, G114.3
IRC—24	*International Residential Code®*	G109.2, G109.4, G109.5
NFPA 70—23	*National Electric Code®*	G109.4, G114.6

APPENDIX J GRADING

SECTION J101 GENERAL

J101.2 Flood hazard areas. Unless the applicant has submitted an engineering analysis, prepared in accordance with standard engineering practice by a *registered design professional*, that demonstrates the proposed work will not result in any increase in the level of the *base flood*, *grading*, *excavation* and earthwork construction, including fills and embankments, shall not be permitted in *floodways* that are in *flood hazard areas* established in Section 1612.3 or in *flood hazard areas* where ~~*design*~~ <u>*base*</u> *flood elevations* are specified but *floodways* have not been designated.

Reason: REASON STATEMENT:

This proposal is a coordination proposal to bring the 2027 edition of the I-Codes up to date with the provisions in the 2022 edition of *ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, Supplement 2* (ASCE/SEI 7-22, Supplement 2) as well as the 2024 edition of *ASCE/SEI 24 Flood Resistant Design and Construction* (ASCE/SEI 24-24) --- specifically for the codes primarily affected such as the International Building Code (IBC), the International Residential Code (IRC), and the International Existing Building Code (IEBC), in Group B, but also every I-Code affected by a coordinating code change that will need to be updated. ASCE/SEI 7-22 is the current reference in 2024 I-Codes and Supplement 2 has been submitted as an Administrative Update. ASCE/SEI 24-24 has also been submitted as an Administrative Update to the 2027 I-Codes.

This proposal has been organized into Part I to Part VII and includes technical updates as well as editorial coordination. The specific changes to each section included in this proposal are outlined in Overview below, and a detailed summary of the technical updates are explained in Technical Rationale below that. In addition to the strike out/underline for the code change proposals, the MS Word documents for each affected I-Code have been provided as Attached Files for clarity.

<u>*Overview:*</u>

All Codes, All Chapter: Add phase "including special flood hazard areas and 500-year floodplain" following flood area for clarity. And change to clarify term definitions and when "base flood" applies and when "design flood" applies. Also aligns definitions of "base flood elevation" and "design flood elevations". "Flood Hazard Area" is updated with a new definition. These two changes are carried out throughout the series of these comprehensive code change proposal for clarification and consistency.

Appendix G and J: These changes are provided in a separate Code Change Proposal but must be included for a comprehensive proposal. The proposed changes align with the IBC proposed changes including the following: differentiate between base and desgin flood; specifying that the flood hazard area includes the special flood hazard areas and the 500-year floodplain; and updates to pointers.

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<u>*Technical Rationale:*</u>

The American Society of Civil Engineers (ASCE) is proposing revisions to the International Code Council's I-Codes for the 2027 Cycle to align the national codes with the current ASCE/SEI design standards including:

ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2022 edition; Supplement 2 (ASCE/SEI 7-22 S2)

ASCE/SEI 24 Flood Resistant Design and Construction, 2024 edition (ASCE/SEI 24-24)

The loading standard ASCE/SEI 7-22 S2 and the design standard ASCE/SEI 24-24 work together – these documents have been developed to be consistent and coordinated so they can be required and used together. There are three significant changes in the national loading standard ASCE/SEI 7-22 S2 including (1) an extension of the defined Flood Hazard Area to the 500-year floodplain for Rick Category II, III, and IV structures, (2) an inclusion of risk-based design for loads, and (3) requirements to include relative sea level change into design load calculations for coastal sites; see below for more technical details. There are three significant changes in the national design standard ASCE/SEI 24-24 including (1) alignment with ASCE/SEI 7-22 S2, (2) alignment with FEMA Technical Bulletins, and (3) updates for elevations, materials, and floodproofing.

Both ASCE/SEI Standards are available for purchase and the Supplement available as a free download from the ASCE Library:

ASCE/SEI 7-22 (https://doi.org/10.1061/9780784415788)

ASCE/SEI 7-22 Supplement 2 (https://doi.org/10.1061/9780784415788.sup2)

ASCE/SEI 24-24 (https://doi.org/10.1061/9780784485781)

Flood Hazard:

The ASCE 7-22 S2 updates the design requirements to define the flood hazard area for the given Risk Category of structure. Addionally, the flood hazard depth is tied to the mean recurrence interval for a given Risk Category of structure. The design flood hazard is related to Risk Category (e.g., RC II will be designed to 500-year MRI), which is consistent with the way other environmental hazards (such as wind and snow loads) relate the hazard to Risk Category. This is in contrast to the current code requirements, which only considers only 100-year MRI flood for all structures regardless of Risk Category. In some areas in the U.S., the Authority Having Jurisdiction is already requiring a higher design requirement for the flood hazard. The city of Houston, for example, moved to requiring use of the 500-year MRI as the design basis for flood following the devastation from Hurricane Harvey. At a national level, FEMA is considering the use of the 500-year flood as the basis for floodplain management.

The coordinated code change proposals submitted for Group B are drafted to bring the IBC, IRC, and IEBC into alignment with the recent changes in ASCE 7-22 Supplement 2 and ASCE 24-24. The significant changes from the updates to these standards are to differentiate between the base flood (also described as the 100-year flood, or the 1% or greater chance of flooding in any given year) and the design flood, which could be different, and is defined in the standards for each Risk Category. The design flood must include considerations for loading specified in ASCE/SEI 7-22 S2 and design specified in ASCE/SEI 24-24.

Flood damage, and associated loss dollars, has significantly expanded since the last major updates of ASCE 7 Chapter 5 and ASCE 24. Their revisions attempt to close that gap and align the risks across other hazards.

FEMA cites that flood damage cost approximately $17 billion each year between 2010 and 2018, and with rising sea levels and extreme weather could cause $20 billion of flood damage to at-risk US homes this year, rising to $32 billion by 2051. Data from 2018 Hurricane Michael shows that 42% of claimed damage amounts were in the Shaded X-Zone (500-year floodplain), exceeding the amounts in both the A and V-Zones. (FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020).

This is further supported by FEMA's recent report "A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains," which evaluated the potential avoided losses (benefits) for 8 building types in 19 coastal floodplains and 14 riverine floodplains in the 100-year floodplain and the Shaded X Zone. The report shows that there are significant benefits to most buildings in the 100-year floodplain, particularly in steep/narrow floodplains. There were also significant benefits to buildings in the Shaded X Zone where there are currently no elevation requirements. These findings are supported by evidence from the National Flood Insurance Program (NFIP), which stated, "People outside of high-risk areas file more than 25 percent of NFIP claims and receive one-third of disaster assistance for flooding. The NFIP's preferred risk policies are designed for residential properties located in low- to moderate-risk flood zones." Additional reports from the NFIP indicate that 40% of companies fail to reopen after a disaster, with another 25% closing within a year. These problems are only further exacerbated by the influence of development and associated runoff, changes in precipitation rates, local subsidence, and sea level change. All of which are not accounted for by FEMA's flood maps, which only account for historic flood data and not future projections. All of this data supports the need to move from a fixed freeboard approach to a risk-based elevation approach that provides consistent protection from flat/wide floodplains to steep/narrow floodplains and more appropriately addresses the influence of wave action in coastal floodplains. This recognizes that true resiliency for communities is continuity of local businesses and making sure that public services are maintained and that adaptation to changes in precipitation, development, and sea level change must be incorporated into new buildings rather than relying on often prohibitively expensive retrofit options.

The ASCE changes consider the frequency of recent and predicted events and the significant damage recorded in the Shaded X-Zone. But, while significant, the addition of the Shaded X-Zone to the standards represents a change to only 4% of the U.S. population.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

ASCE Consensus Process:

ASCE established and maintains an ANSI-accredited, consensus process for standard development. The open process includes selection of a balanced committee, including representation of all affected stakeholders, and public review of the draft standard prior to publication. The ASCE consensus process follows the *ASCE Rules for Standards Committees*, which is published on the ASCE website. The ASCE/SEI 7-22 S2 was developed by the ASCE 7-22 Standard Committee, which included approximately 50 voting members and hundreds more associate members. The ASCE/SEI 24-24 standard was developed by the ASCE 24-24 Standard Committee, which included approximately 25 voting members and 15 associate members.

Supporting Organizations:

This code change proposal has many supporters, included but not limited to the following organizations:

American Flood Coalition

Association of State Flood Plain Managers (ASFPM)

BuildStrong America

Federal Emergency Management Association

Flood Mitigation Industry Association (FMIA)

National Institute of Building Science (NIBS)

Registered Designer Professionals and planners of buildings and other infrastructure projects, Code Officials, and Authorities Having Jurisdiction owe it to the public and have an ethical obligation to provide a framework for safe, reliable structures. The public expects that the buildings in which they live, work, and play are designed consistently, with the same risk approach for all environmental hazards. Flooding is disruptive to families, businesses, and communities and it takes years to recover from these devastating disasters and overcome the losses incurred. The flood hazard must be taken seriously and incorporated into our design standards and building codes in a manner that is consistent with all of the other environmental hazards.

- **2025 Cost and Benefits Analysis for ASCE 24-24**
  https://www.cdpaccess.com/proposal/11724/35914/documentation/186653/attachments/download/9870/

Bibliography: FEMA. A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains. January 2025
(https://www.researchgate.net/publication/388556202_A_Cost_and_Benefits_Analysis_of_Increased_Elevation_Requirements_for_Publ
FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020
(https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf)

Cost Impact: Increase

- **2025 Cost and Benefits Analysis for ASCE 24-24.PDF**
  https://www.cdpaccess.com/proposal/11724/35914/documentation/186656/attachments/download/9871/

Estimated Immediate Cost Impact:

ASCE 7 and ASCE 24 are national minimum design standards. The effects will vary depending upon the local flood conditions and flood risk across the country and among building types. For nearly 90% of all affected structures in Numbered A Zones, the estimated immediate costs impact can be understood in analysis of the mitigation cost as a percentage of building replacement value from 0.2-6.6% for coastal sites and 0.0-4.0% for riverine sites. Additionally, average benefits per square foot range from $51-$336 for both riverine and coastal flooding, which are dependent on building type and location. See the attached "Cost and Benefits Analysis" for additional information.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

Estimated Immediate Cost Impact Justification (methodology and variables):

A building cost study was considered for 14 riverine locations and 19 coastal locations. Examples consider A Zone and X Zone conditions to understand how the ASCE changes impact the overall cost. However, since most buildings are riverine, the study focused there, but similar trends appear in coastal buildings.

Table 1 is a summary of the buildings that were considered in the study, accounting for the building type, building sizes (and average), and Flood Design Classes. The difference between commercial and government office building plays a larger role in the losses avoided portion of the study. The cost analysis is grouped by Flood Design Class since this is the grouping used in ASCE 24 for elevation criteria.

Table 1 - Building Types Considered in Study

Building Type	Flood Design Class	Small SF	Medium SF	Large SF	Average SF
Hospital 2-3 Stories	4	25,000	70,000	145,000	80,000
Elementary School	3	25,000	40,000	65,000	43,333
Police Station	4	7,000	13,000	23,000	14,333
Office 1-Story (Government)	2	2,000	7,000	25,000	11,333
Office 3-Story (Government)	2	5,000	16,000	80,000	33,667
Office 1-Story (Commercial)	2	2,000	7,000	25,000	11,333
Office 3-Story (Commercial)	2	5,000	16,000	80,000	33,667
Retail Store	2	4,000	10,000	22,000	12,000

Table 2 provides an overview of A Zone conditions for increased building costs within the 100-yr floodplain. The values represent the breakdown of example floodplains using the numbered A Zone range to categorize how much rise there is between the various flood events. A low numbered A Zone represents a flat floodplain and a high number represents a steeper floodplain where there can be a large difference in flood elevations. The percent of numbered A Zones throughout the country based on an NFIP flood insurance policy analysis per census tract.

This provides a breakdown of how various floodplains impact the increased building cost. It's important to note that in A01-A03 the freeboard requirements equal or exceed the MRI based design flood event. Since ASCE did not change the minimum freeboard requirements for FDC 2 and FDC 4, those values are the same for ASCE 24-14 and ASCE 24-24 and therefore there is no cost increase. Additionally, for FDC 4 the analysis selected the higher of the 500-yr and BFE+2, so the delta between the ASCE 24-14 and ASCE 24-24 wasn't as high in the higher numbered A Zones as it would have been with FDC 2 and 3 where they were locked with ASCE 24-14 at BFE+1.

Table 2 - Average Building Cost Increase Percentage for Riverine A Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC3	FDC4
A01-A03	26%	0.00%	1.20%	0.00%
A04-A06	41%	1.50%	1.90%	0.50%
A07-A10	20%	2.40%	2.90%	0.60%
A11-A14	9%	4.80%	5.50%	1.00%
A15-A17	2%	8.90%	10.00%	1.60%
A18-A30	2%	11.90%	13.20%	2.10%
	Weighted Average:	1.97%	2.65%	0.49%

Table 3 provides an overview of X Zone conditions for increased building costs within the 500-yr floodplain. The 500-year floodplain represents the area between the 100-year floodplain and the 500-year flood extent, this therefore represents protection from the 101-year to the 500-year flood. In X Zones it is assumed that buildings are built on the ground as compared to elevated foundations in Zone A. Since the X Zone represents the difference between the 100-year and the 500-year flood, the 300-year flood elevation was used as an average ground elevation. The ASCE 24-24 elevations represent the minimum required elevations required per the standard. The increased elevation is therefore the difference between ground (at the 300-year flood elevation) and the ASCE 24-24 elevation requirements. Similar to Table 2, Table 3 data is provided per Flood Design Class per grouped numbered A Zone designation.

Table 3 - Average Building Cost Increase Percentage for Riverine X Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC 3	FDC 4
A01-A03	26%	0.60%	1.80%	0.70%
A04-A06	41%	1.00%	1.50%	0.80%
A07-A10	20%	1.20%	1.80%	1.00%
A11-A14	9%	1.90%	3.00%	1.70%
A15-A17	2%	3.20%	5.00%	2.80%
A18-A30	2%	4.40%	6.70%	3.70%
	Weighted Average:	1.14%	1.93%	1.00%

It is believed that the presentation of percent increase in building cost provided a better representation of the overall cost impacts rather than providing dollar values. While the percent increase does get rather large in those areas with high numbered A Zones, this is a much smaller overall percentage of land area, so this represents a smaller portion of the floodplains in the US. However, recent events have shown that when these areas experience a flood event above the 100-year or 1% annual chance flood, that they often experience deep flooding. Experience from Western NC following Hurricane Helene demonstrated that when floods occur in areas with high numbered A Zones that significant flood damage occurs in the X Zone. There were examples of buildings elevated in the X Zone that performed very well in Hurricane Helene and had little to no observed damage. But many buildings in the X Zone that were constructed at grade were severely damaged or destroyed. While this is observational, there is substantial evidence to suggest that the percent cost increase is offset by the avoided losses. Two key factors that impact the avoided loss calculation is the impact of when the original flood insurance studies and associated maps were created (older mapping data), which can mean that the mapped risk is underestimated (increased runoff due to development and updated precipitation data) and then looking forward the impact of future changes in precipitation rates over the 50-year life of riverine buildings. Similarly, these impacts can impact coastal flooding heights as well as the impact of sea level change.

Staff Analysis: CC # S97-25 Part III and CC # S180-25 Part I/CC #S181-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S97-25 Part III

S97-25 Part IV

IEBC: [A] 104.2.4.1, [A] 104.3.1, [A] 109.3.3, [A] 109.3.10, SECTION 202, 301.3, [BS] 401.3, BS] 405.2.6, [BS] 502.2, [BS] 503.2, [BS] 507.3, [BS] 701.3, [BS] 1103.3, [BS] 1201.4, [BS] 1303.1.3, [BS] 1402.6

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org); Jiqiu yuan, representing National Institute of Building Sciences (jyuan@nibs.org); Roderick Scott, Board Chair, representing Flood Mitigation Industry Association (roderick.scott75@aol.com); Joel Scata, representing NRDC (jscata@nrdc.org); Natalie Enclade, representing BuildStrong America (natalie@buildstrongamerica.com)

2024 International Existing Building Code

CHAPTER 1
SCOPE AND ADMINISTRATION

SECTION 104
DUTIES AND POWERS OF CODE OFFICIAL

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. For *existing buildings* located in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, for which *repairs*, *alterations* and *additions* constitute *substantial improvement*, the *code official* shall not grant modifications to provisions related to flood resistance unless a determination is made that:

1. The applicant has presented good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render compliance with the flood-resistant construction provisions inappropriate.
2. Failure to grant the modification would result in exceptional hardship.
3. The granting of the modification will not result in increased flood heights, additional threats to public safety or extraordinary public expense; create nuisances; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. A written notice will be provided to the applicant specifying, if applicable, the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and that construction below the design flood elevation increases risks to life and property.

[A] 104.3.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, *repair*, *alteration*, *addition* or other improvement of *existing buildings* or structures located in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, the *code official* shall determine where the proposed work constitutes *substantial improvement* or *repair* of *substantial damage*. Where the *code official* determines that the proposed work constitutes *substantial improvement* or *repair* of *substantial damage*, and where required by this code, the *code official* shall require the building to meet the requirements of Section 1612 of the *International Building Code,* or Section R306 of the *International Residential Code*, as applicable.

SECTION 109
INSPECTIONS

[A] 109.3.3 Lowest floor elevation. For *additions* and *substantial improvements* to *existing buildings* in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, on placement of the *lowest floor*, including basement, and prior to further vertical construction, the elevation documentation required in the *International Building Code*, or the *International Residential Code*, as applicable, shall be submitted to the *code official*.

[A] 109.3.10 Flood hazard documentation. Where a building is located in a *flood hazard area*, <u>including special flood hazard areas and 500-year floodplains,</u> documentation of the elevation of the *lowest floor* or the elevation of dry floodproofing, if applicable, as required in the International Building Code or the International Residential Code, as applicable, shall be submitted to the *code official*prior to the final inspection.

CHAPTER 3
PROVISIONS FOR ALL COMPLIANCE METHODS

SECTION 301
ADMINISTRATION

301.3 Alteration, addition or change of occupancy. The *alteration*, *addition* or *change of occupancy* of all *existing buildings* shall comply with one of the methods listed in Section 301.3.1, 301.3.2 or 301.3.3 as selected by the applicant. Sections 301.3.1 through 301.3.3 shall not be applied in combination with each other.

Exception: Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code. New structural members added as part of the *alteration* shall comply with the *International Building Code*. This exception shall not apply to the following:

1. *Alterations* for accessibility required by Section 306.
2. *Alterations* that constitute *substantial improvement* in *flood hazard areas*, <u>including special flood hazard areas and 500-year floodplains,</u> which shall comply with Sections 503.2, 701.3 or 1303.1.3.
3. Structural provisions of Section 304, Chapter 5 or to the structural provisions of Sections 706, 805 and 906.

CHAPTER 4
REPAIRS

SECTION 401
GENERAL

[BS] 401.3 Flood hazard areas. In *flood hazard* areas, <u>including special flood hazard areas and 500-year floodplains,</u> *repairs* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

SECTION 405
STRUCTURAL

[BS] 405.2.6 Flood hazard areas. In *flood hazard* areas, <u>including special flood hazard areas and 500-year floodplains,</u>buildings that have sustained *substantial damage* shall be brought into compliance with Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.

CHAPTER 5
PRESCRIPTIVE COMPLIANCE METHOD

SECTION 502
ADDITIONS

[BS] 502.2 Flood hazard areas. For buildings and structures in *flood hazard* areas, including special flood hazard areas and 500-year floodplains, ~~established in Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable,~~ any *addition* that constitutes *substantial improvement* of the *existing structure* shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design. For new foundations, foundations raised or extended upward, and replacement foundations, the foundations shall be in compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, ~~established in Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable~~, any *additions* that do not constitute *substantial improvement* of the *existing structure* are not required to comply with the flood design requirements for new construction, provided that both of the following apply:

1. The *addition* shall not create or extend a nonconformity of the *existing building* or structure with the flood-resistant construction requirements.
2. The *lowest floor* of the *addition* shall be at or above the lower of the *lowest floor* of the *existing building* or structure or the *lowest floor* elevation required in Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.

SECTION 503
ALTERATIONS

[BS] 503.2 Flood hazard areas. For buildings and structures in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, ~~established in Section 1612.3 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable~~, any *alteration* that constitutes *substantial improvement* of the *existing structure* shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas,* including special flood hazard areas and 500-year floodplains, ~~established in Section 1612.3 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable~~, any *alterations* that do not constitute *substantial improvement* of the *existing structure* are not required to comply with the flood design requirements for new construction.

SECTION 507
HISTORIC BUILDINGS

[BS] 507.3 Flood hazard areas. Within *flood hazard areas,* including special flood hazard areas and 500-year floodplains, ~~established in accordance with Section 1612.3 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable~~, where the work proposed constitutes *substantial improvement,* the building shall be brought into compliance with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

Exception: *Historic buildings* meeting any of the following criteria need not be brought into compliance:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
2. Determined by the Secretary of the US Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

CHAPTER 7

ALTERATIONS—LEVEL 1

SECTION 701
GENERAL

[BS] 701.3 Flood hazard areas. In *flood hazard areas*, including special flood hazard areas and 500-year floodplains, *alterations* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

SECTION 1103
STRUCTURAL

CHAPTER 11
ADDITIONS

[BS] 1103.3 Flood hazard areas. *Additions* and *foundations* in *flood hazard areas*, including special flood hazard areas and 500-year floodplains,shall comply with the following requirements:

1. For horizontal *additions* that are structurally interconnected to the *existing building*:
   - 1.1. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.
   - 1.2. If the *addition* constitutes *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.
   - 1.3. If the *addition* does not constitute *substantial improvement*, the *addition* is not required to comply with the flood design requirements for new construction, provided that both of the following apply:
     - 1.3.1. The *addition* shall not create or extend any nonconformity of the *existing building* with the flood-resistant construction requirements.
     - 1.3.2. The *lowest floor* of the *addition* shall be at or above the lower of the *lowest floor* of the *existing building* or the *lowest floor* elevation required in Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.
2. For horizontal *additions* that are not structurally interconnected to the *existing building*:
   - 2.1. The *addition* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.
   - 2.2. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.
3. For vertical *additions* and all other proposed work that, when combined, constitute *substantial improvement*, the *existing building* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.
4. For a new foundation, replacement foundation or a foundation raised or extended upward, the foundation shall comply with Section 1612 of the *International Building Code,* or Section R306 of the *International Residential Code*, as applicable.

CHAPTER 12
HISTORIC BUILDINGS

SECTION 1201
GENERAL

[BS] 1201.4 Flood hazard areas. In *flood hazard areas*, including special flood hazard areas and 500-year floodplains, if all proposed work, including *repairs*, work required because of a *change of occupancy*, and *alterations*, constitutes *substantial improvement*, then the *existing building* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

Exception: If a *historic building* will continue to be a *historic building* after the proposed work is completed, then the proposed work is not considered a *substantial improvement*. For the purposes of this exception, a *historic building* is any of the following:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
2. Determined by the Secretary of the US Department of Interior to contribute to the historical significance of a registered historic district or a district preliminarily determined to qualify as a historic district.
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

CHAPTER 13
PERFORMANCE COMPLIANCE METHODS

SECTION 1303
ACCEPTANCE

[BS] 1303.1.3 Compliance with flood hazard provisions. In *flood hazard areas*, including special flood hazard areas and 500-year floodplains, buildings that are evaluated in accordance with this section shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable, if the work covered by this section constitutes *substantial improvement*. If the work covered by this section is a structurally connected horizontal *addition* that does not constitute *substantial improvement*, the *addition* is not required to comply with the flood design requirements for new construction, provided that both of the following apply.

1. The *addition* shall not create or extend any nonconformity of the *existing building* with the flood-resistant construction requirements.
2. The *lowest floor* of the *addition* shall be at or above the lower of the *lowest floor* of the *existing building* or the *lowest floor* elevation required in Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.

CHAPTER 14
RELOCATED OR MOVED BUILDINGS

SECTION 1402
REQUIREMENTS

[BS] 1402.6 Flood hazard areas. If relocated or moved into a *flood hazard area*, including special flood hazard areas and 500-year floodplains, structures shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

Reason: This proposal is a coordination proposal to bring the 2027 edition of the I-Codes up to date with the provisions in the 2022 edition of *ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, Supplement 2* (ASCE/SEI 7-22, Supplement 2) as well as the 2024 edition of *ASCE/SEI 24 Flood Resistant Design and Construction* (ASCE/SEI 24-24) --- specifically for the codes primarily affected such as the International Building Code (IBC), the International Residential Code (IRC), and the International Existing Building Code (IEBC), in Group B, but also every I-Code affected by a coordinating code change that will need to be updated. ASCE/SEI 7-22 is the current reference in 2024 I-Codes and Supplement 2 has been submitted as an Administrative Update. ASCE/SEI 24-24 has also been submitted as an Administrative Update to the 2027 I-Codes.

This proposal has been organized into Part I to Part VII and includes technical updates as well as editorial coordination. The specific changes to each section included in this proposal are outlined in Overview below, and a detailed summary of the technical updates are explained in Technical Rationale below that. In addition to the strike out/underline for the code change proposals, the MS Word documents for each affected I-Code have been provided as Attached Files for clarity.

Overview:

These changes for the IEBC provide similar updates to the IBC and IEBC, just provided in a separate Code Change Proposal. However, all changes must be included across all I-Codes for a comprehensive proposal - IBC, IRC and IEBC are included in Group B; the others will need to be addressed in the next Group A cycle.

All Chapters: Add phase “including special flood hazard areas and 500-year flood” following "flood hazard area" for clarity. These changes are carried out throughout the code change proposal for clarification and consistency.**Chapter 2:** Include the 500-year flood in definition of "Flood Hazard Area"

Chapter 5: Remove unnecessary pointers

Technical Rationale:

The American Society of Civil Engineers (ASCE) is proposing revisions to the International Code Council’s I-Codes for the 2027 Cycle to align the national codes with the current ASCE/SEI design standards including:

ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2022 edition; Supplement 2 (ASCE/SEI 7-22 S2)

ASCE/SEI 24 Flood Resistant Design and Construction, 2024 edition (ASCE/SEI 24-24)

The loading standard ASCE/SEI 7-22 S2 and the design standard ASCE/SEI 24-24 work together – these documents have been developed to be consistent and coordinated so they can be required and used together. There are three significant changes in the national loading standard ASCE/SEI 7-22 S2 including (1) an extension of the defined Flood Hazard Area to the 500-year floodplain for Rick Category II, III, and IV structures, (2) an inclusion of risk-based design for loads, and (3) requirements to include relative sea level change into design load calculations for coastal sites; see below for more technical details. There are three significant changes in the national design standard ASCE/SEI 24-24 including (1) alignment with ASCE/SEI 7-22 S2, (2) alignment with FEMA Technical Bulletins, and (3) updates for elevations, materials, and floodproofing.

Both ASCE/SEI Standards are available for purchase and the Supplement available as a free download from the ASCE Library:

ASCE/SEI 7-22 (https://doi.org/10.1061/9780784415788)

ASCE/SEI 7-22 Supplement 2 (https://doi.org/10.1061/9780784415788.sup2)

ASCE/SEI 24-24 (https://doi.org/10.1061/9780784485781)

Flood Hazard:

The ASCE 7-22 S2 updates the design requirements to define the flood hazard area for the given Risk Category of structure. Addionally, the flood hazard depth is tied to the mean recurrence interval for a given Risk Category of structure. The design flood hazard is related to Risk Category (e.g., RC II will be designed to 500-year MRI), which is consistent with the way other environmental hazards (such as wind and snow loads) relate the hazard to Risk Category. This is in contrast to the current code requirements, which only considers only 100-year MRI flood for all structures regardless of Risk Category. In some areas in the U.S., the Authority Having Jurisdiction is already requiring a higher design requirement for the flood hazard. The city of Houston, for example, moved to requiring use of the 500-year MRI as the design basis for flood following the devastation from Hurricane Harvey. At a national level, FEMA is considering the use of the

500-year flood as the basis for floodplain management.

The coordinated code change proposals submitted for Group B are drafted to bring the IBC, IRC, and IEBC into alignment with the recent changes in ASCE 7-22 Supplement 2 and ASCE 24-24. The significant changes from the updates to these standards are to differentiate between the base flood (also described as the 100-year flood, or the 1% or greater chance of flooding in any given year) and the design flood, which could be different, and is defined in the standards for each Risk Category. The design flood must include considerations for loading specified in ASCE/SEI 7-22 S2 and design specified in ASCE/SEI 24-24.

Flood damage, and associated loss dollars, has significantly expanded since the last major updates of ASCE 7 Chapter 5 and ASCE 24. Their revisions attempt to close that gap and align the risks across other hazards.

FEMA cites that flood damage cost approximately $17 billion each year between 2010 and 2018, and with rising sea levels and extreme weather could cause $20 billion of flood damage to at-risk US homes this year, rising to $32 billion by 2051. Data from 2018 Hurricane Michael shows that 42% of claimed damage amounts were in the Shaded X-Zone (500-year floodplain), exceeding the amounts in both the A and V-Zones. (FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020).

This is further supported by FEMA's recent report "A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains," which evaluated the potential avoided losses (benefits) for 8 building types in 19 coastal floodplains and 14 riverine floodplains in the 100-year floodplain and the Shaded X Zone. The report shows that there are significant benefits to most buildings in the 100-year floodplain, particularly in steep/narrow floodplains. There were also significant benefits to buildings in the Shaded X Zone where there are currently no elevation requirements. These findings are supported by evidence from the National Flood Insurance Program (NFIP), which stated, "People outside of high-risk areas file more than 25 percent of NFIP claims and receive one-third of disaster assistance for flooding. The NFIP's preferred risk policies are designed for residential properties located in low- to moderate-risk flood zones." Additional reports from the NFIP indicate that 40% of companies fail to reopen after a disaster, with another 25% closing within a year. These problems are only further exacerbated by the influence of development and associated runoff, changes in precipitation rates, local subsidence, and sea level change. All of which are not accounted for by FEMA's flood maps, which only account for historic flood data and not future projections. All of this data supports the need to move from a fixed freeboard approach to a risk-based elevation approach that provides consistent protection from flat/wide floodplains to steep/narrow floodplains and more appropriately addresses the influence of wave action in coastal floodplains. This recognizes that true resiliency for communities is continuity of local businesses and making sure that public services are maintained and that adaptation to changes in precipitation, development, and sea level change must be incorporated into new buildings rather than relying on often prohibitively expensive retrofit options.

The ASCE changes consider the frequency of recent and predicted events and the significant damage recorded in the Shaded X-Zone. But, while significant, the addition of the Shaded X-Zone to the standards represents a change to only 4% of the U.S. population.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

ASCE Consensus Process:

ASCE established and maintains an ANSI-accredited, consensus process for standard development. The open process includes selection of a balanced committee, including representation of all affected stakeholders, and public review of the draft standard prior to publication. The ASCE consensus process follows the *ASCE Rules for Standards Committees*, which is published on the ASCE website. The ASCE/SEI 7-22 S2 was developed by the ASCE 7-22 Standard Committee, which included approximately 50 voting members and hundreds more associate members. The ASCE/SEI 24-24 standard was developed by the ASCE 24-24 Standard Committee, which included approximately 25 voting members and 15 associate members.

Supporting Organizations:

This code change proposal has many supporters, included but not limited to the following organizations:

American Flood Coalition

American Institute of Architects (AIA)

Association of State Flood Plain Managers (ASFPM)

BuildStrong America

Federal Emergency Management Association

Flood Mitigation Industry Association (FMIA)

National Institute of Building Science (NIBS)

Registered Designer Professionals and planners of buildings and other infrastructure projects, Code Officials, and Authorities Having Jurisdiction owe it to the public and have an ethical obligation to provide a framework for safe, reliable structures. The public expects that the buildings in which they live, work, and play are designed consistently, with the same risk approach for all environmental hazards. Flooding is disruptive to families, businesses, and communities and it takes years to recover from these devastating disasters and overcome the losses incurred. The flood hazard must be taken seriously and incorporated into our design standards and building codes in a manner that is consistent with all of the other environmental hazards.

- **2025 Cost and Analysis Benefits for ASCE 24-24.PDF**
  https://www.cdpaccess.com/proposal/11726/35918/documentation/186680/attachments/download/9872/

Bibliography: FEMA. A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains. January 2025 (https://www.researchgate.net/publication/388556202_A_Cost_and_Benefits_Analysis_of_Increased_Elevation_Requirements_for_Publ

FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020 (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf)

Cost Impact: Increase

- **2025 Cost and Benefits Analysis for ASCE 24-24.PDF**
  https://www.cdpaccess.com/proposal/11726/35918/documentation/186683/attachments/download/9873/

Estimated Immediate Cost Impact:

ASCE 7 and ASCE 24 are national minimum design standards. The effects will vary depending upon the local flood conditions and flood risk across the country and among building types. For nearly 90% of all affected structures in Numbered A Zones, the estimated immediate costs impact can be understood in analysis of the mitigation cost as a percentage of building replacement value from 0.2-6.6% for coastal sites and 0.0-4.0% for riverine sites. Additionally, average benefits per square foot range from $51-$336 for both riverine and coastal flooding, which are dependent on building type and location. See the attached “Cost and Benefits Analysis” for additional information.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

Estimated Immediate Cost Impact Justification (methodology and variables):

A building cost study was considered for 14 riverine locations and 19 coastal locations. Examples consider A Zone and X Zone conditions to understand how the ASCE changes impact the overall cost. However, since most buildings are riverine, the study focused there, but similar trends appear in coastal buildings.

Table 1 is a summary of the buildings that were considered in the study, accounting for the building type, building sizes (and average), and Flood Design Classes. The difference between commercial and government office building plays a larger role in the losses avoided portion of the study. The cost analysis is grouped by Flood Design Class since this is the grouping used in ASCE 24 for elevation criteria.

Table 1 - Building Types Considered in Study

Building Type	Flood Design Class	Small SF	Medium SF	Large SF	Average SF

Hospital 2-3 Stories	4	25,000	70,000	145,000	80,000
Elementary School	3	25,000	40,000	65,000	43,333
Police Station	4	7,000	13,000	23,000	14,333
Office 1-Story (Government)	2	2,000	7,000	25,000	11,333
Office 3-Story (Government)	2	5,000	16,000	80,000	33,667
Office 1-Story (Commercial)	2	2,000	7,000	25,000	11,333
Office 3-Story (Commercial)	2	5,000	16,000	80,000	33,667
Retail Store	2	4,000	10,000	22,000	12,000

Table 2 provides an overview of A Zone conditions for increased building costs within the 100-yr floodplain. The values represent the breakdown of example floodplains using the numbered A Zone range to categorize how much rise there is between the various flood events. A low numbered A Zone represents a flat floodplain and a high number represents a steeper floodplain where there can be a large difference in flood elevations. The percent of numbered A Zones throughout the country based on an NFIP flood insurance policy analysis per census tract.

This provides a breakdown of how various floodplains impact the increased building cost. It's important to note that in A01-A03 the freeboard requirements equal or exceed the MRI based design flood event. Since ASCE did not change the minimum freeboard requirements for FDC 2 and FDC 4, those values are the same for ASCE 24-14 and ASCE 24-24 and therefore there is no cost increase. Additionally, for FDC 4 the analysis selected the higher of the 500-yr and BFE+2, so the delta between the ASCE 24-14 and ASCE 24-24 wasn't as high in the higher numbered A Zones as it would have been with FDC 2 and 3 where they were locked with ASCE 24-14 at BFE+1.

Table 2 - Average Building Cost Increase Percentage for Riverine A Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC3	FDC4
A01-A03	26%	0.00%	1.20%	0.00%
A04-A06	41%	1.50%	1.90%	0.50%
A07-A10	20%	2.40%	2.90%	0.60%
A11-A14	9%	4.80%	5.50%	1.00%
A15-A17	2%	8.90%	10.00%	1.60%
A18-A30	2%	11.90%	13.20%	2.10%
	Weighted Average:	1.97%	2.65%	0.49%

Table 3 provides an overview of X Zone conditions for increased building costs within the 500-yr floodplain. The 500-year floodplain represents the area between the 100-year floodplain and the 500-year flood extent, this therefore represents protection from the 101-year to the 500-year flood. In X Zones it is assumed that buildings are built on the ground as compared to elevated foundations in Zone A. Since the X Zone represents the difference between the 100-year and the 500-year flood, the 300-year flood elevation was used as an average ground elevation. The ASCE 24-24 elevations represent the minimum required elevations required per the standard. The increased elevation is therefore the difference between ground (at the 300-year flood elevation) and the ASCE 24-24 elevation requirements. Similar to Table 2, Table 3 data is provided per Flood Design Class per grouped numbered A Zone designation.

Table 3 - Average Building Cost Increase Percentage for Riverine X Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC 3	FDC 4
A01-A03	26%	0.60%	1.80%	0.70%
A04-A06	41%	1.00%	1.50%	0.80%
A07-A10	20%	1.20%	1.80%	1.00%
A11-A14	9%	1.90%	3.00%	1.70%
A15-A17	2%	3.20%	5.00%	2.80%
A18-A30	2%	4.40%	6.70%	3.70%
	Weighted Average:	1.14%	1.93%	1.00%

It is believed that the presentation of percent increase in building cost provided a better representation of the overall cost impacts rather than providing dollar values. While the percent increase does get rather large in those areas with high numbered A Zones, this is a much smaller overall percentage of land area, so this represents a smaller portion of the floodplains in the US. However, recent events have shown that when these areas experience a flood event above the 100-year or 1% annual chance flood, that they often experience deep flooding. Experience from Western NC following Hurricane Helene demonstrated that when floods occur in areas with high numbered A Zones that significant flood damage occurs in the X Zone. There were examples of buildings elevated in the X Zone that performed very well in Hurricane Helene and had little to no observed damage. But many buildings in the X Zone that were constructed at grade were severely damaged or destroyed. While this is observational, there is substantial evidence to suggest that the percent cost increase is offset by the avoided losses. Two key factors that impact the avoided loss calculation is the impact of when the original flood insurance studies and associated maps were created (older mapping data), which can mean that the mapped risk is underestimated (increased runoff due to development and updated precipitation data) and then looking forward the impact of future changes in precipitation rates over the 50-year life of riverine buildings. Similarly, these impacts can impact coastal flooding heights as well as the impact of sea level change.

S97-25 Part IV

S97-25 Part V

IMC®: [A]104.2.4.1, [A]104.3.1, [BS] 301.16, 401.4, 501.3.1, [BS] 602.4, [BS] 603.13, 1206.9.1, 1210.8.6, 1305.2.1; IPC: [A] 104.2.4.1, [A]104.3.1, 309.1, [BS] 309.2; IFGC: [A] 104.2.4.1, [A]104.3.1, [BS] 301.11; IRC: G2404.7 (301.11); IFC: 1203.1.8; ISPSC: [A] 104.2.4.1, [A]104.3.1, 304.1, [BS]304.2; IPSDC: [A] 104.2.4.1, [A]104.3.1, 301.1, [BS]303.1, [BS]303.2, [BS]303.3, 401.2, 406.1.1

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org); Roderick Scott, Board Chair, representing Flood Mitigation Industry Association (roderick.scott75@aol.com); Jiqiu yuan, representing National Institute of Building Sciences (jyuan@nibs.org); Natalie Enclade, representing BuildStrong America (natalie@buildstrongamerica.com); Joel Scata, representing NRDC (jscata@nrdc.org)

2024 International Mechanical Code

CHAPTER 1 SCOPE AND ADMINISTRATION

SECTION 104 DUTIES AND POWERS OF THE CODE OFFICIAL

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas, <u>including special flood hazard areas and 500-year floodplains,</u> as established by Section 1612.3 of the *International Building Code*, unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the *building* is to be built, stating that the cost of flood in-surance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

[A] 104.3.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, *alteration*, addition or other improvement of existing *buildings* or structures located in flood hazard areas, <u>including special flood hazard areas and 500-year floodplains,</u> the code official shall determine if the proposed work constitutes substantial improvement or repair of substantial damage. Where the code official determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the code official shall require the *building* to meet the requirements of Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.

CHAPTER 3 GENERAL REGULATIONS

SECTION 301

GENERAL

[BS] 301.16 Flood hazard. For structures located in flood hazard areas, including special flood hazard areas and 500-year floodplains, mechanical systems, *equipment* and *appliances* shall be located at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant *equipment*.

> **Exception:** Mechanical systems, *equipment* and *appliances* are permitted to be located below the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

CHAPTER 4
VENTILATION

SECTION 401
GENERAL

401.4 Intake opening location. Air intake openings shall comply with all of the following:

1. Intake openings shall be located not less than 10 feet (3048 mm) from lot lines or buildings on the same lot.
2. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) horizontally from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots and loading docks, except as specified in Item 3 or Section 501.3.1. Outdoor air intake openings shall be permitted to be located less than 10 feet (3048 mm) horizontally from streets, alleys, parking lots and loading docks provided that the openings are located not less than 25 feet (7620 mm) vertically above such locations. Where openings front on a street or public way, the distance shall be measured from the closest edge of the street or public way.
3. Intake openings shall be located not less than 3 feet (914 mm) below contaminant sources where such sources are located within 10 feet (3048 mm) of the opening. Separation is not required between intake air openings and living space *exhaust air* openings of an individual *dwelling unit* or *sleeping unit* where a factory-built intake/exhaust combination termination fitting is used to separate the air streams in accordance with the fan manufacturer's instructions.
4. Intake openings on structures in flood hazard areas, including special flood hazard areas and 500-year floodplains, shall be at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.

CHAPTER 5
EXHAUST SYSTEMS

SECTION 501
GENERAL

501.3.1 Location of exhaust outlets.. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm) from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings that are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.
2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.

3. For all *environmental air* exhaust: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings, except where the exhaust opening is located not less than 1 foot (305 mm) above the gravity air intake opening into buildings for all *occupancies* other than Group U; and 10 feet (3048 mm) from mechanical air intakes. Such exhaust shall not be considered hazardous or noxious. Separation is not required between intake air openings and living space *exhaust air* openings of an individual *dwelling unit* or *sleeping unit* where a factory-built intake/exhaust combination termination fitting is used to separate the air streams in accordance with the fan manufacturer's instructions.
4. Exhaust outlets serving structures in flood hazard areas, including special flood hazard areas and 500-year floodplains, shall be installed at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.
5. For specific systems, see the following sections:
   - 5.1. Clothes dryer exhaust, Section 504.4.
   - 5.2. Kitchen hoods and other kitchen exhaust *equipment*, Sections 506.3.13, 506.4 and 506.5.
   - 5.3. Dust, stock and refuse conveying systems, Section 510.2.
   - 5.4. Subslab soil exhaust systems, Section 511.4.
   - 5.5. Smoke control systems, Section 512.10.3.
   - 5.6. Refrigerant discharge, Section 1105.7.
   - 5.7. *Machinery room* discharge, Section 1105.6.1.

CHAPTER 6
DUCT SYSTEMS

SECTION 602
PLENUMS

[BS] 602.4 Flood hazard. For structures located in flood hazard areas, including special flood hazard areas and 500-year floodplains, *plenum* spaces shall be located above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment or shall be designed and constructed to prevent water from entering or accumulating within the *plenum* spaces during floods up to such elevation. If the *plenum* spaces are located below the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment, they shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

SECTION 603
DUCT CONSTRUCTION AND INSTALLATION

[BS] 603.13 Flood hazard areas. For structures in flood hazard areas, including special flood hazard areas and 500-year floodplains, ducts shall be located above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment or shall be designed and constructed to prevent water from entering or accumulating within the ducts during floods up to such elevation. If the ducts are located below the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment, the ducts shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

CHAPTER 12
HYDRONIC PIPING

SECTION 1206
PIPING INSTALLATION

1206.9.1 Flood hazard. Piping located in a flood hazard area, including special flood hazard areas and 500-year floodplains, shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the *design flood elevation*.

SECTION 1210
PLASTIC PIPE GROUND-SOURCE HEAT PUMP LOOP SYSTEMS

1210.8.6 Flood hazard. Piping located in a flood hazard area, including special flood hazard areas and 500-year floodplains, shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the *design flood elevation*.

CHAPTER 13
FUEL OIL PIPING AND STORAGE

SECTION 1305
FUEL OIL SYSTEM INSTALLATION

1305.2.1 Flood hazard. Fuel oil pipe, *equipment* and *appliances* located in flood hazard areas, including special flood hazard areas and 500-year floodplains, shall be located above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment or shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

2024 International Plumbing Code

CHAPTER 1
SCOPE AND ADMINISTRATION

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas, including special flood areas and 500-year floodplains. as established by Section 1612.3 of the *International Building Code* unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.

5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

[A] 104.3.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, <u>including special flood hazard areas and 500-year floodplains,</u> the code official shall determine if the proposed work constitutes substantial improvement or repair of substantial damage. Where the code official determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the code official shall require the building to meet the requirements of Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.

CHAPTER 3 GENERAL REGULATIONS

SECTION 309 FLOOD HAZARD RESISTANCE

309.1 General. Plumbing systems and equipment in structures erected in *flood hazard areas*<u>, including special flood hazard areas and 500-year floodplains,</u>shall be constructed in accordance with the requirements of this section and the *International Building Code*.

[BS] 309.2 Flood hazard. For structures located in *flood hazard areas*<u>, including special flood hazard areas and 500-year floodplains,</u> the following systems and equipment shall be located and installed as required by Section 1612 of the *International Building Code*.

1. Water service pipes.
2. Pump seals in individual water supply systems where the pump is located below the *design flood elevation*.
3. Covers on potable water wells shall be sealed, except where the top of the casing well or pipe sleeve is elevated to not less than 1 foot (305 mm) above the *design flood elevation*.
4. Sanitary drainage piping.
5. Storm drainage piping.
6. Manhole covers shall be sealed, except where elevated to or above the *design flood elevation*.
7. Other plumbing fixtures, faucets, fixture fittings, piping systems and equipment.
8. Water heaters.
9. Vents and vent systems.

2024 International Fuel Gas Code

CHAPTER 1 SCOPE AND ADMINISTRATION

SECTION 104 (IFGC) DUTIES AND POWERS OF THE CODE OFFICIAL

Revise as follows:

[A] 104.2.4.1 Flood hazard areas.. The *code official* shall not grant modifications to any provision required in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, as established by Section 1612.3 of the *International Building Code* unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

[A] 104.3.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, *alteration*, addition or other improvement of existing buildings or structures located in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, the *code official* shall determine if the proposed work constitutes substantial improvement or repair of substantial damage. Where the *code official* determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the *code official* shall require the building to meet the requirements of Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.

CHAPTER 3
GENERAL REGULATIONS

SECTION 301 (IFGC)
GENERAL

[BS] 301.11 Flood hazard. For structures located in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, the *appliance*, *equipment* and system installations regulated by this code shall be located at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.

Exception: The *appliance*, *equipment* and system installations regulated by this code are permitted to be located below the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to such elevation.

2024 International Residential Code

CHAPTER 24
FUEL GAS

SECTION G2404 (301)
GENERAL

Revise as follows:

G2404.7 (301.11) Flood hazard. For structures located in *flood hazard areas*, including special flood hazard areas and 500-year

[illegible] Flood hazard. For structures located in flood hazard areas, <u>including special flood hazard areas and 500-year floodplains,</u> the *appliance*, *equipment* and system installations regulated by this code shall be located at or above the elevation required by Section R306 for utilities and attendant equipment.

> **Exception:** The *appliance*, *equipment* and system installations regulated by this code are permitted to be located below the elevation required by Section R306 for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to such elevation.

2024 International Fire Code

CHAPTER 12
ENERGY SYSTEMS

SECTION 1203
EMERGENCY AND STANDBY POWER SYSTEMS

Revise as follows:

1203.1.8 Group I-2 occupancies. In Group I-2 occupancies located in flood hazard areas<u>, including special flood hazard areas and 500-year floodplains,</u> established in Section 1612.3 of the *International Building Code* where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hook up of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24.

2024 International Swimming Pool and Spa Code

CHAPTER 1
SCOPE AND ADMINISTRATION

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas<u>, including special flood hazard areas and 500-year floodplains,</u>as established by Section 1612.3 of the *International Building Code* unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

[A] 104.3.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, including special flood hazard areas and 500-year floodplains, the code official shall determine if the proposed work constitutes substantial improvement or repair of substantial damage. Where the code official determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the code official shall require the building to meet the requirements of Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.

CHAPTER 3
GENERAL COMPLIANCE

SECTION 304
FLOOD HAZARD AREAS

304.1 General. The provisions of Section 304 shall control the design and construction of pools and spas installed in *flood hazard areas*, including special flood hazard areas and 500-year floodplains.

[BS] 304.2 Determination of impacts based on location. Pools and spas located in *flood hazard areas*, including special flood hazard areas and 500-year floodplains, indicated within the *International Building Code* or the *International Residential Code* shall comply with Section 304.2.1 or 304.2.2.

Exception: Pools and spas located in riverine *flood hazard areas* that are outside of designated floodways and pools and spas located in *flood hazard areas* where the source of flooding is tides, storm surges or coastal storms.

2024 International Private Sewage Disposal Code

CHAPTER 1
SCOPE AND ADMINISTRATION

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

Revise as follows:

[A] 104.2.4.1 Flood hazard areas. The code official shall not grant modifications to any provision required in flood hazard areas, including special flood hazard areas and 500-year floodplains, as established by Section 1612.3 of the *International Building Code*, unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 of the *International Building Code* inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the design flood elevation increases risks to life and property.

[A] 104.3.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, including special flood hazard areas and 500-year floodplains, the code official shall determine if the proposed work constitutes substantial improvement or repair of substantial damage. Where the code official determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the code official shall require the building to meet the requirements of Section 1612 of the *International Building Code* or Section R306 of *the International Residential Code*, as applicable.

CHAPTER 3
GENERAL REGULATIONS

SECTION 301
GENERAL

301.1 Scope. The provisions of this chapter shall govern the general regulations of *private sewage disposal systems*, including specific limitations and *flood hazard areas*, including special flood hazard areas and 500-year floodplains.

SECTION 303
FLOOD HAZARD AREAS

[BS] 303.1 General. Soil absorption systems shall be located outside of *flood hazard areas*, including special flood hazard areas and 500-year floodplains.

> **Exception:** Where suitable soil absorption sites outside of the *flood hazard area* are not available, the soil absorption site is permitted to be located within the *flood hazard area*. The soil absorption site shall be located to minimize the effects of inundation under conditions of the design flood.

[BS] 303.2 Tanks. In *flood hazard areas*, including special flood hazard areas and 500-year floodplains,tanks shall be anchored to counter buoyant forces during condition of the design flood. The vent termination and service manhole of the tank shall be not less than 2 feet (610 mm) above the *design flood elevation* or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tanks during conditions of the design flood.

[BS] 303.3 Mound systems. Mound systems shall be prohibited in *flood hazard areas*, including special flood hazard areas and 500-year floodplains.

CHAPTER 4
SITE EVALUATION AND REQUIREMENTS

SECTION 401
GENERAL

401.2 Site evaluation. Site evaluation shall include soil conditions, properties and permeability, depth to zones of soil saturation, depth to bedrock, slope, landscape position, all setback requirements and the presence of *flood hazard areas*, including special flood hazard areas and 500-year floodplains. Soil test data shall relate to the undisturbed elevations, and a vertical elevation reference point or benchmark shall be established. Evaluation data shall be reported on approved forms. Reports shall be filed within 30 days of the completion of testing for all sites investigated.

SECTION 406

SITE REQUIREMENTS

406.1.1 Flood hazard areas. The site shall be located outside of *flood hazardareas*, including special flood hazard areas and 500-year floodplains.

Exception: Where suitable sites outside of the *flood hazard area* are not available, it is permitted for the site to be located within the *flood hazard area*. The site shall be located to minimize the effects of inundation under conditions of the design flood.

Attached Files

- **ATT - IEBC and OTHER I-Codes.docx**
  https://www.cdpaccess.com/proposal/12153/35919/files/download/9507/

Reason: REASON STATEMENT:

This proposal is a coordination proposal to bring the 2027 edition of the I-Codes up to date with the provisions in the 2022 edition of *ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, Supplement 2* (ASCE/SEI 7-22, Supplement 2) as well as the 2024 edition of *ASCE/SEI 24 Flood Resistant Design and Construction* (ASCE/SEI 24-24) --- specifically for the codes primarily affected such as the International Building Code (IBC), the International Residential Code (IRC), and the International Existing Building Code (IEBC), in Group B, but also every I-Code affected by a coordinating code change that will need to be updated. ASCE/SEI 7-22 is the current reference in 2024 I-Codes and Supplement 2 has been submitted as an Administrative Update. ASCE/SEI 24-24 has also been submitted as an Administrative Update to the 2027 I-Codes.

This proposal has been organized into Part I to Part VII and includes technical updates as well as editorial coordination. The specific changes to each section included in this proposal are outlined in Overview below, and a detailed summary of the technical updates are explained in Technical Rationale below that. In addition to the strike out/underline for the code change proposals, the MS Word documents for each affected I-Code have been provided as Attached Files for clarity.

Overview:

These changes provide similar updates to the IBC, IRC, and IEBC, just provided in a separate Code Change Proposal. However, all changes must be included across all I-Codes for a comprehensive proposal - IBC, IRC and IEBC are included in Group B; the others will need to be addressed in the next Group A cycle.

All Codes, All Chapter: Add phase “including special flood hazard areas and 500-year floodplain” following flood area for clarity. And change to clarify term definitions and when “base flood” applies and when “design flood” applies. Also aligns definitions of “base flood elevation” and “design flood elevations”. “Flood Hazard Area” is updated with a new definition. These two changes are carried out throughout the series of these comprehensive code change proposal for clarification and consistency.

Technical Rationale:

The American Society of Civil Engineers (ASCE) is proposing revisions to the International Code Council’s I-Codes for the 2027 Cycle to align the national codes with the current ASCE/SEI design standards including:

ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2022 edition; Supplement 2 (ASCE/SEI 7-22 S2)

ASCE/SEI 24 Flood Resistant Design and Construction, 2024 edition (ASCE/SEI 24-24)

The loading standard ASCE/SEI 7-22 S2 and the design standard ASCE/SEI 24-24 work together – these documents have been developed to be consistent and coordinated so they can be required and used together. There are three significant changes in the national loading standard ASCE/SEI 7-22 S2 including (1) an extension of the defined Flood Hazard Area to the 500-year floodplain for Rick Category II, III, and IV structures, (2) an inclusion of risk-based design for loads, and (3) requirements to include relative sea level change into design load calculations for coastal sites; see below for more technical details. There are three significant changes in the national design standard ASCE/SEI 24-24 including (1) alignment with ASCE/SEI 7-22 S2, (2) alignment with FEMA Technical Bulletins, and (3) updates for elevations, materials, and floodproofing.

Both ASCE/SEI Standards are available for purchase and the Supplement available as a free download from the ASCE Library:

ASCE/SEI 7-22 (https://doi.org/10.1061/9780784415788)

ASCE/SEI 7-22 Supplement 2 (https://doi.org/10.1061/9780784415788.sup2)

ASCE/SEI 24-24 (https://doi.org/10.1061/9780784485781)

Flood Hazard:

The ASCE 7-22 S2 updates the design requirements to define the flood hazard area for the given Risk Category of structure. Addionally, the flood hazard depth is tied to the mean recurrence interval for a given Risk Category of structure. The design flood hazard is related to Risk Category (e.g., RC II will be designed to 500-year MRI), which is consistent with the way other environmental hazards (such as wind and snow loads) relate the hazard to Risk Category. This is in contrast to the current code requirements, which only considers only 100-year MRI flood for all structures regardless of Risk Category. In some areas in the U.S., the Authority Having Jurisdiction is already requiring a higher design requirement for the flood hazard. The city of Houston, for example, moved to requiring use of the 500-year MRI as the design basis for flood following the devastation from Hurricane Harvey. At a national level, FEMA is considering the use of the 500-year flood as the basis for floodplain management.

The coordinated code change proposals submitted for Group B are drafted to bring the IBC, IRC, and IEBC into alignment with the recent changes in ASCE 7-22 Supplement 2 and ASCE 24-24. The significant changes from the updates to these standards are to differentiate between the base flood (also described as the 100-year flood, or the 1% or greater chance of flooding in any given year) and the design flood, which could be different, and is defined in the standards for each Risk Category. The design flood must include considerations for loading specified in ASCE/SEI 7-22 S2 and design specified in ASCE/SEI 24-24.

Flood damage, and associated loss dollars, has significantly expanded since the last major updates of ASCE 7 Chapter 5 and ASCE 24. Their revisions attempt to close that gap and align the risks across other hazards.

FEMA cites that flood damage cost approximately $17 billion each year between 2010 and 2018, and with rising sea levels and extreme weather could cause $20 billion of flood damage to at-risk US homes this year, rising to $32 billion by 2051. Data from 2018 Hurricane Michael shows that 42% of claimed damage amounts were in the Shaded X-Zone (500-year floodplain), exceeding the amounts in both the A and V-Zones. (FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020).

This is further supported by FEMA's recent report "A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains," which evaluated the potential avoided losses (benefits) for 8 building types in 19 coastal floodplains and 14 riverine floodplains in the 100-year floodplain and the Shaded X Zone. The report shows that there are significant benefits to most buildings in the 100-year floodplain, particularly in steep/narrow floodplains. There were also significant benefits to buildings in the Shaded X Zone where there are currently no elevation requirements. These findings are supported by evidence from the National Flood Insurance Program (NFIP), which stated, "People outside of high-risk areas file more than 25 percent of NFIP claims and receive one-third of disaster assistance for flooding. The NFIP's preferred risk policies are designed for residential properties located in low- to moderate-risk flood zones." Additional reports from the NFIP indicate that 40% of companies fail to reopen after a disaster, with another 25% closing within a year. These problems are only further exacerbated by the influence of development and associated runoff, changes in precipitation rates, local subsidence, and sea level change. All of which are not accounted for by FEMA's flood maps, which only account for historic flood data and not future projections. All of this data supports the need to move from a fixed freeboard approach to a risk-based elevation approach that provides consistent protection from flat/wide floodplains to steep/narrow floodplains and more appropriately addresses the influence of wave action in coastal floodplains. This recognizes that true resiliency for communities is continuity of local businesses and making sure that public services are maintained and that adaptation to changes in precipitation, development, and sea level change must be incorporated into new buildings rather than relying on often prohibitively expensive retrofit options.

The ASCE changes consider the frequency of recent and predicted events and the significant damage recorded in the Shaded X-Zone. But, while significant, the addition of the Shaded X-Zone to the standards represents a change to only 4% of the U.S. population.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

ASCE Consensus Process:

ASCE established and maintains an ANSI-accredited, consensus process for standard development. The open process includes selection of a balanced committee, including representation of all affected stakeholders, and public review of the draft standard prior to publication. The ASCE consensus process follows the *ASCE Rules for Standards Committees*, which is published on the ASCE website. The ASCE/SEI 7-22 S2 was developed by the ASCE 7-22 Standard Committee, which included approximately 50 voting members and hundreds more associate members. The ASCE/SEI 24-24 standard was developed by the ASCE 24-24 Standard Committee, which included approximately 25 voting members and 15 associate members.

Supporting Organizations:

This code change proposal has many supporters, included but not limited to the following organizations:

American Flood Coalition

American Institute of Architects (AIA)

Association of State Flood Plain Managers (ASFPM)

BuildStrong America

Federal Emergency Management Association

Flood Mitigation Industry Association (FMIA)

National Institute of Building Science (NIBS)

Registered Designer Professionals and planners of buildings and other infrastructure projects, Code Officials, and Authorities Having Jurisdiction owe it to the public and have an ethical obligation to provide a framework for safe, reliable structures. The public expects that the buildings in which they live, work, and play are designed consistently, with the same risk approach for all environmental hazards. Flooding is disruptive to families, businesses, and communities and it takes years to recover from these devastating disasters and overcome the losses incurred. The flood hazard must be taken seriously and incorporated into our design standards and building codes in a manner that is consistent with all of the other environmental hazards.

- **2025 Cost and Analysis Benefits for ASCE24-24.PDF**
  https://www.cdpaccess.com/proposal/12153/35919/documentation/186688/attachments/download/9874/

Bibliography: FEMA. A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains. January 2025
(https://www.researchgate.net/publication/388556202_A_Cost_and_Benefits_Analysis_of_Increased_Elevation_Requirements_for_Publ
FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020
(https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf)

Cost Impact: Increase

- **2025 Cost and Benefits Analysis for ASCE 24-24.PDF**
  https://www.cdpaccess.com/proposal/12153/35919/documentation/186691/attachments/download/9875/

Estimated Immediate Cost Impact:

ASCE 7 and ASCE 24 are national minimum design standards. The effects will vary depending upon the local flood conditions and flood risk across the country and among building types. For nearly 90% of all affected structures in Numbered A Zones, the estimated immediate costs impact can be understood in analysis of the mitigation cost as a percentage of building replacement value from 0.2-6.6% for coastal sites and 0.0-4.0% for riverine sites. Additionally, average benefits per square foot range from $51-$336 for both riverine and coastal flooding, which are dependent on building type and location. See the attached “Cost and Benefits Analysis” for additional information.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

Estimated Immediate Cost Impact Justification (methodology and variables):

A building cost study was considered for 14 riverine locations and 19 coastal locations. Examples consider A Zone and X Zone conditions to understand how the ASCE changes impact the overall cost. However, since most buildings are riverine, the study focused there, but similar trends appear in coastal buildings.

Table 1 is a summary of the buildings that were considered in the study, accounting for the building type, building sizes (and average), and Flood Design Classes. The difference between commercial and government office building plays a larger role in the losses avoided portion of the study. The cost analysis is grouped by Flood Design Class since this is the grouping used in ASCE 24 for elevation criteria.

Table 1 - Building Types Considered in Study

Building Type	Flood Design Class	Small SF	Medium SF	Large SF	Average SF
Hospital 2-3 Stories	4	25,000	70,000	145,000	80,000
Elementary School	3	25,000	40,000	65,000	43,333
Police Station	4	7,000	13,000	23,000	14,333
Office 1-Story (Government)	2	2,000	7,000	25,000	11,333
Office 3-Story (Government)	2	5,000	16,000	80,000	33,667
Office 1-Story (Commercial)	2	2,000	7,000	25,000	11,333
Office 3-Story (Commercial)	2	5,000	16,000	80,000	33,667
Retail Store	2	4,000	10,000	22,000	12,000

Table 2 provides an overview of A Zone conditions for increased building costs within the 100-yr floodplain. The values represent the breakdown of example floodplains using the numbered A Zone range to categorize how much rise there is between the various flood events. A low numbered A Zone represents a flat floodplain and a high number represents a steeper floodplain where there can be a large difference in flood elevations. The percent of numbered A Zones throughout the country based on an NFIP flood insurance policy analysis per census tract.

This provides a breakdown of how various floodplains impact the increased building cost. It's important to note that in A01-A03 the freeboard requirements equal or exceed the MRI based design flood event. Since ASCE did not change the minimum freeboard requirements for FDC 2 and FDC 4, those values are the same for ASCE 24-14 and ASCE 24-24 and therefore there is no cost increase. Additionally, for FDC 4 the analysis selected the higher of the 500-yr and BFE+2, so the delta between the ASCE 24-14 and ASCE 24-24 wasn't as high in the higher numbered A Zones as it would have been with FDC 2 and 3 where they were locked with ASCE 24-14 at BFE+1.

Table 2 - Average Building Cost Increase Percentage for Riverine A Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC3	FDC4
A01-A03	26%	0.00%	1.20%	0.00%
A04-A06	41%	1.50%	1.90%	0.50%
A07-A10	20%	2.40%	2.90%	0.60%
A11-A14	9%	4.80%	5.50%	1.00%
A15-A17	2%	8.90%	10.00%	1.60%
A18-A30	2%	11.90%	13.20%	2.10%
	Weighted Average:	1.97%	2.65%	0.49%

Table 3 provides an overview of X Zone conditions for increased building costs within the 500-yr floodplain. The 500-year floodplain represents the area between the 100-year floodplain and the 500-year flood extent, this therefore represents protection from the 101-year to the 500-year flood. In X Zones it is assumed that buildings are built on the ground as compared to elevated foundations in Zone A. Since the X Zone represents the difference between the 100-year and the 500-year flood, the 300-year flood elevation was used as an average ground elevation. The ASCE 24-24 elevations represent the minimum required elevations required per the standard. The increased elevation is therefore the difference between ground (at the 300-year flood elevation) and the ASCE 24-24 elevation requirements. Similar to Table 2, Table 3 data is provided per Flood Design Class per grouped numbered A Zone designation.

Table 3 - Average Building Cost Increase Percentage for Riverine X Zones Per Numbered A Zone

Numbered A Zone	Percentile of Numbered A Zones	FDC 2	FDC 3	FDC 4
A01-A03	26%	0.60%	1.80%	0.70%
A04-A06	41%	1.00%	1.50%	0.80%
A07-A10	20%	1.20%	1.80%	1.00%
A11-A14	9%	1.90%	3.00%	1.70%
A15-A17	2%	3.20%	5.00%	2.80%
A18-A30	2%	4.40%	6.70%	3.70%
	Weighted Average:	1.14%	1.93%	1.00%

It is believed that the presentation of percent increase in building cost provided a better representation of the overall cost impacts rather than providing dollar values. While the percent increase does get rather large in those areas with high numbered A Zones, this is a much smaller overall percentage of land area, so this represents a smaller portion of the floodplains in the US. However, recent events have shown that when these areas experience a flood event above the 100-year or 1% annual chance flood, that they often experience deep flooding. Experience from Western NC following Hurricane Helene demonstrated that when floods occur in areas with high numbered A Zones that significant flood damage occurs in the X Zone. There were examples of buildings elevated in the X Zone that performed very well in Hurricane Helene and had little to no observed damage. But many buildings in the X Zone that were constructed at grade were severely damaged or destroyed. While this is observational, there is substantial evidence to suggest that the percent cost increase is offset by the avoided losses. Two key factors that impact the avoided loss calculation is the impact of when the original flood insurance studies and associated maps were created (older mapping data), which can mean that the mapped risk is underestimated (increased runoff due to development and updated precipitation data) and then looking forward the impact of future changes in precipitation rates over the 50-year life of riverine buildings. Similarly, these impacts can impact coastal flooding heights as well as the impact of sea level change.

Staff Analysis: Chapter 24 of the IRC is copied from the IFGC, therefore, everything in that Chapter is controlled by the scoping in the IFGC.

S97-25 Part V

S97-25 Part VI

IRC: SECTION 202 (New),

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org); Natalie Enclade, representing BuildStrong America (natalie@buildstrongamerica.com); Jiqiu yuan, representing National Institute of Building Sciences (jyuan@nibs.org); Joel Scata, representing NRDC (jscata@nrdc.org); Roderick Scott, Board Chair, representing Flood Mitigation Industry Association (roderick.scott75@aol.com)

2024 International Residential Code

SECTION R202
DEFINITIONS

Add new definition as follows:

500-YEAR FLOODPLAIN. Land in the *floodplain* subject to a 0.2% or greater chance of *flooding* in any given year; area delineated on the *Flood Insurance Rate Map* (FIRM) as Shaded Zone X or Zone B.
BASE FLOOD. The flood having a 1-percent chance of being equaled or exceeded in any given year.
BASE FLOOD ELEVATION. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the Flood Insurance Rate Map (FIRM). In areas designated on the Flood Insurance Rate Map as Zone AO, the base flood elevation is the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number is taken as being equal to 2 feet (610 mm).
DESIGN FLOOD. Flood corresponding to the elevations specified in Section R306.1.4 and acting over the *flood hazard area*.
DESIGN FLOOD ELEVATION. The elevation of the "design flood", including wave height, releative to the datum specified on the community's legally desingated flood hazard map.
FLOOD HAZARD AREA. The greater of the following three areas:

1. The area within a floodplain subject to a 1 percent or greater chance of flooding in any given year, including special flood hazard areas delineated on the Flood Insurance Rate Map.
2. The 500-year floodplain, when delineated on the *Flood Insurance Rate Map*.
3. The area designated as a *flood hazard area* on a community's flood hazard map, or otherwise legally designated.

SPECIAL FLOOD HAZARD AREA. Land in the *floodplain* subject to a 1% or greater chance of *flooding* in any given year; area delineated on the *Flood Insurance Rate Map* as Zone A, AE, A1-30, A99, AR, AO, AH, V, VO, VE or V1-30.

Attached Files

- **ATT - IRC.docx**
  https://www.cdpaccess.com/proposal/11725/35915/files/download/9503/

S97-25 Part VI

S97-25 Part VII

IRC: R104.2.3.1, R104.3.1, R106.1.4, R109.1.3, R301.2.4, R306.1, R306.1.4, R306.1.4 (New), R306.1.4.1, R306.1.4.2, R306.1.9, R306.2, R306.2.1, R306.2.2, R306.2.2.1, R306.2.4, R306.3.2, R306.3.7, R317.3, R401.1, R404.1.9.5, R408.7, M1301.1.1, M1401.5, M1601.4.10, M1701.2, M2001.4, M2101.29.1, M2201.6, P2601.3, P2602.2, P2705.1, P3001.3, P3101.5, CHAPTER 44 ASCE/SEI, BA101.2, BI101.2, BJ101.3, BO102.7,

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org); Natalie Enclade, representing BuildStrong America (natalie@buildstrongamerica.com); Jiqiu yuan, representing National Institute of Building Sciences (jyuan@nibs.org); Joel Scata, representing NRDC (jscata@nrdc.org); Roderick Scott, Board Chair, representing Flood Mitigation Industry Association (roderick.scott75@aol.com)

2024 International Residential Code

SECTION R104
DUTIES AND POWERS OF THE BUILDING OFFICIAL

Revise as follows:

R104.2.3.1 Flood hazard areas. The *building official* shall not grant modifications to any provisions required in flood hazard areas as established ~~by~~ in the flood hazard maps identified Table R301.2 unless a determination has been made that:

1. There is good and sufficient cause showing that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section R306 inappropriate.
2. Failure to grant the modification would result in exceptional hardship by rendering the lot undevelopable.
3. The granting of modification will not result in increased flood heights, additional threats to public safety or extraordinary public expense; cause fraud on or victimization of the public; or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. Written notice specifying the difference between the ~~design~~ base flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and stating that construction below the ~~design~~ base flood elevation increases risks to life and property, has been submitted to the applicant.

R104.3.1 Determination of substantially improved or substantially damaged existing buildings in flood hazard areas. For applications for reconstruction, rehabilitation, *addition, alteration*, *repair* or other improvement of *existing buildings* or structures located in a flood hazard ~~area~~ areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ in the flood hazard maps identified in Table R301.2, the *building official* shall examine or cause to be examined the *construction documents* and shall make a determination with regard to the value of the proposed work. For *buildings* that have sustained damage of any origin, the value of the proposed work shall include the cost to *repair* the *building* or structure to its predamaged condition. If the *building official* finds that the value of proposed work equals or exceeds 50 percent of the market value of the building or structure before the damage has occurred or the improvement is started, the proposed work is a *substantial improvement* or *repair* of *substantial damage* and the *building official* shall require existing portions of the entire building or structure to meet the requirements of Section R306.

SECTION R106
CONSTRUCTION DOCUMENTS

R106.1.4 Information for construction in flood hazard areas. For *buildings* and structures located in whole or in part in flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ in the flood hazard maps identified Table R301.2, *construction documents* shall include:

1. Delineation of flood hazard areas, including special flood hazard areas and 500-year floodplains, floodway boundaries, ~~and~~ flood zones , base flood elevations, and the design flood elevation, as appropriate.
2. The elevation of the proposed lowest floor, including *basement*; in areas of shallow flooding (AO Zones), the height of the proposed lowest floor, including *basement*, above the highest adjacent *grade*.
3. The elevation of the bottom of the lowest horizontal structural member in coastal high-hazard areas (V Zone) and in Coastal A Zones where such zones are delineated on flood hazard maps identified in Table R301.2 or otherwise delineated by the *jurisdiction*.
4. If ~~design~~ base flood elevations are not included on the community's Flood Insurance Rate Map (FIRM), the *building official* and the applicant shall obtain and reasonably utilize any ~~design~~ base flood elevation and floodway data available from other sources.

SECTION R109
INSPECTIONS

R109.1.3 Floodplain inspections. For construction in flood hazard areas as established ~~by~~ on the flood hazard maps identified in Table Table R301.2, upon placement of the lowest floor, including *basement*, and prior to further vertical construction, the *building official* shall require submission of documentation, prepared and sealed by a *registered design professional*, of the elevation of the lowest floor, including *basement*, required in Section R306.

SECTION R301
DESIGN CRITERIA

R301.2.4 Floodplain construction. *Buildings* and structures constructed in whole or in part in flood hazard areas, including special flood hazard areas and 500-year floodplains, as established on the flood hazard maps identified Table R301.2, and *substantial improvement* and *repair* of *substantial damage* of *buildings* and structures located in whole or in part in flood hazard areas, including special flood hazard areas and 500-year floodplains, shall be designed and constructed in accordance with Section R306. *Buildings* and structures that are located in more than one flood hazard area, including A Zones, Coastal A Zones and V Zones, shall comply with the provisions associated with the most restrictive flood hazard area. *Buildings* and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

R306.1 General. *Buildings* and structures constructed in whole or in part in flood hazard areas, including special flood hazard areas and 500-year floodplains, established on the flood hazard maps identified in Table R301.2, and *substantial improvement* and *repair* of *substantial damage* of *buildings* and structures located in whole or in part in flood hazard areas, including special flood hazard areas and 500-year floodplains, shall be designed and constructed in accordance with the provisions contained in this section. *Buildings* and structures that are located in more than one flood hazard area, including A Zones, Coastal A Zones and V Zones, shall comply with the provisions associated with the most restrictive flood hazard area. *Buildings* and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

R306.1.4 Establishing the design flood elevation. The design flood elevation shall be used to define flood hazardareas, including special flood hazard areas and 500-year floodplains. At a minimum, the design flood elevation shall be the higher of the following:

1. The base flood elevation at the depth of peak elevation of flooding, including wave height, that has a 1-percent (100-year flood) or greater chance of being equaled or exceeded in any given year.

2. The elevation of the design flood associated with the area designated on a flood hazard map adopted by the community, or otherwise legally designated.
3. The 500-year flood elevation determined in accordance with Table R306.1.4 or ASCE 24.

In no case shall the elevation of the design flood be lower than the elevation of the base flood.

Add new text as follows:

Table R306.1.4 Determination of 500-Year Flood Elevations

Flood Data Provided for Project Location	**FIRM shows riverine cross sections[a] for the flood source**	**FIRM does not show riverine cross sections[a] for the flood source**	**FIRM shows coastal transects[b] for the flood source**	**FIRM shows riverine cross sections[a] and coastal transects[b] for the flood source**
The FIRM shows a Shaded Zone X[e] and 500-year Flood Data is provided	Use the elevation for 500-year flood provided in the FIS Flood Profile[c].	Not Applicable	Use the 500-year wave envelope elevation.	Use the more restrictive of the 500-year flood profile elevation or the 500-year wave envelope elevation.
The FIRM shows a Shaded Zone X[e] and only a 500-year stillwater elevation is provided	Not Applicable to Riverine Conditions	Not Applicable to Riverine Conditions	For A Zones[d], use the higher of BFE plus 2.1 feet or the 500-year stillwater elevation for the nearest transect. For CHHA[f] and CAZ[g], use the higher of BFE plus 2.6 feet or the 500-year stillwater elevation for the nearest transect.	Use the more restrictive of the 500-year flood profile or: - For A Zones[d], use the higher of BFE plus 2.1 feet or the 500-year stillwater elevation for the nearest transect. - For CHHA[f] and CAZ[g], use the higher of BFE plus 2.6 feet or the 500-year stillwater elevation for the nearest transect.
The FIRM does not show a Shaded Zone X[e] and 500-year flood elevation is provided	Use the elevation for 500-year flood provided in the FIS Flood Profile[3]	Not Applicable	Not Applicable	Use the more restrictive of the 500-year flood profile or: - For A Zones[d], use the higher of BFE plus 2.1 feet. - For CHHA[f] and CAZ[g], use the higher of BFE plus 2.6 feet.
The FIRM does not show a Shaded Zone X[e] and only Base Flood Elevation is provided	Use the BFE plus 2.1 feet.	Use the BFE plus 2.1 feet.	For A Zones[d], use the BFE plus 2.1 feet. For CHHA[f] and CAZ[g], use the BFE plus 2.6 feet.	For A Zones[d], use the BFE plus 2.1 feet. For CHHA[f] and CAZ[g], use the BFE plus 2.6 feet.

a. Riverine cross sections are shown on Flood Insurance Rate Maps (FIRMs) using a line and a number or letter surrounded by a hexagon to indicate the cross section along the flood source. The same designations are used on Flood Profiles included in Flood Insurance Studies (FISs).

b. Coastal transect lines are shown on FIRMs using a line and a number surrounded by a circle, which indicates the transect number on the FIRM. The same designations are used in Stillwater Tables and Wave Envelope Profiles in FISs.

c. Flood profiles are provided in FISs for riverine flood sources studied using detailed methods. Project locations are identified by measuring up or downstream from the nearest cross section along the centerline of the flood source.

d. A Zones refer to those areas identified on FIRMs as Zone A, AE, A1-A30, A99, AR, AO and AH. Areas identified as A Zones that are located seaward of the Limit of Moderate Wave Action (LiMWA) are Coastal A Zones (CAZs).

e. Shaded Zone X includes those areas within 500-year floodplains identified on FIRMs as Zone X with shading. Shaded Zone X includes Zone B shown on older FIRMs.

f. Coastal High Hazard Areas (CHHAs) include those areas identified on FIRMS as Zone V.

g. Coastal A Zones (CAZs) include A Zones on FIRMS that are seaward of the LiMWA or otherwise designated by the jurisdiction.

Revise as follows:

R306.1.4.1 Determination of ~~design~~ base flood elevations. ~~If design~~ Where base flood elevations are not specified, the *building official* is authorized to require the applicant to comply with either of the following:

1. Obtain and reasonably use data available from a federal, state or other source.

2. Determine the ~~design~~ base flood elevation in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a *registered design professional* who shall document that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted in sufficient detail to allow thorough review and *approval*.

R306.1.4.2 Determination of impacts. In riverine special flood hazard areas where ~~design~~ base flood elevations are specified but floodways have not been designated, the applicant shall demonstrate that the effect of the proposed *buildings* and structures on ~~design~~ baseflood elevations, including fill, when combined with other existing and anticipated special flood hazard area encroachments, will not increase the ~~design~~ base flood elevation more than 1 foot (305 mm) at any point within the *jurisdiction*.

R306.1.9 Manufactured homes. The bottom of the frame of new and replacement *manufactured homes* on foundations that conform to the requirements of Section R306.2 or R306.3, as applicable, shall be elevated to or above the elevations specified in Section R306.2 (flood hazard areas including A Zones and the 500-year floodplain) or R306.3 in coastal high-hazard areas (V Zones and Coastal A Zones). The anchor and tie-down requirements of the applicable state or federal requirements shall apply. The foundation and anchorage of *manufactured homes* to be located in identified floodways shall be designed and constructed in accordance with ASCE 24.

R306.2 Flood hazard areas ~~(including A Zones)~~. Areas that have been determined to be prone to flooding and that are not subject to high-velocity wave action shall be designated as flood hazard areas. Flood hazard areas that have been delineated as subject to wave heights between 1$^1/_2$ feet (457 mm) and 3 feet (914 mm) or otherwise designated by the *jurisdiction* shall be designated as Coastal A Zones and are subject to the requirements of Section R306.3. *Buildings* and structures constructed in whole or in part in flood hazard areas, including special flood hazard areas and 500-year floodplains, but not including coastal high hazard areas and Coastal A Zones shall be designed and constructed in accordance with Sections R306.2.1 through R306.2.4.

R306.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas, not including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation determined in Section R306.1.4, whichever is higher.
2. In areas of shallow flooding (AO Zones), *buildings* and structures shall have the lowest floor (including *basement*) elevated to a height above the highest adjacent *grade* of not less than the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.
3. *Basement* floors that are below *grade* on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.
4. Attached garages and carports shall comply with one of the following:
   4.1. The floors shall be elevated to or above the elevations required in Item 1 or Item 2, as applicable.
   4.2. The floors shall be at or above *grade* on not less than one side. Where an attached garage or carport is enclosed by walls, the walls shall have flood openings that comply with Section R306.2.2 and the attached garage or carport shall be used only for parking, building access or storage.

5. Detached *accessory structures* and detached garages shall comply with one of the following:
   5.1. The floors shall be elevated to or above the elevations required in Item 1 or Item 2, as applicable.
   5.2. Floors below the elevations required in Item 1 or 2, as applicable, must be:
      5.2.1. Used only for parking or storage.
      5.2.2. One story and not larger than 600 square feet (55.74 m^2).
      5.2.3. Anchored to resist flotation, collapse or lateral movement resulting from design flood loads.
      5.2.4. Equipped with flood openings that comply with Section R306.2.2.
      5.2.5. Constructed of flood-damage-resistant materials that comply with Section R306.1.8. Have mechanical, plumbing and electrical systems, if applicable, that comply with Section R306.1.6.

Exception: Enclosed areas below the elevation required in this section, including *basements* with floors that are not below *grade* on all sides, shall meet the requirements of Section R306.2.2.

R306.2.2 Enclosed area below required elevation. Enclosed areas, including *crawl spaces*, that are below the elevation required in Section R306.2.1 shall:

1. Be used solely for parking of vehicles, building access or storage.
2. Be provided with flood openings that meet the following criteria and are installed in accordance with Section R306.2.2.1:
   2.1. The total net area of nonengineered openings shall be not less than 1 square inch (645 mm^2) for each square foot (0.093 m^2) of enclosed area where the enclosed area is measured on the exterior of the enclosure walls, or the openings shall be designed as engineered openings and the *construction documents* shall include a statement by a *registered design professional* that the design of the openings will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters as specified in Section 2.7.2.2 of ASCE 24.
   2.2. Openings shall be not less than 3 inches (76 mm) in any direction in the plane of the wall.
   2.3. The presence of louvers, blades, screens and faceplates or other covers and devices shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area.
3. <u>An exterior door that meets the requirements of Section R609 shall be installed at the top of *stairs* that provide access to the *building*.</u>

Exceptions: The following shall not be required to comply with this section:

1. Elevator shafts.
2. Utility chases that protect utility lines from freezing, provided that the utility chases are the minimum size necessary to protect the utility lines and do not provide access for a *person* to enter the space.

R306.2.2.1 Installation of openings. The walls of enclosed areas shall have openings installed such that:

1. There shall be not less than two openings on different sides of each enclosed area; if a *building* has more than one enclosed area, each area shall have openings.
2. The bottom of each opening shall be not more than 1 foot (305 mm) above the higher of the final interior grade or floor and the finished exterior *grade* immediately under each opening.
3. Openings shall be permitted to be installed in doors and windows; doors and windows without installed openings do not meet the requirements of this section.

<u>**Exception:**</u>

1. <u>For enclosed areas with only one exterior wall, flood openings in only that one exterior wall shall be permitted.</u>

2. <u>For buildings on sloped sites where the exterior grade is below the elevation required in Section R306.2.1 on only one exterior wall, the flood openings required for the enclosed area shall be located on that exterior wall.</u>

R306.2.4 Tanks. Underground tanks shall be anchored to prevent flotation, collapse and lateral movement under conditions of the base flood. Above-ground tanks shall be installed at or above the elevation required in Section R306.2.1 or shall be anchored to prevent flotation, collapse and lateral movement under conditions of the <u>design</u> ~~base~~ flood.

R306.3.2 Elevation requirements.

1. *Buildings* and structures erected within coastal high-hazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest horizontal structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation <u>determined in Section R306.1.4</u> , whichever is higher. Where stem wall foundations are permitted in Coastal A Zones in accordance with Section R306.3.3, the bottom of the lowest horizontal structural member supporting the lowest floor is the top of the foundation wall, or top of the portion of the foundation wall, supporting the slab.
2. *Basement* floors that are below *grade* on all sides are prohibited.
3. Attached garages used only for parking, building access or storage, and carports shall comply with Item 1 or shall be at or above *grade* on not less than one side and, if enclosed with walls, such walls shall comply with Item 7.
4. Detached *accessory structures* and detached garages shall comply with either of the following:
   - 4.1. The bottom of the lowest horizontal structural member supporting the floors shall be elevated to or above the elevation required in Item 1.
   - 4.2. Floors below the elevations required in Item 1 must be:
     - 4.2.1. Used only for parking or storage.
     - 4.2.2. One *story* and not larger than 100 square feet (9.29 m^2).
     - 4.2.3. Anchored to resist flotation, collapse or lateral movement resulting from design flood loads.
     - 4.2.4. Constructed of flood damage-resistant materials that comply with Section R306.1.8.
     - 4.2.5. Equipped with mechanical, plumbing and electrical systems, if applicable, that comply with Section R306.1.6.
5. The use of fill for structural support is prohibited.
6. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.
7. Walls and partitions enclosing areas below the elevation required in this section shall meet the requirements of Sections R306.3.5 and R306.3.6.

R306.3.7 Stairways and ramps. *Stairways* and *ramps* that are located below the lowest floor elevations specified in Section R306.3.2 shall comply with one or more of the following:

1. Be designed and constructed with open or partially open *risers* and *guards*.
2. *Stairways* and *ramps* not part of the required means of egress shall be designed and constructed to break away during design flood conditions without causing damage to the *building* or structure, including foundation.
3. Be retractable, or able to be raised to or above the lowest floor elevation, provided that the ability to be retracted or raised prior to the onset of flooding is not contrary to the means of egress requirements of the code <u>and the stairs and ramps are capable of resisting code-required wind loads in the retracted or raised position</u>.
4. Be designed and constructed to resist flood loads and minimize transfer of flood loads to the *building* or structure, including foundation.

Areas below *stairways* and *ramps* shall not be enclosed with walls below the elevation required in Section R306.3.2 unless such walls are constructed in accordance with Section R306.3.5.

SECTION R317 GARAGES AND CARPORTS

R317.3 Flood hazard areas. Garages and carports located in flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2 shall be constructed in accordance with Section R306.

SECTION R401 GENERAL

R401.1 Application. The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for *buildings*. In addition to the provisions of this chapter, the design and construction of foundations in flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2 shall meet the provisions of Section R306. Wood foundations shall be designed and installed in accordance with AWC PWF.

Exception: The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

1. In *buildings* that have not more than two floors and a roof.
2. Where interior *basement* and foundation walls are constructed at intervals not exceeding 50 feet (15 240 mm).

Wood foundations in *Seismic Design Category* D_0, D_1 or D_2 shall be designed in accordance with accepted engineering practice.

SECTION R404 FOUNDATION AND RETAINING WALLS

R404.1.9.5 Masonry piers in flood hazard areas. Masonry piers for *dwellings* in flood hazard areas, including special flood hazard areas and 500-year floodplains, shall be designed in accordance with Section R306.

SECTION R408 UNDER-FLOOR SPACE

R408.7 Flood resistance. For *buildings* located in flood hazard areas, including special flood hazard areas and 500-year floodplains, as established on the flood hazard maps identified in Table R301.2:

1. Walls enclosing the under-floor space shall be provided with flood openings in accordance with Section R306.2.2.
2. The finished ground level of the under-floor space shall be equal to or higher than the outside finished ground level on at least one side.

Exception: Under-floor spaces that meet the requirements of FEMA TB 11.

CHAPTER 13 GENERAL MECHANICAL SYSTEM REQUIREMENTS

SECTION M1301
GENERAL

M1301.1.1 Flood-resistant installation. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2, mechanical *appliances, equipment* and systems shall be located or installed in accordance with Section R306.1.6.

CHAPTER 14
HEATING AND COOLING EQUIPMENT AND APPLIANCES

SECTION M1401
GENERAL

M1401.5 Flood hazard. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2, heating and cooling *equipment* and *appliances* shall be located or installed in accordance with Section R306.1.6.

CHAPTER 16
DUCT SYSTEMS

SECTION M1601
DUCT CONSTRUCTION

M1601.4.10 Flood hazard areas. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2, *duct systems* shall be located or installed in accordance with Section R306.1.6.

CHAPTER 17
COMBUSTION AIR

SECTION M1701
GENERAL

M1701.2 Opening location. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established on the flood hazard maps identified in Table R301.2, *combustion air* openings shall be located at or above the elevation required in Section R306.2.1 or R306.3.2.

CHAPTER 20
BOILERS AND WATER HEATERS

SECTION M2001
BOILERS

M2001.4 Flood-resistant installation. In flood hazard areas, including special flood hazard areas and 500-year floodplains, established on the flood hazard maps identified in Table R301.2, boilers, water heaters and their control systems shall be located or installed in accordance with Section R306.1.6.

CHAPTER 21
HYDRONIC PIPING

SECTION M2101
HYDRONIC PIPING SYSTEMS INSTALLATION

M2101.29.1 Flood hazard. Piping located in ~~a~~ flood hazard areas, including special flood hazard areas and 500-year floodplains, shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation.

CHAPTER 22
SPECIAL PIPING AND STORAGE SYSTEMS

SECTION M2201
OIL TANKS

M2201.6 Flood-resistant installation. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2, tanks shall be installed in accordance with Section R306.2.4 or R306.3.10.

CHAPTER 26
GENERAL PLUMBING REQUIREMENTS

SECTION P2601
GENERAL

P2601.3 Flood hazard areas. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2, plumbing fixtures, drains, and *appliances* shall be located or installed in accordance with Section R306.1.6.

SECTION P2602
INDIVIDUAL WATER SUPPLY AND SEWAGE DISPOSAL

P2602.2 Flood-resistant installation. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2:

1. Water supply systems shall be designed and constructed to prevent infiltration of floodwaters.
2. Pipes for sewage disposal systems shall be designed and constructed to prevent infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

CHAPTER 27
PLUMBING FIXTURES

SECTION P2705

INSTALLATION

P2705.1 General. The installation of fixtures shall conform to the following:

1. Floor-outlet or floor-mounted fixtures shall be secured to the drainage connection and to the floor, where so designed, by screws, bolts, washers, nuts and similar fasteners of copper, copper alloy or other corrosion-resistant material.
2. Wall-hung fixtures shall be rigidly supported so that strain is not transmitted to the plumbing system.
3. Where fixtures come in contact with walls and floors, the contact area shall be watertight.
4. Plumbing fixtures shall be usable.
5. Water closets, lavatories and bidets. A water closet, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition or vanity or closer than 30 inches (762 mm) center-to-center between adjacent fixtures. There shall be a clearance of not less than 21 inches (533 mm) in front of a water closet, lavatory or bidet to any wall, fixture or door.
6. The location of piping, fixtures or equipment shall not interfere with the operation of windows or doors.
7. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2, plumbing fixtures shall be located or installed in accordance with Section R306.1.6.
8. Integral fixture-fitting mounting surfaces on manufactured plumbing fixtures or plumbing fixtures constructed on site, shall meet the design requirements of ASME A112.19.2/CSA B45.1 or ASME A112.19.3/CSA B45.4.

CHAPTER 30
SANITARY DRAINAGE

SECTION P3001
GENERAL

P3001.3 Flood-resistant installation. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2, drainage, waste and vent systems shall be located and installed to prevent infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

CHAPTER 31
VENTS

SECTION P3101
VENT SYSTEMS

P3101.5 Flood resistance. In flood hazard areas, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2, vents shall be located at or above the elevation required in Section R306.2 (flood hazard areas including A Zones and 500-year floodplains) or R306.3 (coastal high-hazard areas including V Zones and Coastal A Zones, where designated).

CHAPTER 44
REFERENCED STANDARDS

ASCE/SEI

American Society of Civil Engineers
Structural Engineering Institute
Reston, VA 20191-4400

7—2022 Supplement 1, 2, 3 Minimum Design Loads and Associated Criteria for Buildings and Other Structures
24—~~14~~ 24 Flood Resistant Design and Construction

APPENDIX BA
MANUFACTURED HOUSING USED AS DWELLINGS

SECTION BA101
SCOPE

BA101.2 Flood hazard areas. New and replacement *manufactured homes* to be installed in flood hazard areas, including special flood hazard areas and 500-year floodplains as established on the flood hazard maps identified in Table R301.2 shall meet the applicable requirements of Section R306.

APPENDIX BI
LIGHT STRAW-CLAY CONSTRUCTION

SECTION BI101
GENERAL

BI101.2 Flood hazard areas. In flood hazard areas, including special flood hazard areas and 500-year floodplains, established on the flood hazard maps identified in Table R301.2, *buildings* using *light* straw-clay *infill* shall meet the requirements of Section R306.

APPENDIX BJ
STRAWBALE CONSTRUCTION

SECTION BJ101
GENERAL

BJ101.3 Flood hazard areas. In flood hazard areas, including special flood hazard areas and 500-year floodplains established on the flood hazard maps identified in Table R301.2, *buildings* using *strawbale* wall systems shall meet the requirements of Section R306.

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

SECTION BO102
COMPLIANCE

BO102.7 Flood hazard areas. Work performed in existing buildings located in a flood hazard area, including special flood hazard areas and 500-year floodplains, as established ~~by~~ on the flood hazard maps identified in Table R301.2 shall be subject to the provisions of Section R104.3.1.

Attached Files

- **ATT - IRC.docx**

https://www.cdpaccess.com/proposal/12230/36062/files/download/9719/

Reason: This proposal is a coordination proposal to bring the 2027 edition of the I-Codes up to date with the provisions in the 2022 edition of *ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, Supplement 2* (ASCE/SEI 7-22, Supplement 2) as well as the 2024 edition of *ASCE/SEI 24 Flood Resistant Design and Construction* (ASCE/SEI 24-24) --- specifically for the codes primarily affected such as the International Building Code (IBC), the International Residential Code (IRC), and the International Existing Building Code (IEBC), in Group B, but also every I-Code affected by a coordinating code change that will need to be updated. ASCE/SEI 7-22 is the current reference in 2024 I-Codes and Supplement 2 has been submitted as an Administrative Update. ASCE/SEI 24-24 has also been submitted as an Administrative Update to the 2027 I-Codes.

This proposal has been organized into Part I to Part VII and includes technical updates as well as editorial coordination. The specific changes to each section included in this proposal are outlined in Overview below, and a detailed summary of the technical updates are explained in Technical Rationale below that. In addition to the strike out/underline for the code change proposals, the MS Word documents for each affected I-Code have been provided as Attached Files for clarity.

Overview:

IRC Sections: These changes for the IRC provide similar updates to the IBC and IEBC, just provided in a separate Code Change Proposal. However, all changes must be included across all I-Codes for a comprehensive proposal - IBC, IRC and IEBC are included in Group B; the others will need to be addressed in the next Group A cycle.

Chapter 1 Scope: Add phase “including special flood hazard areas” for clarity. And change to “base flood elevations” from “design flood elevations” to clarify the applicable requirements for the two separate terms. See Section 202 for the updated definitions. These two changes are carried out throughout the code change proposal for clarification and consistency.

Chapter 2 Definitions: Adds a new definition for “500-year Floodplain” to distinguish it from the existing definition. While “Base Flood” remains the same, “Base Flood Elevation” is updated along with “Design Flood” and “Design Flood Elevation”. “Flood Hazard Area” is updated and a new definition for “Special Flood Hazard Area” is added.

Chapter 3: changes included to align with standards including add phase “including special flood hazard areas” following flood hazard area for clarity.

Table R306.1.4 Determination of 500-Year Flood Provisions: This new Table is added to provide a prescriptive method for determining the elevation of the 500-year flood given the scenarios of how the flood data is provided for the flood location.

Section 306.2.2.1: Provides a clarification to the requirement and clear exceptions for how requirements are applied.

Chapter 4: changes included to align with standards including add phase “including special flood hazard areas” following flood hazard area for clarity.
Chapter 44: Illustrates the updates that will be made to the reference standards ASCE 7-22 and ASCE/SEI 24-24; updates to reference standards have been submitted to Group B Admin. **Appendix BA, BI, BJ, BO:** Consistent updates made throughout these relevant Appendices.

Mechanical: changes included to align with standards including add phase “including special flood hazard areas and 500-year floodplains” following flood hazard area for clarity.

Plumbing: changes included to align with standards including add phase “including special flood hazard areas and 500-year floodplains” following flood hazard area for clarity.

Technical Rationale:

The American Society of Civil Engineers (ASCE) is proposing revisions to the International Code Council’s I-Codes for the 2027 Cycle to align the national codes with the current ASCE/SEI design standards including:

ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2022 edition; Supplement 2 (ASCE/SEI 7-22 S2)

ASCE/SEI 24 Flood Resistant Design and Construction, 2024 edition (ASCE/SEI 24-24)

The loading standard ASCE/SEI 7-22 S2 and the design standard ASCE/SEI 24-24 work together – these documents have been developed to be consistent and coordinated so they can be required and used together. There are three significant changes in the national loading standard ASCE/SEI 7-22 S2 including (1) an extension of the defined Flood Hazard Area to the 500-year floodplain for Rick Category II, III, and IV structures, (2) an inclusion of risk-based design for loads, and (3) requirements to include relative sea level change into design load calculations for coastal sites; see below for more technical details. There are three significant changes in the national design standard ASCE/SEI 24-24 including (1) alignment with ASCE/SEI 7-22 S2, (2) alignment with FEMA Technical Bulletins, and (3) updates for elevations, materials, and floodproofing.

Both ASCE/SEI Standards are available for purchase and the Supplement available as a free download from the ASCE Library:

ASCE/SEI 7-22 (https://doi.org/10.1061/9780784415788)

ASCE/SEI 7-22 Supplement 2 (https://doi.org/10.1061/9780784415788.sup2)

ASCE/SEI 24-24 (https://doi.org/10.1061/9780784485781)

Flood Hazard:

The ASCE 7-22 S2 updates the design requirements to define the flood hazard area for the given Risk Category of structure. Addionally, the flood hazard depth is tied to the mean recurrence interval for a given Risk Category of structure. The design flood hazard is related to Risk Category (e.g., RC II will be designed to 500-year MRI), which is consistent with the way other environmental hazards (such as wind and snow loads) relate the hazard to Risk Category. This is in contrast to the current code requirements, which only considers only 100-year MRI flood for all structures regardless of Risk Category. In some areas in the U.S., the Authority Having Jurisdiction is already requiring a higher design requirement for the flood hazard. The city of Houston, for example, moved to requiring use of the 500-year MRI as the design basis for flood following the devastation from Hurricane Harvey. At a national level, FEMA is considering the use of the 500-year flood as the basis for floodplain management.

The coordinated code change proposals submitted for Group B are drafted to bring the IBC, IRC, and IEBC into alignment with the recent changes in ASCE 7-22 Supplement 2 and ASCE 24-24. The significant changes from the updates to these standards are to differentiate between the base flood (also described as the 100-year flood, or the 1% or greater chance of flooding in any given year) and the design flood, which could be different, and is defined in the standards for each Risk Category. The design flood must include considerations for loading specified in ASCE/SEI 7-22 S2 and design specified in ASCE/SEI 24-24.

Flood damage, and associated loss dollars, has significantly expanded since the last major updates of ASCE 7 Chapter 5 and ASCE 24. Their revisions attempt to close that gap and align the risks across other hazards.

FEMA cites that flood damage cost approximately $17 billion each year between 2010 and 2018, and with rising sea levels and extreme weather could cause $20 billion of flood damage to at-risk US homes this year, rising to $32 billion by 2051. Data from 2018 Hurricane Michael shows that 42% of claimed damage amounts were in the Shaded X-Zone (500-year floodplain), exceeding the amounts in both the A and V-Zones. (FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020).

This is further supported by FEMA’s recent report “A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains,” which evaluated the potential avoided losses (benefits) for 8 building types in 19 coastal floodplains and 14 riverine floodplains in the 100-year floodplain and the Shaded X Zone. The report shows that there are significant benefits to most buildings in the 100-year floodplain, particularly in steep/narrow floodplains. There were also significant benefits to buildings in the Shaded X Zone where there are currently no elevation requirements. These findings are supported by evidence from the National Flood Insurance Program (NFIP), which stated, “People outside of high-risk areas file more than 25 percent of NFIP claims and receive one-third of disaster assistance for flooding. The NFIP’s preferred risk policies are designed for residential properties located in low- to moderate-risk flood zones.” Additional reports from the NFIP indicate that 40% of companies fail to reopen after a disaster, with another 25% closing within a year. These problems are only further exacerbated by the influence of development and associated runoff, changes in precipitation rates, local subsidence, and sea level change. All of which are not accounted for by FEMA’s flood maps, which only account for historic flood data and not future projections. All of this data supports the need to move from a fixed freeboard approach to a risk-based elevation approach that provides consistent protection from flat/wide floodplains to steep/narrow floodplains and more appropriately addresses the influence of wave action in coastal floodplains. This recognizes that true resiliency for communities is continuity of local businesses and making sure that public services are maintained and that adaptation to changes in precipitation, development, and sea level change must be incorporated into new buildings rather than relying on often prohibitively expensive retrofit options.

The ASCE changes consider the frequency of recent and predicted events and the significant damage recorded in the Shaded X-Zone. But, while significant, the addition of the Shaded X-Zone to the standards represents a change to only 4% of the U.S. population. The additional elevation requirements to raise homes within the special flood hazard area to above the 500-year flood elevation will affect an additional 3% of the US population. The total US population affected by the flood resistant construction requirements in this proposal would be 7% per FEMA estimates. The NYU Furman Center estimates that nearly 10% of the nation's population live in the combined 100-year and 500-year floodplain. A study from the University of Bristol argues that outdated FEMA maps underestimate the flood risk and pin the percent of the US population who reside in the 100-year floodplain to as high as 13%.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

ASCE Consensus Process:

ASCE established and maintains an ANSI-accredited, consensus process for standard development. The open process includes selection of a balanced committee, including representation of all affected stakeholders, and public review of the draft standard prior to publication. The ASCE consensus process follows the *ASCE Rules for Standards Committees*, which is published on the ASCE website. The ASCE/SEI 7-22 S2 was developed by the ASCE 7-22 Standard Committee, which included approximately 50 voting members and hundreds more associate members. The ASCE/SEI 24-24 standard was developed by the ASCE 24-24 Standard Committee, which included approximately 25 voting members and 15 associate members.

Supporting Organizations:

This code change proposal has many supporters, included but not limited to the following organizations:

American Flood Coalition

Association of State Flood Plain Managers (ASFPM)

BuildStrong America

Federal Emergency Management Association

Flood Mitigation Industry Association (FMIA)

National Institute of Building Science (NIBS)

Registered Designer Professionals and planners of buildings and other infrastructure projects, Code Officials, and Authorities Having Jurisdiction owe it to the public and have an ethical obligation to provide a framework for safe, reliable structures. The public expects that the buildings in which they live, work, and play are designed consistently, with the same risk approach for all environmental hazards. Flooding is disruptive to families, businesses, and communities and it takes years to recover from these devastating disasters and overcome the losses incurred. The flood hazard must be taken seriously and incorporated into our design standards and building codes in a manner that is consistent with all of the other environmental hazards.

- **2025 Cost and Benefit Analysis for ASCE 24-24.PDF**
  https://www.cdpaccess.com/proposal/12230/35915/documentation/186660/attachments/download/9877/

Bibliography: Cited references:

Kodavatiganti Y, Rahim MA, Friedland CJ, Mostafiz RB, Taghinezhad A and Heil S (2023), Material quantities and estimated construction costs for new elevated IRC 2015-compliant single-family home foundations. Front. Built Environ. 9:1111563. doi: 10.3389/fbuild.2023.1111563

Al Assi A, Mostafiz RB, Friedland CJ, and Rohli, RV (2024). Theoretical Boundaries of Annual Flood Risk for Single-Family Homes Within the 100-Year Floodplain. Int J Environ Res. 18:29. https://doi.org/10.1007/s41742-024-00577-7.

Al Assi A, Mostafiz RB, Friedland CJ, Rohli RV, and Rahim MA (2023). Homeowner flood risk and risk reduction from home elevation between the limits of the 100- and 500- year floodplains. Front. Earth Sci. 11:1051546. Doi: 10.3389/feart.2023.1051546.Estimated Flood Loss Potential. National Flood Services, https://www.floodsmart.gov/sites/default/files/flood-loss-potential_jul19.pdf

FEMA. A Cost and Benefits Analysis of Increased Elevation Requirements for Public and Nonresidential Buildings in Riverine and Coastal Floodplains. January 2025

(https://www.researchgate.net/publication/388556202_A_Cost_and_Benefits_Analysis_of_Increased_Elevation_Requirements_for_Publ

FEMA. Mitigation Assessment Team Report Hurricane Michael in Florida (FEMA P-2077), February 2020 (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf)

Cost Impact: Increase

- **2025 Cost and Benefits Analysis for ASCE 24-24.PDF**
  https://www.cdpaccess.com/proposal/12230/35915/documentation/186663/attachments/download/9878/

Estimated Immediate Cost Impact:

ASCE 7 and ASCE 24 are national minimum design standards. The effects will vary depending upon the local flood conditions and flood risk across the country and among building types. For nearly 90% of all affected structures in Numbered A Zones, the estimated immediate costs impact can be understood in analysis of the mitigation cost as a percentage of building replacement value from 0.2-6.6% for coastal sites and 0.0-4.0% for riverine sites. Additionally, average benefits per square foot range from $51-$336 for both riverine and coastal flooding, which are dependent on building type and location. See the attached “Cost and Benefits Analysis” for additional information.

This proposal reflects the latest flood hazard science, but in general does not represent a fundamental increase in loads, resulting in higher construction costs. However, with the introduction of a higher flood design return period and future considerations for Sea Level Change, the design flood loads have increased for structures currently located in a designated flood hazard area. The ASCE revisions do not add structures to the currently defined flood hazard area, but do add small-depth flood loads for new construction in the Shaded X-Zone where there currently are none.

Estimated Immediate Cost Impact Justification (methodology and variables):

The following analysis was conducted using the cost data from the attached peer reviewed journal paper ***Material quantities and estimated construction costs for new elevated IRC 2015-compliant single-family home foundations*** (published in 2023) and using a national NFIP flood dataset to approximate the average freeboard height for all A Zones in the US.

The increase in foundation height was calculated using the NFIP flood dataset that provides the average numbered A Zone per US census tract. Numbered A Zones represent groupings of floodplains that are sorted based on the average height difference between the 10-year flood and the 100-year flood. The floodplains are sorted into categories from A01 through A30. Each increment A01 through A20 are differentiated by 6-inch increments, meaning that the difference between the 10-year flood and the 100-year flood is 6 inches for an A01 and the difference between the 10-year flood and 100-year flood is 10 feet for an A20. Between A20 and A30 the difference between the 10-year and 100-year flood is differentiated by 1-foot increments, meaning that an A30 has a difference of 20 feet between the 10-year flood and the 100-year flood.

For A Zones, calculations were done to determine the difference between the 2024 IRC requirement of BFE+1 foot and the proposed ASCE 24-24 elevation requirements for Flood Design Class 2. In situations where the 2024 IRC and ASCE 24-24 were the same a value of 0 was assigned. For each numbered A Zone where ASCE 24-24 exceeded the 2024 IRC the difference in elevation was calculated. A weighting factor was assigned to each numbered A Zone based on the US census tract data and represented as a percentage value of how many times that numbered A Zone is the most likely A Zone across the US. This provided a percentage breakdown for all numbered A Zones. This weighting factor was then applied to the difference in elevation between the ASCE 24-24 elevation and the 2024 IRC elevation values. The national average of increased elevation between the 2024 IRC and ASCE 24-24 compliance was approximately **1.2 feet** of additional elevation.

For Shaded X Zones (the 500-year floodplain) the same weighting factor for each numbered A Zone was applied. This is applicable because the numbered A Zones can roughly represent the overall floodplain cross section rather than just the cross section in the Special Flood Hazard Area (100-year floodplain). Since Shaded X Zones represent the land area between the 100-year flood elevation and the 500-year flood elevation a different technique for calculating elevation needed to be applied. In these areas there has historically been no elevation requirements. Since buildings could be constructed anywhere between the 101-year flood elevation and the 500-year flood elevation the mid-point was selected as the most likely elevation for the hypothetical building. In the Shaded X Zone this would be the ground elevation for the 300-year flood elevation. For each numbered A Zone the 300-year flood elevation was calculated to represent the ground elevation. A comparison was conducted to determine the greater of BFE+1 or the 500-year flood elevation for each numbered A Zone. The larger elevation was then subtracted from the 300-year flood elevation (ground elevation). The weighting factors for each numbered A Zone were then applied to the calculated elevation and a national average for compliance with ASCE 24-24 was determined to be approximately **0.74 feet** of additional elevation.

Data was pulled from **Table 6. Unit foundation cost increase with elevation** of the journal article in order to approximate the increase in foundation costs. Costs were provided on a $/m^2 basis for a variety of building sizes, aspect ratios of foundations and unit foundation costs for multiple heights of foundation. The costs, areas, and heights were adjusted from metric to US customary units. Within each aspect ratio the unit costs for a range of heights were compiled to create a line equation to approximate the cost between foundation heights. For A Zones and Shaded X Zones a square foot cost was calculated for each foundation type at the national average height of foundation (1.2 feet for A Zones and 0.74 feet for Shaded X Zones). The increase in foundation costs were the averaged across the different aspect ratios for each foundation type for each building size. An additional average was created across the four crawlspace foundation types represented in the journal article. This provides an approximate cost increase for three different size buildings for two different foundation types (slab on fill and crawlspace) for A Zones and Shaded X Zones. The 2,002 square foot building is indicated in the journal article to best represent the national average size single family house. According to the journal article the costs represent 2022 dollars.

	A Zone		Shaded X Zone	
Building Area (SF)	Slab On Fill Foundation	Crawlspace Foundation	Slab On Fill Foundation	Crawlspace Foundation
1496	$ 2,721	$ 2,903	$ 1,412	$ 1,761
2002	$ 3,087	$ 3,581	$ 1,526	$ 2,170
2497	$ 3,702	$ 3,981	$ 1,887	$ 2,406

Avoided Loses:

The increase in foundation cost due to additional elevation helps to avoid losses due to flooding for homes in special flood hazard areas and Shaded Zone X. It also avoids costs associated with displacement and temporary housing following storm damage. Additional elevation increases the likelihood that a home is liveable after a storm, decreases property damage and the need for replacement, and reduces risk. There is no FDIC or federally regulated lender requirement to maintain flood insurance in the Shaded Zone X. This lack of requirements to maintain an NFIP policy is coupled with high losses in the Shaded Zone X. Homeowners within the 500-year floodplain that don’t add the optional cost of a policy are left with little support when flood events exceed a Base Flood (100-year) event which has a 26 percent chance of being exceeded over a 30 year mortgage.

Staff Analysis: This proposal includes technical revisions to the code text to coordinate with an update of an existing referenced standard. This standard must be completed and readily available prior to the Public Comment Hearing. See CP28 Section 4.6.3.1.2.
CC # S97-25 Part VII and CC # S99-25 Part II addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S97-25 Part VII

S98-25

IBC: 1612.1, G103.1; IEBC: [BS] 401.3

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Building Code

Revise as follows:

1612.1 General. Within *flood hazard areas* as established in Section 1612.3, all new construction of *buildings*, *structures* and portions of *buildings* and *structures*, including *substantial improvement* and repair~~restoration~~ of *substantial damage* to *buildings* and *structures*, shall be designed and constructed to resist the effects of flood hazards and *flood loads*. For *buildings* that are located in more than one *flood hazard area*, the provisions associated with the most restrictive *flood hazard area* shall apply.

G103.1 General. This appendix, in conjunction with this code, provides minimum requirements for *development* located in *flood hazard areas*, including:

1. The subdivision of land.
2. Site improvements and installation of utilities.
3. Placement and replacement of *manufactured homes*.
4. Placement of *recreational vehicles*.
5. New construction and *repair*, reconstruction, rehabilitation or *additions* to new construction.
6. *Substantial improvement* of *existing buildings* and *structures*, including ~~restoration after~~ repair of substantial damage.
7. Installation of tanks.
8. *Temporary structures*.
9. Temporary or permanent storage, utility and miscellaneous Group U *buildings* and *structures*.
10. Certain building work exempt from *permit* under Section 105.2 and other *buildings* and *development* activities.

2024 International Existing Building Code

Revise as follows:

[BS] 401.3 Flood hazard areas. In *flood hazard areas*, buildings that have sustained *substantial damage* shall be brought into compliance~~*repairs* that constitute *substantial improvement* shall require that the building comply~~ with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

Reason:
"Substantial damage" is a defined term. Buildings in flood hazard areas that are damaged by any cause must be examined to determine whether the cost to repair the damage to pre-damage conditions meets a specific test. Damage is repaired, not "restored." In previous code cycles the phrase "restore substantial damage" was replaced with "repair of substantial damage."

For the IBC, this proposal completes the editorial adjustments for consistency throughout the codes. For the IRC, the proposal results in consistency in phrasing between Sec. 401.3 and Sec. 405.2.6.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial to make the phrase "repair of substantial damage" consistent across codes. There is no change to the technical content of the provisions. By making similar language more consistent there will be no cost impact when approving this proposal.

S99-25 Part I

IBC: 1612.3.1, 1612.3.2

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1612.3.1 Determination of design ~~Design~~ flood elevations. Where *design flood elevations* are not included on~~in~~ the flood hazard map adopted by the community~~*areas* established in Section 1612.3~~, or where *floodways* are not designated, the *building official* is authorized to require the applicant to comply with~~do~~ one of the following:

1. Obtain and reasonably utilize ~~any~~ *design flood elevation* and *floodway* data available from a federal, state or other source.
2. Determine the *design flood elevation* or *floodway* in accordance with accepted hydrologic and hydraulic engineering practices used to define special *flood hazard areas*. Determinations shall be undertaken by a *registered design professional* who shall document that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted in sufficient detail to allow thorough review and approval.

1612.3.2 Determination of impacts. In riverine *flood hazard areas* where *design flood elevations* are specified but *floodways* have not been designated, the applicant shall provide a *floodway* analysis that demonstrates that the proposed ~~work~~ buildings and structures, including fill, when combined with other existing and anticipated flood hazard area encroachments, will not increase the *design flood elevation* more than 1 foot (305 mm) at any point within the *jurisdiction* ~~of the applicable governing authority.~~

S99-25 Part I

S99-25 Part II

IRC: R106.1.4, R306.1.4.1, R306.1.4.2

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

Revise as follows:

R106.1.4 Information for construction in flood hazard areas. For *buildings* and structures located in whole or in part in flood hazard areas as established by Table R301.2, *construction documents* shall include:

1. Delineation of flood hazard areas, floodway boundaries and flood zones and the design flood elevation, as appropriate.
2. The elevation of the proposed lowest floor, including *basement*; in areas of shallow flooding (AO Zones), the height of the proposed lowest floor, including *basement*, above the highest adjacent *grade*.
3. The elevation of the bottom of the lowest horizontal structural member in coastal high-hazard areas (V Zone) and in Coastal A Zones where such zones are delineated on flood hazard maps identified in Table R301.2 or otherwise delineated by the *jurisdiction*.
4. ~~If~~ Where design flood elevations are not included on the community's Flood Insurance Rate Map (FIRM) and where floodways are not designated in riverine flood hazard areas, they shall be determined in accordance with Section R306.1.4.1. ~~, the *building official* and the applicant shall obtain and reasonably utilize any design flood elevation and floodway data available from other sources.~~

R306.1.4.1 Determination of design flood elevations. ~~If~~ Where design flood elevations are not included in the flood hazard map adopted by the community~~specified~~, or where floodways are not designated, the *building official* is authorized to require the applicant to comply with one~~either~~ of the following:

1. Obtain and reasonably use design flood elevation and floodway data available from a federal, state or other source.
2. Determine the design flood elevation in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a *registered design professional* who shall document that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted in sufficient detail to allow thorough review and *approval*.

R306.1.4.2 Determination of impacts. In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates~~demonstrate~~ that the ~~effect of the~~ proposed *buildings* and structures ~~on design flood elevations~~, including fill, when combined with other existing and anticipated flood hazard area encroachments, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the *jurisdiction*.

Reason:
The primary purpose of this proposal is to achieve consistency between similar sections in the IBC and IRC for floodway impacts. The proposal also improves grammar and simplifies the reference to the community's adopted flood map. The proposal is editorial in nature. The sections address two scenarios: (1) when special flood hazards areas do not have base flood elevations, and (2) when riverine waterway floodplains have base flood elevations, but do not have designated floodways. These requirements have been in the National Flood Insurance Program regulations for decades, which means they are not new to the nearly 24,000 local governments that participate in the NFIP.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal makes editorial changes primarily to make similar sections consistently written across the IBC and IRC and to improve readability. There is no change to the technical content of the provisions. Improving consistency creates no cost impact when approving this proposal.

Staff Analysis: CC # S97-25 Part VII and CC # S99-25 Part II addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S99-25 Part II

S100-25

IBC: 1613.1

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net)

2024 International Building Code

Revise as follows:

1613.1 Scope. Every structure, and portion thereof, including nonstructural components that are permanently attached to *structures* and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with Chapters 11, 12, 13, 15, 17 and 18 of ASCE 7, as applicable. The *seismic design category* for a *structure* is permitted to be determined in accordance with Section 1613 or ASCE 7. <u>For purposes of satisfying Chapter 13 of ASCE 7, any building or structure assigned to Risk Category IV for reasons unrelated to quantities of highly toxic or other hazardous materials shall be considered an Essential Facility within the ASCE 7 definition of that term.</u>

Exceptions:

1. Detached one- and two-family *dwellings*, assigned to *Seismic Design Category* A, B or C.
2. The *seismic force-resisting system* of wood-frame *buildings* that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section.
3. Agricultural storage *structures* intended only for incidental human occupancy.
4. *Structures* that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic *structures*, buried utility lines and their appurtenances and nuclear reactors.
5. References within ASCE 7 to Chapter 14 shall not apply, except as specifically required herein.
6. *Temporary structures* complying with Section 3103.6.1.4.

Reason: This proposal fixes a coordination snafu between the IBC and ASCE 7 with respect to the assignment of importance factors for the seismic design of nonstructural components.

Here's the problem:

- Any building or structure assigned to Risk Category IV in the IBC is meant to have an I_p factor of 1.5, which also makes many of its nonstructural components subject to seismic certification.
- With the 2024 IBC, the overall description of RC IV was expanded to include not only *essential facilities* but also certain other buildings where failure would represent a substantial hazard. The code does not say whether these other buildings (or any building, for that matter) is or is not officially designated as an *essential facility*. In any case, it was always the clear intent of this change that any building in the latter sub-category would then also have I_p = 1.5 and be subject to all the provisions for RC IV.
- However, while we were making that change to the IBC, ASCE 7 was separately revising its Section 13.1.3 (item 3) to say that a RC IV facility only gets to I_p = 1.5 if it also affects what ASCE 7 calls (capitalized) an Essential Facility.

The unintended effect is that any building not specifically "designated" as an *essential facility* by the IBC or as an Essential Facility by ASCE 7 will fall into a crack. As it happens, the IBC doesn't actually designate *essential facilities* anywhere, except by implication if they're otherwise assigned to RC IV. But in particular, the expanded description of RC IV now raises questions about whether any building in the RC IV box is there because it's *essential* or because it's a potential substantial hazard.

Consulting with members of the ASCE 7 committee, it turns out that the change in ASCE 7 was meant to distinguish the buildings assigned to RC IV only because of hazmat issues. Those buildings, per the ASCE 7 intent, should have adequate hazmat safety and containment but do not necessarily need to remain operational -- something *essential facility* or other RC IV status implies.

This proposal seals the crack. By designating all RC IV buildings as Essential Facilities for purposes of ASCE 7 Chapter 13 -- EXCEPT those assigned to RC IV only for hazmat reasons -- all the RC IV facilities will be handled by ASCE 7 as the IBC Structural Committee intended.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal restores the intent of the IBC Structural Committee and ICC membership from the last code cycle, closing an unintended gap with ASCE 7. If this proposal is approved, compliance with the Sec 1613 will require exactly what it was always intended to require.

S100-25

S101-25

IBC: 1613.1, 1613.1.1 (New)

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Seth Thomas, KPFF Consulting Engineers, representing Self (seth.thomas@kpff.com)

2024 International Building Code

Revise as follows:

1613.1 Scope. Every structure, and portion thereof, including nonstructural components that are permanently attached to *structures* and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with Chapters 11, 12, 13, 15, 17 and 18 of ASCE 7, as applicable, as amended by Section 1613.1.1 of this code. The *seismic design category* for a *structure* is permitted to be determined in accordance with Section 1613 or ASCE 7.

Exceptions:

1. Detached one- and two-family *dwellings*, assigned to *Seismic Design Category* A, B or C.
2. The *seismic force-resisting system* of wood-frame *buildings* that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section.
3. Agricultural storage *structures* intended only for incidental human occupancy.
4. *Structures* that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic *structures*, buried utility lines and their appurtenances and nuclear reactors.
5. References within ASCE 7 to Chapter 14 shall not apply, except as specifically required herein.
6. *Temporary structures* complying with Section 3103.6.1.4.

Add new text as follows:

1613.1.1 ASCE 7 Section 12.8.1.1. ASCE 7 Section 12.8.1.1 shall be modified as follows.

1. Strike the following from Section 12.8.1.1, Method 1:Where Equation (12.8-2) is used and the period T is less than the period at which S_a is maximum, the maximum value of S_a shall be used.
2. Replace with the following:
   Where Equation (12.8-2) is used two conditions apply:
   - 2.1. S_a need not be larger than S_{DS}., and
   - 2.2. Where the period is less than that at which S_a is maximum, the value of S_a used shall not be taken as less than S_{DS}.

   where S_{DS} = Design spectral response acceleration parameter in the short period range as determined from Section 11.4.4 or 11.4.7

-

Reason: This proposal introduces an amendment to the seismic provisions of ASCE 7-22. It is intended that the amendment be in place for the 2027 IBC for use with ASCE 7-22 and be removed from the 2030 IBC as ASCE 7-28 is adopted. The amendment format mirrors that currently used in IBC concrete Sections 1901.2 and 1905 to amend ACI 318. The wording of the amendment is based on recent work of the ASCE 7-28 Seismic Subcommittee.

The Section 12.8.1.1 provisions up to the last paragraph are the same as published in ASCE 7-22 and provided here for context. The last paragraph starting with "Where Equation (12.8-1) is used" revises the published ASCE 7-22 provisions. The balance of ASCE 7-22 provisions are intended to remain unchanged.

With increased use of ASCE 7-22 seismic provisions, it has been identified that the new multi-period response spectra (MPRS) in some geographic locations reach peak design spectral response accelerations, S_a, larger than S_{DS}, and in some cases significantly larger than both S_{DS} and what has been used in past design. This is seen rather broadly in the Central and Eastern US, where S_a often spikes at very short periods (on the order of 0.075 seconds), as seen in Figure 1. It is understood that these spectral acceleration spikes had been known of in the past, but had by specific decision of the committees involved, not influenced assignment of the short-period spectral response acceleration, S_{DS}, used in design. With full multi-period spectra now readily available to designers, design guidance relative to this very short-period spike is needed.

This proposal modifies ASCE 7-22 equivalent lateral force (ELF) design provisions, giving specific design directions in response to the short-period spikes. Two rules are provided.

1. It is not intended that design be based on the S_a spike. It is instead permitted that S_a be capped at S_{DS} for very short periods for ELF analysis.
2. The minimum spectral response acceleration, S_a, at very short periods is not to be less than S_{DS} for purposes of ELF analysis.

In this proposal, these rules are provided at the end of Method 1 provisions in Section 12.8.1.1. Figure 2 illustrates these rules for a Charleston site. It is noted that the proposed capping of MPRS is applicable to ELF design at all geographic locations.

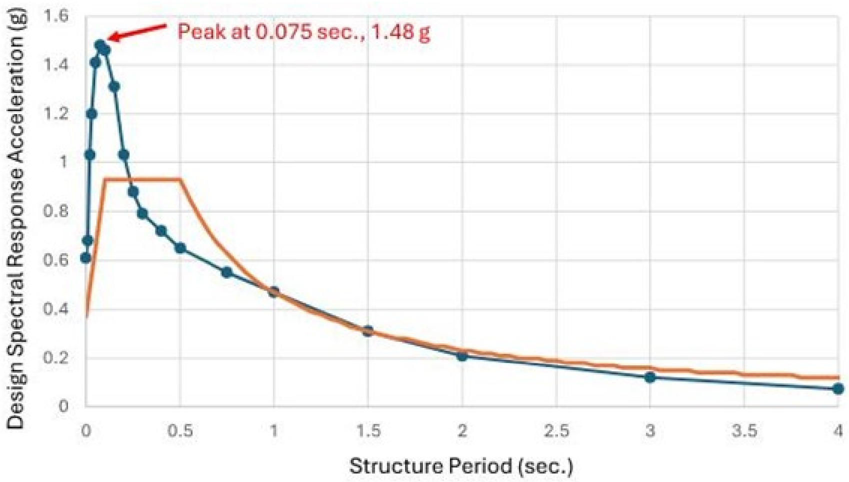

Figure 1. ASCE 7-22 design-level multi-period and two-period response spectra for Charleston, South Carolina using default site class. The short-period spike in the multi-period response spectrum is noted.

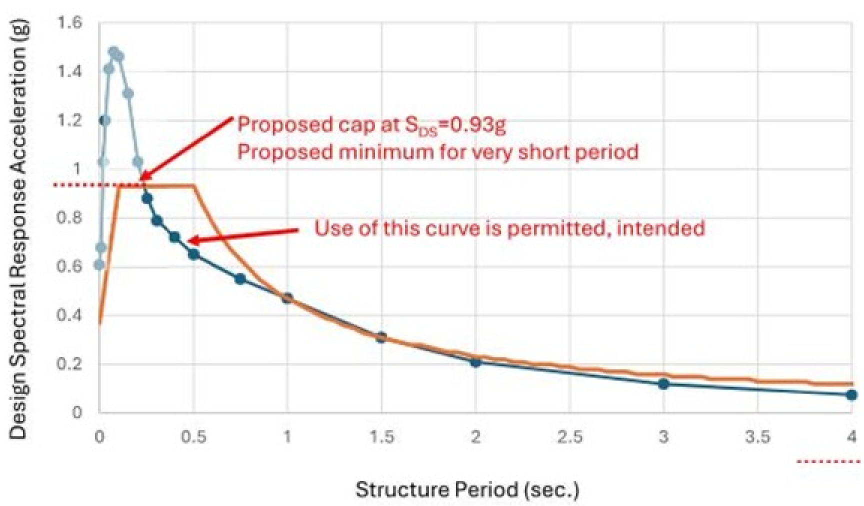

Figure 2. ASCE 7-22 design-level multi-period and two-period response spectra for Charleston, South Carolina illustrating the proposed cap for the multi-period response spectrum.

For ELF design it is also still permitted to use the traditional two-period design spectrum using the parameters S_{DS} and S_{D1}. The traditional method makes use of five equations for determining C_S. Equations (12.8-3), (12.8-4), and (12.8-5) are illustrated in ASCE 7-22 Figure C12.8-1a.

It is important that this guidance be adopted into the IBC to give a clear indication of intent to designers and plan reviewers. Within the ASCE standards process it has been determined that the modified language does not qualify as an erratum, nor does it qualify for consideration as a supplement. As a result, ASCE 7 will likely take action on this issue in the publication of ASCE 7-28. Until ASCE 7-28 is adopted, this IBC proposal is the best available method of making this information available to code users. The following provides further background on the spectral response acceleration spikes. The decision to ignore high spectral response accelerations at periods less than 0.2 seconds goes at least back to the 1997 NEHRP Provisions and the seismic provisions of ASCE 7-98. At that time the spectral acceleration spikes at short periods were identified but were judged to not be meaningful for building design. The spikes were identified to represent free-field ground motion (ground motions transmitted to the site soils). It was felt, however, that typical buildings themselves would not respond to these spikes. Commentary to the 1997 NEHRP Provisions (Appendix A, page 279) recognizes that the high peak acceleration "…has very little effect on the response of interest in ordinary structures." The concept also has a precedent in the definition of the effective peak response acceleration defined in the ATC-3 report, a precursor to the NEHRP Provisions. More recently, the commentary to ASCE 7-16 Section 21.4 included: "Periods less that 0.2 s are excluded for consistency with the parameter S_S, recognizing that certain sites, such as the (CEUS) sites, could have peak acceleration response at very short periods that would be inappropriate for defining the value S_{DS}." While the soil-structure interaction provisions of ASCE 7 Section 19.4 play a role in the translation of free-field ground motions to the base of structure ground motions that are needed for building design, the full translation is larger, more complex, and not currently laid out in design provisions. For this reason, the practical and appropriate approach remains to cap the MPS at S_{DS}.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is clarification to maintain past practice, with no substantive cost effect.

S101-25

S102-25

IBC: 1613.2

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Building Code

Revise as follows:

1613.2 Determination of seismic design category. *Structures* shall be assigned to a S*eismic Design Category* based on one of the following methods unless the authority having *jurisdiction* or geotechnical data determines that *Site Class* DE, E or F soils are present at the site:

1. Based on the structure *risk category* using Figures 1613.2(1) through 1613.2(7).
2. Determined in accordance with ASCE 7.

Where *Site Class* DE, E or F soils are present and the site is located in the conterminous United States east of -105 degrees longitude, the *Seismic Design Category* shall be determined in accordance with ASCE 7-16.

Where *Site Class* DE, E or F soils are present and the site is not located in the conterminous United States east of -105 degrees longitude, the S*eismic Design Category* shall be determined in accordance with ASCE 7-22.

Reason: With increased use of ASCE 7-22, as adopted in the 2024 IBC, it has been identified that significant reductions in Seismic Design Category have occurred for structures on soft soil sites in a number of locations in the Central and Eastern United States between ASCE 7-16 and ASCE 7-22. The following table prepared by S.K. Ghosh and Bodhi Rudra summarizes these changes for 32 selected locations. As part of the transition from ASCE 7-16 to ASCE 7-22 there have been a number of changes in seismic hazard information that effect the assignment of Seismic Design Category. One of the many has been the deletion of specific assigned Site Coefficients F_a and F_v, which have been replaced by reliance on US Geological Survey databases that characterize Site Class effects in a more detailed fashion. It is understood that the affect of this change has been more dramatic in the Central and Eastern US than at other locations.

At the time of writing of this proposal, the changes that have impacted assignment of Seismic Design Category are still being discussed; there is a pressing concern that significant drops in Seismic Design Category would allow construction using less ductile seismic force-resisting systems at soft soil sites in the Central and Eastern United States. This change proposal is being submitted with the hope that more complete information will be available for discussion in time for the code development hearings. It is hoped that this change proposal will provide guidance not only for users of the 2027 IBC, but also to jurisdictions adopting the 2024 IBC. It is also hoped that the issues addressed in this proposal will be addressed in ASCE 7-28, permitted this revision to be deleted from the 2030 IBC.

Table 1: Seismic Design Categories of ASCE 7-10, 7-16, and 7-22 for Site Classes D and E

City	Site Class D			Site Class E		
	ASCE 7-10	**ASCE 7-16**	**ASCE 7-22**	**ASCE 7-10**	**ASCE 7-16**	**ASCE 7-22**
Savannah, GA	C	C	C	D	D	C
Atlanta, GA	C	C	B	D	D	B
Greenville, SC	C	C	C	D	D	B
Columbia, SC	D	C	C	D	D	C
Charlotte, NC	C	B	B	D	D	B
Raleigh, NC	B	B	B	C	C	B
Norfolk, VA	B	A	A	B	B	A
Richmond, VA	B	B	B	C	C	B
Washington, DC	B	B	A	B	B	A
Philadelphia, PA	B	B	A	C	B	A
Harrisburg, PA	B	B	A	B	B	A
Pittsburgh, PA	B	B	B	B	B	B

City	Site Class D			Site Class E		
	ASCE 7-10	ASCE 7-16	ASCE 7-22	ASCE 7-10	ASCE 7-16	ASCE 7-22
Albany, NY	B	B	B	C	C	B
Buffalo, NY	B	B	A	C	B	A
Hartford, CT	B	B	B	C	C	A
Boston, MA	B	B	B	C	C	B
Manchester, NH	B	C	B	C	D	B
Portland, ME	B	B	B	C	D	B
Providence, RI	B	B	B	C	C	A
New York, NY	B	B	B	C	C	B
Chicago, IL	B	B	B	C	C	B
Charleston, SC	D	D	D	D	D	D
Memphis, TN	D	D	D	D	D	D
St. Louis, MO	D	D	D	D	D	D
Cincinnati, OH	B	B	B	C	D	B
Las Vegas, NV	D	D	D	D	D	D
Salt Lake City, UT	D	D	D	D	D	D
Seattle, WA	D	D	D	D	D	D
Los Angeles, CA	E	D	D	E	D	D
San Francisco, CA	D	D	D	D	D	D
San Diego, CA	D	D	D	D	D	D
Knoxville, TN	C	D	C	D	D	C

Blue highlighting indicates one SDC downgrade.

Yellow highlighting indicates two SDC downgrade.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The intent of this change proposal is to maintain past practice with regard to Seismic Design Category assignment. With no change in assignment, there is no change in cost.

S102-25

S103-25

IBC: 1613.5 (New), 1613.5, 1613.6

Proponents: Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Building Code

Add new text as follows:

1613.5 Energy storage systems. Where *energy storage systems (ESS)* are configured to supply backup power to an *emergency power system* or *standby power system* required by Section 2702, the ESS shall be designed and installed in accordance with NFPA 70, NFPA 110 and NFPA 111. ESS shall be assigned a component importance factor I_p of 1.5 in any of the following cases:

1. Where ESS is configured to supply backup power to an *emergency power system* or *standby power system* required by Section 2702.
2. Where required by Chapter 13 of ASCE 7.
3. Where required by relevant equipment and system safety standards.

Revise as follows:

~~1613.5~~1613.6 **Elevators, escalators and other conveying systems.** Elevators, escalators and other conveying systems and their components shall satisfy the seismic requirements of ASCE 7 and ASME A17.1/CSA B44 as applicable.

~~1613.6~~1613.7 **Automatic sprinkler systems.** Where required, automatic sprinkler systems, including anchorage and bracing, shall comply with ASCE 7 and Section 903.3.1.1.

Reason: With the increase in deployment of energy storage systems (ESS), especially battery energy storage systems (BESS), there has been increased attention given to seismic considerations.

While component importance factor, I_p, is primarily assigned in ASCE 7-22 Section 13.1.3, there are other cases in addition to Section 13.1.3 where I_p is specifically assigned as 1.5 in other standards. A variety of standards applicable to BESS include provisions for mechanical and seismic safety.

For example, NFPA 855 Standard for the Installation of Stationary Energy Storage Systems addresses seismic hazards.

UL 9540 Energy Storage Systems and Equipment requires mechanical tests and includes a full section on "Installation in seismic environments" that refers to additional standards for seismic evaluation and seismic testing.

While reviewing NFPA 110 Standard for Emergency and Standby Power Systems and NFPA 111 Standard on Stored Electrical Energy Emergency and Standby Power Systems, we see 2025 NFPA 111 Section 7.4.5 Seismic Risk includes specific language in Section 7.4.5.2 to state: "Components of an SEPSS shall be assigned a component importance factor of 1.5, per ASCE/SEI 7, Minimum Design Loads for Buildings and Other Structures."

SEIA is preparing to conduct a comprehensive review of all applicable standards for ESS that reference seismic hazards, seismic analysis & testing, and mitigation strategies, and will be prepared to summarize these standards prior to Committee Action Hearings #1.

The proponent wishes for this new subsection to be Section 1613.5, immediately following existing Section 1613.4 for ballasted PV systems, with the other subsections renumbered as shown.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is intended to identify and clarify cases where energy storage systems (ESS) are already required to use seismic component importance factor I_p equal to 1.5.

S104-25

IBC: 1613.6

Proponents: Jeffrey Hugo, NFSA - National Fire Sprinkler Association, representing NFSA (hugo@nfsa.org)

2024 International Building Code

Revise as follows:

1613.6 ~~Automatic sprinkler systems~~ Water-based fire protection systems. Where required, ~~automatic sprinkler systems,~~ water-based fire protection systems, including anchorage and bracing, shall comply with ASCE 7 and Section 903.3.1.1.

Reason: NFPA 13, referenced by 903.3.1.1 is the hanging and bracing standard for other water-based fire protection systems, such as NFPA 14 for standpipes. This means NFPA 14 refers to NFPA 13 for hanging, or more importantly for this context, for Currently, NFPA 13 (referenced in IBC 903.3.1.1) serves as the hanging and bracing standard for all water-based fire protection systems, including standpipes (NFPA 14) and water mist systems (NFPA 750). However, the IBC only references automatic sprinkler systems for seismic bracing, creating an inconsistent and incomplete approach to seismic protection across different water-based fire suppression systems.

The National Fire Protection Association (NFPA) is developing NFPA 200, a dedicated standard for hanging and bracing of all fire suppression systems. While NFPA 200 will not be ready for the 2027 IBC cycle, it is anticipated for inclusion in the 2030 edition, at which point IBC Chapter 16 can reference NFPA 200 to provide uniform seismic bracing requirements for all water-based systems.

Since NFPA 14 already defers to NFPA 13 for hanging and bracing, including seismic requirements, the IBC should replace the term "automatic sprinkler system" with "water-based fire protection system" to accurately reflect current industry practice. This change ensures all water-based fire suppression systems receive consistent seismic protection, aligning with existing NFPA standards and eliminating ambiguity in enforcement.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This language does not change the application of the code and NFPA 13.

S104-25

S105-25

IBC: 1613.7 (New)

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Robert Bachman, RE Bachman Consulting Structural Engineer, representing Myself (rebachmanse@aol.com); Chris Kimball, Building Code Solutions, representing Self (chris@bcscodegroup.com)

2024 International Building Code

Add new text as follows:

1613.7 Battery energy storage systems. Components of battery energy storage systems shall satisfy the seismic requirements of ASCE 7 Chapter 13 based on the *risk category* assigned by Section 1604.5. Battery energy storage systems assigned to Risk Category IV shall be considered *designated seismic systems* and shall have the component seismic importance factor, I_p, taken as 1.5. Buildings or non-building structures, including containers and walk-in units, that house, shelter, or support battery energy storage systems shall satisfy the requirements of ASCE 7 Chapter 12 or 15 as applicable using the same *risk category* to which the battery energy storage system itself is assigned.

Attached Files

- **Photos for BESS DSS.pdf**
  https://www.cdpaccess.com/proposal/12040/35909/files/download/9266/

Reason: This proposal clarifies and simplifies the application of the code and of ASCE 7 to battery energy storage systems (BESS; see the terminology section below). BESS are a relatively new, and increasingly important, combination of non-building structures and nonstructural components. As illustrated below, BESS are often built as customized containers or equipment frames, filled with batteries and related electrical and HVAC equipment, and mounted on a platform, a slab on ground, or a set of isolated footings.

This proposal applies only to those BESS components already assigned to Risk Category IV in Section 1604.5. These might include BESS ancillary to a power plant assigned to RC IV or BESS serving a RC IV facility as backup power. The proposal does not change any of the RC IV design criteria.

The gist of the proposal is this: BESS components assigned to RC IV should have I_p = 1.5 and should be certified for seismic application. In most cases, the current code *should* already reach this result, but because BESS involve combinations of active, nonactive, heavy, and lightweight nonstructural components, some containing hazardous materials, and all interconnected within a container or frame that constitutes a non-building structure, application of the code and ASCE 7 provisions can be convoluted. This proposal improves the code's usability by making the necessary designations explicit for this defined category of components.

The proposed new section simplifies the derivation of design criteria for BESS components assigned to RC IV. To explain why this simplification is useful, consider how the current IBC and ASCE 7 work together:

- IBC Sec 1613.1 requires compliance with ASCE 7 Chapters 12, 13, and 15.
- Then, ASCE 7 Sec 13.2.3 requires seismic certification for *designated seismic systems* (DSS) in Seismic Design Category C-F.
- That relies on a definition of DSS in IBC Sec 202: "Those nonstructural components that require design in accordance with Chapter 13 of ASCE 7 and for which the component importance factor, I_p, is greater than 1 in accordance with Section 13.1.3 of ASCE 7."
- Which components are those? Back to ASCE 7 Sec 13.1.3, which sets I_p = 1.5 for any of 4 cases:

  1. "The component is required to function for life-safety purposes after an earthquake." Possibly BESS could be construed to be part of a life safety system if it provides power to a RC IV building, but maybe not; in any case, whether this condition applies to BESS is unclear.

  2. The component handles "toxic, highly toxic, or explosive substances." This could apply to parts of a BESS installation, but not to every component within or attached to the container.

  3. "The component is in or supported by a Risk Category IV structure ... and the component is required for the continued operation of a structure designated an Essential Facility, or its failure would impair the continued operation of a structure designated an Essential Facility." This is the most likely current basis for setting $I_p > 1$ for BESS assigned to RC IV. However, it's somewhat circular, or redundant, in that it relies on designation of an RC IV facility as an Essential Facility (wording that is new in ASCE 7-22). So, back to IBC for the definition of Essential Facility: "Buildings and other structures that are intended to remain operational in the event of extreme environmental loading from flood, wind, snow or earthquakes." (ASCE 7 has its own definition, which is identical to the IBC's except that ASCE 7 adds tornado to the list of perils ... as IBC should too.)

4. The component handles “hazardous substances ... and is attached to a structure ... classified ... as a hazardous occupancy.” Like item 2, this could apply to parts of a BESS installation, but only if the BESS container or frame is considered a structure so classified.

- Finally, ASCE 7 Sec 13.1.4 exempts certain lightweight components even if $I_p > 1.0$. Some components within a BESS container might thus appear exempt by weight, but insofar as the components comprise one integrated system, the functionality objective implied by the RC IV assignment should apply to all of them.

Thus, assignment of a BESS to RC IV *should* be sufficient to result in $I_p = 1.5$ and classification as a DSS. But the code path is complicated, and some of the code and ASCE 7 wording is less than clear with respect to typical BESS construction. Therefore, this proposal cuts through that uncertainty by stating simply the criteria and designations that apply where BESS is assigned to RC IV. Specifically:

- The first sentence treats typical BESS equipment – the battery racks, HVAC units, fire suppression, etc., but not the walk-in containers themselves – as nonstructural components covered by ASCE 7 Chapter 13.
- The second sentence clarifies and simplifies application of ASCE 7 Section 13.1.3, making it unnecessary to parse the ASCE wording described above. Specification of $I_p = 1.5$ also simplifies application of the exemptions in Section 13.1.4.
- The third sentence covers the design of the BESS container itself, as well as any separate shelters, enclosures, or buildings, with the intent that BESS function should not be impaired by damage to an adjacent or enclosing structure.

Notes on terminology:

- **Walk-in unit** is used consistent with the term *energy storage system, walk-in unit*, defined in the IFC and used in IFC Sec 1207: “A prefabricated building that contains energy storage systems. It includes doors that provide walk-in access for personnel to maintain, test and service the equipment, and is typically used in outdoor and mobile ESS applications.”
- **Battery energy storage system(s)**, or BESS, has emerged as an industry standard term. It is not yet explicitly defined by the I-codes, but a number of related terms are, and BESS is indirectly defined by them. The following related terms are already defined:
- IFC: “**Battery system, stationary storage.** A rechargeable energy storage system consisting of electrochemical storage batteries, battery chargers, controls and associated electrical equipment designed to provide electrical power to a building. The system is typically used to provide standby or emergency power, an uninterruptible power supply, load shedding, load sharing or similar capabilities.”
- IECC, IFC: “**Energy storage system (ESS).** One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.”
- IBC, IFC: “**Energy storage system, electrochemical.** An energy storage system that stores energy and produced electricity using chemical reactions. It includes, among others, **battery ESS** and capacitor ESS.”

By using “battery,” as opposed to just ESS, the proposal distinguishes its scope from capacitor ESS (per the definition of electrochemical ESS above) and from other ESS such as pumped hydro or compressed air. The IFC also defines several “battery types,” but the proposal would apply to all types, including some newer types (e.g. sodium-ion or iron-air) not yet defined in the IFC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal merely clarifies and simplifies the current expectation with respect to certain components already assigned to RC IV.

S105-25

S106-25

IBC: 1704.2.1, 1704.3, 1704.3.1, TABLE 1705.7, 1705.9

Proponents: Emily Dunham, Gresham Smith, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

1704.2.1 Special inspector qualifications. Prior to the start of the construction, the *approved agencies* shall provide written documentation to the *building official* demonstrating the competence and relevant experience or training of the *special inspectors* who will perform the *special inspections* and tests during construction. Experience or training shall be considered to be relevant where the documented experience or training is related in complexity to the same type of *special inspection* or testing activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code.

The *registered design professionals* ~~*in responsible charge*~~ ~~and engineers of record~~ involved in the design of the project are permitted to act as an *approved agency* and their personnel are permitted to act as *special inspectors* for the work designed by them, provided they qualify as *special inspectors*.

1704.3 Statement of special inspections. Where *special inspections* or tests are required by Section 1705, the *registered design professional in responsible charge* shall ~~prepare~~ review and coordinate a statement of *special inspections* prepared by one or more *registered design professionals* in accordance with Section 1704.3.1 for submittal by the applicant in accordance with Section 1704.2.3.

Exception: The statement of *special inspections* is permitted to be prepared by a qualified *person approved* by the *building official* for construction not designed by a *registered design professional*.

1704.3.1 Content of statement of special inspections. The statement of *special inspections* shall identify the following:

1. The materials, systems, components and work required to have *special inspections* or tests by the *building official* or by the *registered design professional* responsible for each portion of the work.
2. The type and extent of each *special inspection*.
3. The type and extent of each test.
4. Additional requirements for *special inspections* or tests for seismic or wind resistance as specified in Sections 1705.12, 1705.13 and 1705.14.
5. For each type of *special inspection*, identification as to whether it will be continuous *special inspection*, periodic *special inspection* or performed in accordance with the notation used in the referenced standard where the inspections are defined.
6. *Deferred submittal* items that require a supplemental statement of special inspections.

TABLE 1705.7 REQUIRED SPECIAL INSPECTIONS AND TESTS OF DRIVEN DEEP FOUNDATION ELEMENTS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify element materials, sizes and lengths comply with the requirements.	X	—
2. Determine capacities of test elements and conduct additional load tests, as required.	X	—
3. Inspect driving operations and maintain complete and accurate records for each element.	X	—
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element.	X	—
5. For steel elements, perform additional special inspections in accordance with Section 1705.2.	In accordance with Section 1705.2	
6. For concrete elements and concrete-filled elements, perform tests and additional special inspections in accordance with Section 1705.3.	In accordance with Section 1705.3	
7.For specialty elements, perform additional inspections as determined by the registered design professional ~~in responsible charge~~.	In accordance with Statement of Special Inspections	

1705.9 Helical pile foundations. *Continuous special inspections* shall be performed during installation of *helical pile* foundations. The information recorded shall include installation equipment used, pile dimensions, tip elevations, final depth, final installation torque and other pertinent installation data as required by the *registered design professional* ~~in responsible charge~~. The *approved* geotechnical report and the *construction documents* prepared by the *registered design professional* shall be used to determine compliance.

Reason: This proposal is intended to clarify the role of the registered design professional in responsible charge (RDPIRC), the individual who coordinates the design team and liaises with the building official, and the role of the registered design professionals (RDP), those individuals whose technical expertise contribute to the project. The revisions in this proposal place the administrative tasks on the registered design professional in responsible charge and technical related tasks on the registered design professional.

1704.2.1: RDP's may serve as approved agencies for work they designed. However "engineers of record" is not an IBC term and reference to "RDPIRC" contributes to confusion regarding roles and responsibilities. It is more straightforward to simply say that RDP's may serve as an approved agency for work they designed subject to the noted qualifications, so text is proposed for deletion.

1704.3: Structural engineers often mistakenly equate the "RDPIRC" code language to the commonly used term structural "Engineer of Record," which is a contractual or project team role - not a role recognized by the IBC. The IBC does not specifically define or assign disciplinary roles because practice laws vary between jurisdictions. The IBC uses the generic term "registered design professional" in reference to any licensed/registered/certified/etc. entity that is responsible for a certain aspect of work. A structural engineer, a mechanical engineer, an architect, and a geotechnical engineer are all examples of "registered design professionals." A structural engineer who is responsible for the structural design aspects of a project is not necessarily the "registered-design-professional-in-responsible-charge."

As proposed, 1704.3 clarifies and differentiates three distinct roles and responsibilities:

1. The RDP (one or more), who authors portions of the statement of special inspections related to their work per 1704.3.1
2. The RDPIRC, who reviews and coordinates all of those portions in accordance with their duties defined in 107.3.4 and the Chapter 2 definition.
3. The applicant, who submits the statement of special inspections to the building official per their responsibility identified in 1704.2.3

1704.3.1 is included for context.

Table 1705.7 - Item 7: RDP's are responsible for specifying special inspection tasks, but those RDP's are not necessarily the RDPIRC. Thus the table should reference a "RDP," not the "RDPIRC."

1705.9: RDP's are responsible for specifying special inspection tasks, but those RDP's are not necessarily the RDPIRC. Thus the section should reference a "RDP," not the "RDPIRC."

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The tasks will still be performed, the proposal is clarifying which individual will be performing the task.

S106-25

S107-25

IBC: 1704.2.5, 1704.2.5.1, 1704.2.5.2 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

Revise as follows:

1704.2.5 Special inspection of fabricated items. Where fabrication of structural, load-bearing or lateral load-resisting members or assemblies is being conducted on the premises of a fabricator's shop, *special inspections* of the *fabricated items* shall be performed during fabrication, except where the fabricator has been *approved* to perform work without *special inspections* in accordance with Section 1704.2.5.1 <u>or the manufacturing plant has been approved in accordance with Section 1704.2.5.2.</u>

1704.2.5.1 Fabricator approval. *Special inspections* during fabrication are not required where the work is done on the premises of a fabricator *approved* to perform such work without *special inspection*. Approval shall be based on review of the fabricator's written fabrication procedures and quality control manuals that provide a basis for control of materials and workmanship, with periodic auditing of fabrication and quality control practices by an *approved agency* or the *building official*. At completion of fabrication, the *approved fabricator* shall submit a *certificate of compliance* to the *owner* or the *owner 's* authorized agent for submittal to the *building official* as specified in Section 1704.5 stating that the work was performed in accordance with the *approved construction documents* .

Add new text as follows:

<u>**1704.2.5.2**</u> <u>**Modular construction.**</u> <u>Special inspections during the manufacture of modular components or modules are not required where the work is done on the premises of a manufacturing plant approved to perform such work without special inspection. The approved manufacturing plant shall demonstrate compliance with the quality control and quality assurance provisions of ICC 1200 and ICC 1205. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the owner or the owner's authorized agent for submittal to the building official as specified in Section 1704.5 stating that the work was performed in accordance with the approved construction documents.</u>

Reason: This proposal adds an option to permit manufacturers of modular components to comply with the ICC 1200 and ICC 1205 standards as one means of compliance with this section. The requirements in the ICC 1205 Standard for Off-site Construction: Inspection and Regulatory Compliance provides clear guidelines and standardized procedures that focus on inspections and regulatory compliance in off-site construction, thereby reducing the administrative burden on Code Officials. The structure of ICC 1205 ensures strict compliance with the construction standards. Ultimately, the ICC 1205 standard ensures regulatory objectives are met with fewer resources and less time, creating a more effective regulatory environment.

Some structural assemblies have concealed elements such as reinforcing or embed plates in a precast concrete wall panel or are even fabricated with embedded mechanical, electrical or plumbing components. These assemblies would fall within the definition of a modular component or panelized construction under ICC 1200 and ICC 1205 and a fabricator's shop could be required to comply with those standards under a state's modular and industrialized building program. Building officials who participated in the development of the ICC off-site construction standards indicated they would consider going through their program as an option for such assemblies rather than an explicit requirement and would accept other methods of compliance such as an industry QA/QC certification program or a traditional program of special inspections. Adding a reference to the ICC standards as a new section alongside the existing requirements for fabricated items allows for owners, registered design professionals and fabricators to select their preferred avenue for compliance.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is not expected to increase or decrease the costs of construction but rather it provides another means for off-site manufacturing or construction to comply with the code.

S107-25

S108-25

IBC: SECTION 1705, 1705.1, 1705.1.1, 1705.1.2 (New), 1705.2.4, TABLE 1705.2.4, 1705.5.3, TABLE 1705.5.3, 1705.12, 1705.12.1, 1705.12.2, 1705.12.3, 1705.13.2, 1705.13.3, 1705.13.4, 1705.13.5, 1705.13.5.1, 1705.13.6

Proponents: Emily Dunham, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

SECTION 1705
REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.1 General. *Special inspections* and tests of elements and nonstructural components of *buildings* and *structures* shall meet the applicable requirements of this section.

1705.1.1 Special cases. *Special inspections* and tests shall be required for proposed work that is, in the opinion of the *building official*, unusual in its nature, such as, but not limited to, the following examples:

1. Construction materials and systems that are alternatives to materials and systems prescribed by this code.
2. Unusual design applications of materials described in this code.
3. Materials and systems required to be installed in accordance with additional manufacturer's instructions that prescribe requirements not contained in this code or in standards referenced by this code.

Add new text as follows:

1705.1.2 Special inspection of connections, fastening, and anchorages. Where this section is specified in Section 1705, s*pecial inspection* of connections, fastening, and anchorages shall be performed in accordance with this section. The following applicable items shall be verified to comply with *construction documents*, valid evaluation reports and manufacturer's printed installation instructions.

1. Materials of members being connected.
2. Component materials, coatings, and surface preparation.
3. Component geometry, thicknesses, clearances, and material cover.
4. Fastener type, quantity, layout, size, length, edge distances, critical spacing, seating or bearing conditions, and embedment depths or thread engagement.
5. Fastener installation torques, pre-tension loads, or other special procedures.
6. Accommodation of specified allowable movements including length, direction, freedom of slip, and clearances.
7. Pretensioned bolts and other similar connectors achieve specified contact between connected members.

1705.2.4 Open-web steel joists and joist girders. *Special inspections* of open-web *steel joists* and joist girders in *buildings*, *structures* and portions thereof shall be in accordance with Table 1705.2.4.

Revise as follows:

TABLE 1705.2.4 REQUIRED SPECIAL INSPECTIONS OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]
1. Installation of open-web steel joists and joist girders.			

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD
a. End connections – welding or bolted.	—	X	~~SJI specifications listed in Section 2207.1.~~ 1705.1.2
b. Bridging – horizontal or diagonal.	—	—	—
1.Standard bridging.	—	X	SJI specifications listed in Section 2207.1.
2.Bridging that differs from the SJI specifications listed in Section 2207.1.	—	X	—

a. Where applicable, see Section 1705.13.

1705.5.3 Mass timber construction. *Special inspections* of *mass timber* elements in Types IV-A, IV-B and IV-C construction shall be in accordance with Table 1705.5.3.

TABLE 1705.5.3 REQUIRED SPECIAL INSPECTIONS OF MASS TIMBER CONSTRUCTION

TYPE		CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Inspection of anchorage and connections of mass timber construction to timber deep foundation systems. Inspect per section 1705.1.2.		—	X
2. Inspect erection of mass timber construction.		—	X
3. Inspection of connections where installation methods are required to meet design loads.			
Threaded fasteners.	Verify use of proper installation equipment.	—	X
	Verify use of pre-drilled holes where required.	—	X
	Inspect screws, including diameter, length, head type, spacing, installation angle and depth.	—	X
Adhesive anchors installed in horizontal or upwardly inclined orientation to resist sustained tension loads. Inspect per section 1705.1.2.		X	—
Adhesive anchors not defined in preceding cell. Inspect per section 1705.1.2.		—	X
Bolted connections. Inspect per section 1705.1.2.		—	X
Concealed connections. Inspect per section 1705.1.2.		—	X

1705.12 Special inspections for wind resistance. *Special inspections* for wind resistance specified in Sections 1705.12.1 through 1705.12.3, unless exempted by the exceptions to Section 1704.2, are required for *buildings* and *structures* constructed in the following areas:

1. In wind Exposure Category B, where *basic wind speed*, *V,* is 150 mph (67 m/sec) or greater.
2. In wind Exposure Category C or D, where *basic wind speed*, *V,* is 140 mph (62.6 m/sec) or greater.

1705.12.1 Structural wood. *Continuous special inspection* is required during field gluing operations of elements of the *main windforce-resisting system*. *Periodic special inspection* per section 1705.1.2 is required for nailing, bolting, anchoring and other fastening of elements of the *main windforce-resisting system*, including wood shear walls, wood *diaphragms*, *drag struts*, braces and *hold-downs*.

Exception: *Special inspections* are not required for wood shear walls, shear panels and *diaphragms*, including nailing, bolting, anchoring and other fastening to other elements of the *main windforce-resisting system*, where the lateral resistance is provided by structural sheathing and the specified fastener spacing at panel edges is more than 4 inches (102 mm) on center.

1705.12.2 Cold-formed steel light-frame construction. *Periodic special inspection* is required for welding operations of elements of the *main windforce-resisting system*. *Periodic special inspection* is required for screw attachment, bolting, anchoring and other fastening of elements of the *main windforce-resisting system*, including shear walls, braces, *diaphragms*, *collectors* (*drag struts*) and *hold-downs*. Inspection tasks shall be as follows:

1. Special inspections for screw and bolt attachments to the items above shall be per the quality assurance inspector tasks listed in AISI S240 Section D6.10.
2. Special inspections for welding operations to fasten the items above shall be per the quality assurance inspector tasks listed in AISI S240 Tables D6.7-2 and D6.7-3.

Exception: *Special inspections* are not required for cold-formed steel light-frame shear walls and *diaphragms*, including screwing, bolting, anchoring and other fastening to components of the windforce-resisting system, where either of the following applies:

1. The sheathing is *gypsum board* or *fiberboard*.
2. The sheathing is *wood structural panel* or steel sheets on only one side of the shear wall, shear panel or *diaphragm* assembly and the specified fastener spacing at the panel or sheet edges is more than 4 inches (102 mm) on center (o.c.).

1705.12.3 Wind-resisting components. *Periodic special inspection* per section 1705.1.2 is required for fastening of the following systems and components:

1. *Roof covering*, *roof deck* and roof framing connections.
2. *Exterior wall covering* and wall connections to roof and floor *diaphragms* and framing.

Exceptions: Special inspections for the following items shall be performed in accordance with the referenced section rather than section 1705.1.2.

1. *Special inspections* for sidelaps of cold-formed steel deck panels and for fastening of cold-formed steel decks to roof framing and to exterior wall framing shall be performed in accordance with section 1705.2.3.
2. *Special inspections* for structural steel connections shall be performed in accordance with section 1705.2.1.
3. *Special inspections* for concrete roof deck, concrete roof framing connections, and concrete wall connections to roof and floor diaphragms and framing shall be performed in accordance with section 1705.3.
4. *Special inspections* for connections of high-load wood roof *diaphragms* to roof framing shall be performed in accordance with section 1705.5.1.
5. *Special inspections* for threaded fastener *mass timber* connections shall be performed in accordance with Table 1705.5.3.

1705.13.2 Structural wood. For the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* C, D, E or F:

1. *Continuous special inspection* shall be required during field gluing operations of elements of the *seismic force-resisting system*.
2. *Periodic special inspection* per section 1705.1.2 shall be required for nailing, bolting, anchoring and other fastening of elements of the *seismic force-resisting system*, including wood shear walls, wood *diaphragms*, *drag struts*, braces, shear panels and *hold-downs*.

Exception: *Special inspections* are not required for wood shear walls, shear panels and *diaphragms*, including nailing, bolting, anchoring and other fastening to other elements of the *seismic force-resisting system*, where the lateral resistance is provided by structural sheathing, and the specified fastener spacing at the panel edges is more than 4 inches (102 mm) on center.

1705.13.3 Cold-formed steel light-frame construction. For the *seismic force-resisting systems* of *structures* assigned to *Seismic Design Category* C, D, E or F, *periodic special inspection* shall be required for both:

1. Welding operations of elements of the *seismic force-resisting system*.
2. Screw attachment, bolting, anchoring and other fastening of elements of the *seismic force-resisting system*, including shear walls, braces, *diaphragms*, *collectors* (*drag struts*) and *hold-downs*.

Inspection tasks shall be as follows:

1. Special inspections for screw and bolt attachments to the items above shall be per the quality assurance inspector tasks listed in AISI S240 Section D6.10.
2. Special inspections for welding operations to fasten the items above shall be per the quality assurance inspector tasks listed in AISI S240 Tables D6.7-2 and D6.7-3.

Exception: *Special inspections* are not required for cold-formed steel light-frame shear walls and *diaphragms*, including screw installation, bolting, anchoring and other fastening to components of the *seismic force-resisting system*, where either of the following applies:

1. The sheathing is *gypsum board* or *fiberboard*.
2. The sheathing is *wood structural panel* or steel sheets on only one side of the shear wall, shear panel or *diaphragm* assembly and the specified fastener spacing at the panel or sheet edge is more than 4 inches (102 mm) on center.

1705.13.4 Designated seismic systems. For *structures* assigned to *Seismic Design Category* C, D, E or F, the *special inspector* shall examine *designated seismic systems* requiring seismic qualification in accordance with Section 13.2.3 of ASCE 7 and verify that the *label*, anchorage and mounting conform to the *certificate of compliance*.

1705.13.5 Architectural components. *Periodic special inspection* per section 1705.1.2 is required for the erection and fastening of exterior cladding, interior and exterior nonbearing walls and interior and exterior *veneer* in structures assigned to *Seismic Design Category* D, E or F.

Exception: *Periodic special inspection* is not required for the following:

1. Exterior cladding, interior and exterior nonbearing walls and interior and exterior *veneer* 30 feet (9144 mm) or less in height above grade or walking surface.
2. Exterior cladding and interior and exterior *veneer* weighing 5 psf (0.24 kN/m^2) or less.
3. Interior nonbearing walls weighing 15 psf (0.72 kN/m^2) or less.

1705.13.5.1 Access floors. Periodic *special inspection* per section 1705.1.2 is required for the anchorage of access floors in *structures* assigned to *Seismic Design Category* D, E or F.

1705.13.6 Plumbing, mechanical and electrical components. *Periodic special inspection* of plumbing, mechanical and electrical components shall be required for the following:

1. Anchorage of electrical equipment for emergency and *standby power systems* in *structures* assigned to *Seismic Design Category* C, D, E or F shall be inspected per section 1705.1.2.
2. Anchorage of other electrical equipment in *structures* assigned to *Seismic Design Category* E or F shall be inspected per section 1705.1.2.
3. Installation and anchorage of piping systems designed to carry *hazardous materials* and their associated mechanical units in *structures* assigned to *Seismic Design Category* C, D, E or F shall be inspected per section 1705.1.2.
4. Installation and anchorage of ductwork designed to carry *hazardous materials* in *structures* assigned to *Seismic Design Category* C, D, E or F shall be inspected per section 1705.1.2.
5. Installation and anchorage of vibration isolation systems in *structures* assigned to *Seismic Design Category* C, D, E or F where the *approved construction documents* require a nominal clearance of $^1/_4$ inch (6.4 mm) or less between the equipment support frame and restraint shall be inspected per section 1705.1.2.
6. Installation of mechanical and electrical equipment, including duct work, piping systems and their structural supports, where *automatic sprinkler systems* are installed in *structures* assigned to *Seismic Design Category* C, D, E or F to verify one of the following:
   6.1. Minimum clearances have been provided as required by Section 13.2.4 ASCE/SEI 7.
   6.2. A nominal clearance of not less than 3 inches (76 mm) has been be provided between *automatic sprinkler system* drops and sprigs and: structural members not used collectively or independently to support the sprinklers; equipment attached to the *building structure*; and other systems' piping.

Where flexible sprinkler hose fittings are used, *special inspection* of minimum clearances is not required.

Reason: This proposal does not add any new special inspections to Chapter 17, nor does it override inspection tasks that are already defined in referenced standards. Special inspections of certain connections specified in Chapter 17 do not take the place of the building official's framing inspections. The building official has authority to determine the acceptable qualifications for the special inspector.

The proposed language for these connection, anchorage and fastening special inspection requirements strives to clarify the following:

Identify a required task,

Identify a procedure to complete that task (whether by description or by referenced standard),

Define a frequency for the task (continuous vs periodic), and

Identify a standard by which to verify compliance (construction documents, evaluation reports, ASTM standard, etc.).

This proposal reduces room for interpretation, helps with enforceability of the provisions, and results in a more consistent levels of quality assurance. The descriptions of the items are written generally to include a broad range of materials, but the requirements only apply when proposed section 1705.1.2 is specifically invoked within the detailed requirements of section 1705, as indicated in this proposal.

Table 1705.2.4 Item 1a – “End connections” calls for periodic special inspection of open web steel joist end connections per SJI 100 or 200. However, those standards do not contain any special inspection requirements for member end connections. Therefore, the proposed revision clarifies what items need to be considered by the special inspector to verify that the completed end connection is compliant, and references proposed section 1705.1.2 in lieu of SJI specifications since there are no tasks for inspection of end connections defined in SJI 100/200.

Table 1705.5.3 calls for special inspection of mass timber connections and anchorages. Required tasks related to inspection of threaded fastener items are clearly identified in the table. However, inspection tasks related to adhesive anchors, bolted connections, and concealed connections are not specified. There are no referenced standards that detail inspection tasks for these items so the proposed language clarifies what items need to be considered when inspecting connections per the noted line items of the table.

Sections 1705.12.1 and 1705.13.2 call for periodic special inspection of nailing, bolting, anchoring, and other fastening of certain lateral force resisting systems but the specific inspection tasks are not identified and the NDS referenced standard does not include special inspection provisions. The proposed language in this section adds a reference to 1705.1.2 as a means for verifying compliance.

Sections 1705.12.2 and 1705.13.3 call for periodic special inspection of nailing, bolting, anchoring, and other fastening of certain lateral force resisting systems. Tasks necessary to complete these inspections are specified in AISI S240. The applicable section number of the referenced standard is provided. QAI tasks for welding elements of the of the lateral force resisting system are not provided in Section D6.10, but IBC requires special inspection of welding operations. Therefore, Tables D6.7-2 and D6.7-2 are used to define the inspection tasks to comply with the IBC requirement.

Section 1705.12.3 requires special inspections of certain roof framing connections, wall connections to diaphragms and framing, roof covering, roof deck, roof framing connections, exterior wall covering, and exterior wall framing. Exceptions have been listed for referenced standards that already specify special inspection tasks. Proposed section 1705.1.2 covers conditions that are not already addressed preexisting code provisions.

Section 1705.13.5 requires special inspection of fastening of certain instances of exterior cladding, nonbearing walls, and veneer. The proposed section 1705.1.2 provides a list of items to be referenced when verifying compliance.

Section 1705.13.5.1 requires special inspection of the anchorage of access floors. Specific inspection tasks are not identified in this section. The proposed language in this section adds a reference to proposed section 1705.1.2 as a means of verifying compliance.

Section 1705.13.6 requires special inspection of the anchorage of electrical equipment for emergency and standby power systems, anchorage of piping systems designed to carry hazardous materials and their associated mechanical units, anchorage of ductwork designed to carry hazardous materials, and anchorage of vibration isolation systems. Specific inspection tasks are not identified in this section. The proposed language in this section adds a reference to proposed section 1705.1.2 as a means of verifying compliance.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposal does not add cost because it does not add work scope, it clarifies the tasks necessary to verify compliance when special inspections for connections are required.

S108-25

S109-25

IBC: 1705.1, 1705.1.1, 1705.1.2 (New)

Proponents: Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Building Code

1705.1 General. *Special inspections* and tests of elements and nonstructural components of *buildings* and *structures* shall meet the applicable requirements of this section.

1705.1.1 Special cases. *Special inspections* and tests shall be required for proposed work that is, in the opinion of the *building official*, unusual in its nature, such as, but not limited to, the following examples:

1. Construction materials and systems that are alternatives to materials and systems prescribed by this code.
2. Unusual design applications of materials described in this code.
3. Materials and systems required to be installed in accordance with additional manufacturer’s instructions that prescribe requirements not contained in this code or in standards referenced by this code.

Add new text as follows:

1705.1.2 Ground-mounted photovoltaic (PV) panel systems. For *deep foundation* elements for *ground-mounted PV panel systems*, continuous *special inspection* need not be provided where the *building official* has determined that periodic *special inspection* or inspection by an *approved agency* is acceptable.

Reason: A requirement for continuous Special Inspection for every foundation pile for ground-mounted photovoltaic (PV) panel systems is overly restrictive. The language proposed for new Section 1705.1.2 seeks to formalize inspection practice that is commonly applied to ground-mounted PV panel systems.

Large-scale (often called "utility scale") PV facilities often have tens of thousands of small piles, and cover hundreds, or even thousands of acres. For example, a 150 MegaWatt PV facility might cover approximately 900 to 1200 acres of land. Large-scale PV facilities can be fixed-tilt, but Single Axis Trackers (SAT) are more common.

For SATs, the most common foundation type is driven steel piles. SATs usually have a torque tube supported by a central drive pile and a series of bearing piles. As these nonbuilding structures are small, the piles are small. It is common for bearing piles to be W6x9 wide-flange beams, driven to a depth of approximately 6 to 8 feet below the soil surface. These small piles are often driven into Earth using specialized equipment such as a Vermeer PD10 pile driver. These drivers are usually operated by a 2-person crew. For large projects, it is not uncommon to have about ten to twelve pile drivers and crews operating simultaneously in different "blocks" of a project.

By a strict reading of 2024 IBC Table 1705.7, this would require 10 to 12 Special Inspectors to be retained full time for 1 to 3 months, as they provide continuous special inspection of 10 to 12 two-person crews operating track-mounted, GPS locating, self-plumbing, specialized pile drivers, as they drive tens of thousands of piles. It should not be surprising that Building Officials are not enforcing continuous special inspection as indicated in Table 1705.7.

As project financing often involves third-party investors, existing measures of quality control are already in place. The developer and/or EPC (Engineer, Procure, Construct) contractor typically use a rigorous design and testing process to optimize pile specifications, as part of value engineering. As part of their risk-management process, it is common for project financiers to use third-party Independent Engineers (IEs) to ensure quality controls are in place. Under current practice, it is extremely uncommon for local Building Officials to require continuous Special Inspection for "deep" foundations for PV panel systems.

Large-scale photovoltaic power facilities typically incorporate rigorous design and quality control steps, as follows:
1. Foundation elements designed by analysis, based on geotechnical investigation.
2. As thousands of small piles are used in a PV power facility, optimization of design typically includes preconstruction pile load testing conducted on site. Independent Engineers (IE's) typically review test reports.
3. EPC contractor has their own internal quality control and reporting system, including daily logs.

4. A representative sample of production piles (for example, 1 percent) are typically proof-tested during construction, to ensure adequate pile capacities are being achieved. Adjustments are made if necessary to meet the demand.
5. County/AHJ inspectors typically conduct periodic observation of pile installation. For large-scale PV facilities, these inspectors are typically third-party inspectors.
6. IE's typically conduct site visits to observe installation methods and review inspection reports and production pile load test reports. A final report is prepared by the IE.

Owing to this rigorous program of quality control, continuous special inspection of "deep" foundations is highly redundant. A team of Special Inspectors could be required to be on-site for one to three months watching piles being installed, even though the same piles are already being observed and monitored by the Developer, the EPC Contractor, the AHJ/County inspector, and an Independent Engineer. The language proposed for new Section 1705.1.2 seeks to allow the Building Official the flexibility to allow modifications to special inspection requirements, without taking away any such authority. For example, a Building Official could require an agreed-upon frequency of periodic special inspection, or might be satisfied with quality controls in place on behalf of the owner or EPC, in addition to the inspector from the AHJ.

In the 2024 IBC, "Approved Agency" is defined as: An established and recognized organization that is regularly engaged in conducting tests, furnishing inspection services or furnishing product evaluation or certification where such organization has been approved by the *building official.*

For smaller installations -- such as residential ground-mounted PV panel systems -- continuous special inspection beyond the AHJ/County inspection adds project cost disproportionate to the risk to the project. Most AHJ/County Building Officials have agreed that special inspection is not necessary or reasonable for these small systems.

This proposal follows Proposal S140-22, so video testimony from the prior cycle might be helpful to interested parties. During testimony and Committee discussion, there was attention drawn to Section 1704.2, Exception 1: "Special inspections and tests are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official." Some testifiers and at least one Committee member expressed a belief that Exception 1 of Section 1704.2 already covers the residential case, at a minimum.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only seeks to formalize existing practice.

S109-25

S110-25

IBC: 1705.2.5

Proponents: Emily Dunham, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

1705.2.5 Cold-formed steel trusses spanning 60 feet or greater. Where a cold-formed steel truss designed in accordance with section 2204 has a clear span ~~is~~ 60 feet (18 288 mm) or greater, the *special inspector* shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the ~~*approved* truss submittal package~~ design prepared in accordance with section 2206.1.3.2.

Reason: Section 2206.1.3.2 requires a truss plan to be developed by a registered design professional for truss bracing in trusses 60 feet or greater. Special inspections of the truss bracing should be performed in reference to this document rather than a truss submittal as the truss submittal may not include the specific bracing plan. For example, this bracing design could be provided as part of the construction documents, as a deferred submittal, or as a delegated design. The 2204 pointer clarifies that this section does not apply to steel joists in section 2207 (joist designed per SJI 100 and 200).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of which document should be referenced during the special inspection process.

S110-25

S111-25

IBC: 1705.2.5, 1705.2.6 (New), 1705.5.2, 1705.5.3 (New)

Proponents: Emily Dunham, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

1705.2.5 Cold-formed steel trusses spanning 60 feet or greater. Where a cold-formed steel truss clear span is 60 feet (18 288 mm) or greater, the *special inspector* shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the *approved* truss submittal package.

Add new text as follows:

1705.2.6 Cold-formed Steel Trusses Without Wood or Gypsum Panels on the Top or Bottom Chord. *Special inspections* of cold-formed steel truss permanent individual truss member restraint and individual truss member bracing shall be required where all of the following are true:

1. The truss clear span is 40 feet or greater
2. Truss chords are not sheathed with gypsum panel product fastened per table 2508.1, wood structural panels fastened per table 2304.10.2, or steel roof deck fastened per ANSI/SDI SD Section J1.
3. Truss member lateral restraint and truss diagonal bracing design *prepared by a registered design professional* is required

The *special inspector* shall verify that the permanent individual truss member restraint and permanent individual truss member bracing is installed in accordance with the *design prepared by a registered design professional.*

1705.5.2 Metal-plate-connected wood trusses spanning 60 feet or greater. Where a truss clear span is 60 feet (18 288 mm) or greater, the *special inspector* shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the *approved* truss submittal package.

1705.5.3 Wood Trusses Without Wood or Gypsum Panels on the Top or Bottom Chord. *Special inspections* of wood truss permanent individual truss member restraint and individual truss member bracing shall be required where all of the following are true:

1. The truss clear span is 40 feet or greater.
2. A design prepared by a registered design professional is required in accordance with 2303.4.1.2.1

The *special inspector* shall verify that the permanent individual truss member restraint and permanent individual truss member bracing is installed in accordance with the *design prepared by a registered design professional.*

Reason: This provision is being updated to address longer spanning trusses that do not have sheathing bracing the top or bottom chord. Wood and cold formed steel trusses are designed to be efficient, often relying on short sections without bracing. Ceiling and roof sheathing typically provide bracing for the chord sections. However, when this sheathing is absent, the design and installation of bracing becomes crucial to prevent truss members from failing and causing collapse. The collapses can be extensive and dangerous given the large expanse of areas covered by trusses.

The 40 foot truss threshold is aligned with the prescriptive allowable roof span in 2308.2.5 and AISI 230 tables.

Additional information about the sheathing is provided in cold formed steel section in comparison to the wood truss section because AISI 202-20 does not address trusses without sheathing bracing the chords. NCSEA is working with AISI/SFIA to incorporate similar provisions to 2303.4.1.4.1 in the next revision of AISI202.

Installing this bracing is not standardized and requires specialized knowledge and skills. However, the skills required for truss bracing inspection include identification of lumber sizes, configurations and number of nails/screws. Personnel with these skills are likely already employed at most approved agencies. Building officials also have these skills but the time it takes to inspect this is more than what is typically allotted for in a building frame inspection. Consider a relatively simple 100ft x 50 ft retail building supporting 4 tenants with 3 parapet heights, a mechanical unit for each tenant, a roof access hatch, and wall and beam support conditions. This could lead to 20 truss types with 20 different configurations and bracing conditions to inspect. Inspecting these requires review of all 20 truss design drawings and bracing details. If this takes 5 minutes per truss type this duration is over 90 minutes for a single building component, this time likely exceeds time allotted by many code official for an entire frame inspection in a simple wood building. Education of officials on this topic will help the matter and may increase inspection efficiency but likely will not eliminate this issue of time constraints.

Additionally, the attached references that range in date from the early 1990s to present show that this issue has been understood for over 30 years and continues to be an issue despite the efforts of industry organizations to provide information such as articles in trade publications such as Structure Magazine, Journal of Light Frame Construction, and the Building Safety Journal.

Furthermore, the inspection of bracing of trusses is not unique to wood or cold formed steel trusses. Requirements for bracing special inspections are already required for structural steel per ASC 360 section N5.7, steel joists per IBC table 1705.2.4, and metal building systems per 1705.2.6.

This code change proposal does not alter the requirements for special inspections for all trusses. This proposal adds a small group of trusses that are very susceptible to buckling due to the lack of sheathing on the top or bottom chord**s** and proposed changes to 2303.4.1.2.1 exclude floor trusses without compression forces in the bottom chord and Group U structures. It is well understood in the industry that those types of trusses are highly susceptible to bucking when they are not sheathed. This also includes insufficient bracing at piggy back trusses. There are a few news article link examples of this at the end of this section.

To ensure the safety and integrity of these structures, special inspections should be mandated to verify that the bracing is installed correctly and securely. This inspection requirement would have the added benefit of encouraging awareness between the builder, designer and engineer of the requirements of the truss bracing for these specific projects that are vulnerable to collapse.

See the following for references to wood trusses that have collapsed without sheathing installed and additional information on common causes, including lack of bracing, for wood truss collapse:

References on causes of Wood Truss Failures

Common Causes of Collapse of Metal-Plate—Connected Wood Roof Trusses Journal of Performance of Constructed Facilities Volume 7, Issue 4, https://ascelibrary.org/doi/10.1061/%28ASCE%290887-3828%281993%297%3A4%28225%29

Major Causes of Wood Truss Failures - Southern Loss Association, Inc.

Cases Where Trusses Collapsed Without Sheathing Installed

https://www.osha.gov/ords/imis/accidentsearch.accident_detail?id=129983.015

https://www.ky3.com/2024/12/02/5-injured-after-home-under-construction-collapses-strafford-mo/

https://turnto10.com/news/local/two-hurt-in-roof-collapse-in-acushnet

(enter attachment Picture_1.png here)

by NBC 10 NEWS | Tue, June 7th 2022 at 10:30 PM

Updated Tue, June 7th 2022 at 11:29 PM

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0.06 per square foot

Estimated Immediate Cost Impact Justification (methodology and variables):

A parametric method of cost estimating was utilized.

Inspections for truss bracing will never be the only inspections performed on a structure making cost of mobilization a non-issue. An example of a relatively simple retail building was considered.. The space is 100 ft by 50 ft = 5,000 sq ft. There are 4 mechanical units and 3 parapet heights, a roof hatch, and wall and beam support conditions. Inspection of bracing in this space would conservatively take about 1 hour 40 minutes. Writing up a list of deficiencies would take another 30 minutes. Assuming an hourly rate of $125 at 2.25 hours, the inspections at this location would cost $270. $270/5000 sq ft results in a cost of approximately 6 cents per square foot.

S111-25

S112-25

IBC: TABLE 1705.3

Proponents: Emily Dunham, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFERENCE
1. Inspect reinforcement, including prestressing tendons, and verify placement.	—	- ~~X~~	ACI 318: Ch. 26 ~~20, 25.2, 25.3, 26.6.1-26.6.3~~	1908.1
a. Reinforcement in special moment frames, boundary elements of special structural walls and coupling beams.	X	-	ACI 318: Ch. 26	
b. All other reinforcement.	-	X	ACI 318: Ch. 26	
2. Reinforcing bar welding:				1705.3.1
a. Verify weldability of reinforcing bars other than ASTM A706.	—	X	AWS D1.4 ACI 318: Ch. 26~~.13.1.4~~	
b. Inspect welding of reinforcement for intermediate and special moment frames, boundary elements of special structural walls, ~~and~~ coupling beams and shear reinforcement.	X	—	AWS D1.4 ACI 318: Ch. 26~~.13.3~~	
c. Inspect welded reinforcement splices.	X	—	—	
d. Inspect welding of primary tension reinforcement in corbels.	X	—	—	
e. Inspect single-pass fillet welds, maximum $^5/_{16}$″, not defined in 2.b.	—	X	AWS D1.4 ACI 318: Ch. 26~~.13.3~~	
f. Inspect all other welds.	~~—~~X	~~X~~-	AWS D1.4 ACI 318: Ch. 26~~.13.3~~	
3. Inspect anchors cast in concrete.	—	X	ACI 318: Ch. 26~~.13.3.3~~	—
4. Inspect anchors post-installed in hardened concrete members.[b]				—
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	X	—	ACI 318: Ch. 26~~.13.3.2~~	
b. Mechanical anchors and adhesive anchors not defined in 4.a.	—	X	ACI 318: Ch. 26~~.13.3~~	
5. Verify use of required design mix.	X	~~X~~	ACI 318: Ch. ~~19,~~ 26 ~~.4.3, 26.4.4~~	1904.1, 1904.2
6. Prior to and during concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C31 ASTM C172 ACI 318: Ch. 26~~.5, 26.12~~	—
7. Inspect concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: Ch. 26~~.5~~	—
8. Verify maintenance of specified curing temperature and techniques.	—	X	ACI 318: Ch. 26~~.5.3-26.5.5~~	—
9. Inspect prestressed concrete for:				
a. Application of prestressing forces.	X	—	ACI 318: Ch. 26~~.10~~	—
b. Grouting of bonded prestressing tendons.	X	—		
10. Inspect erection of precast concrete members.	—	X	ACI 318: Ch. 26~~.9~~	—
11. For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category C, D, E or F, inspect such connections and reinforcement in the field for:			ACI 318: Ch. 26~~.13.1.3~~	
a. Installation of the embedded parts.	X	—		—
b. Completion of the continuity of reinforcement across joints.	X	—	ACI 550.5	
c. Completion of connections in the field.	X	—		
12. Inspect installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.	—	X	ACI 318: Ch. 26~~.13.1.3~~	—
13. Verify in-situ concrete strength, prior to stressing of tendons in posttensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: Ch. 26~~.11.2~~	—
14. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: Ch. 26 ~~.11.1.2(b)~~	—

For SI: 1 inch = 25.4 mm.

a. Where applicable, see Section 1705.13.

b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with 26.13 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.

Reason: Coordination between special inspection requirements in ACI 318 Ch. 26 and Table 1705.3 is consistently out of sync. By changing the reference standard pointer to just be Chapter 26: Construction Documents and Inspection (the only chapter directed at construction, all other chapters are directed to the designer), issues with 1705.3 not being aligned with ACI 318 is removed.

Items 1a and 1b: Amend required special inspections and tests of concrete construction table to include inspection of reinforcement in special moment frames, boundary elements of special structural walls and coupling beams as required by ACI 318-19 Section 26.13.1.3. This proposal corrects the exclusion of the required special inspections table for concrete construction of special structural systems. The proposal amends the table to include continuous inspections of reinforcement in special moment frames, boundary elements of special structural walls and coupling beams.

Item 2b: Amend to include intermediate moment frames and shear reinforcement for special structural walls to require continuous (rather than periodic) welding special inspection given the critical design role of such reinforcement.

Item 2e: Clarifying that 5/16” or less fillet welds associated with those critical elements in item 2b are to receive continuous rather than periodic welding special inspection.

Item 2f: Proposal to change back to previous continuous special inspection requirement since welds not addressed by other items should receive continuous rather than periodic special inspection, such as for common concrete tilt-up wall panel-to-panel chord bar connections. Item 2.e. addresses welds that should receive periodic special inspection. Further information and background were provided during the 2022 ICC public comment period for the 2024 IBC by Stephen Kerr and Roy Lobo, both representing the Structural Engineers Association of California (SEAOC) in response to the change from continuous to periodic in the IBC model code:

> The proposed modification is intended to preserve the "all other welds" as continuous. The proponent of S143 is correct that back in 2012 the change did modify the inspection requirements shifting the other welds to continuous. However, the change S148-12 was clear that the modifications in the change were not just organizational. The original reason statement from S148-12:
>
> > "... The purpose for this proposal is to simplify the required extent (continuous or periodic) of special inspection for the welding of reinforcing bars, which is currently based on the structural design (e.g., resisting flexural, axial or shear forces). The proposal changes the extent to continuous special inspection of all welding of reinforcing bars except for single-pass fillet welds that are a maximum of 5/16-inch where periodic special inspection is permitted. This will also be consistent with the historical approach taken by the building code for the extent of special inspections related to welding."
>
> The change to limit the periodic welding was clearly spelled out in the S148-12 change. This has been argued in subsequent code cycles with proposals S136-16 and S96-19. The code has still maintained that "all other welds" as continuously inspected. If item f "all other welds" are considered to be periodically inspected, then there is a conflict with item e for fillet welds a maximum of 5/16". Larger multi-pass fillet welds do not fall under items a - e, therefore would be considered an "all other weld" and would be periodically inspected. The larger multi-pass welds should continue to be continuously inspected.
>
> There are some additional welds that could reasonably be periodically inspected, rather than continuous. However these welds should be clearly spelled out, similar to the item e 5/16" fillet welds.

Item 5: Proposal aligns inspection requirements with reference standard ACI 318-19 Section 26.13.3.2(a) requirements.

Item 6: Proposal adding “and during” ensures concrete sampling complies with ASTM C172 requirements including sampling during placement. Sampling only prior to placement could lead to substantial delays between sampling and placement, which can lead to concrete curing or other detrimental effects not being captured by samples taken only prior to placement.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal brings alignment between ACI 318 and IBC.

Staff Analysis: CC # S112-25 and CC # S113-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S113-25

IBC: TABLE 1705.3

Proponents: Stephen Szoke, representing American Concrete Institute (steve.szoke@concrete.org)

2024 International Building Code

Revise as follows:

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

Portions of table not shown remain unchanged.

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFERENCE
1. Inspect reinforcement, and verify placement				
~~1.~~ ~~Inspect~~ a. Steel reinforcement, including prestressing tendons~~, and verify placement.~~	—	X	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	—
b. GFRP reinforcement	--	X	ACI CODE 440.11: Ch 26	
2. Reinforcing bar welding:				
a. Verify weldability of reinforcing bars other than ASTM A706.	—	X	AWS D1.4 ACI 318: 26.13.1.4	
b. Inspect welding of reinforcement for special moment frames, boundary elements of special structural walls and coupling beams.	X	—	AWS D1.4 ACI 318: 26.13.3	—
c. Inspect welded reinforcement splices.	X	—	—	
d. Inspect welding of primary tension reinforcement in corbels.	X	—	—	
e. Inspect single-pass fillet welds, maximum $^5/_{16}$″.	—	X	AWS D1.4 ACI 318: 26.13.3	
f. Inspect all other welds.	—	X	AWS D1.4 ACI 318: 26.13.3	
3. Inspect anchors cast in concrete.	—	X	ACI 318: 26.13.3.3	—
4. Inspect anchors post-installed in hardened concrete members.[b]				—
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	X	—	ACI 318: 26.13.3.2	
b. Mechanical anchors and adhesive anchors not defined in 4.a.	—	X	ACI 318: 26.13.3	
5. Verify use of required design mix.	—	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C31 ASTM C172 ACI 318: 26.5, 26.12	—
7. Inspect concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 26.5	—
8. Verify maintenance of specified curing temperature and techniques.	—	X	ACI 318: 26.5.3-26.5.5	—
9. Inspect prestressed concrete for:				
a. Application of prestressing forces.	X	—	ACI 318: 26.10	—
b. Grouting of bonded prestressing tendons.	X	—		
10. Inspect erection of precast concrete members.	—	X	ACI 318: 26.9	—
11. For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category C, D, E or F, inspect such connections and reinforcement in the field for:			ACI 318: 26.13.1.3	
a. Installation of the embedded parts.	X	—		—
b. Completion of the continuity of reinforcement across joints.	X	—	ACI 550.5	
c. Completion of connections in the field.	X	—		
12. Inspect installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.	—	X	ACI 318: 26.13.1.3	—
13. Verify in-situ concrete strength, prior to stressing of tendons in posttensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 26.11.2	—
14. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: 26.11.1.2(b)	—

For SI: 1 inch = 25.4 mm.

a. Where applicable, see Section 1705.13.

b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with 26.13 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.

Reason: This code change proposal provides a pointer to the requirements of special inspection of structural concrete reinforced with GFRP bars. While the inspection requirements are maintained as mandatory requirements in ACI CODE 440.11, code officials in jurisdictions where GFRP bars are being accepted recommended adding this pointer to Table 1705.3. This language is informative and consistent with current inspection criteria for steel reinforcement, directing users to ACI 318.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal has no impact on cost. ACI CODE 440.11 referenced in the IBC requires inspection. This proposal simply is a pointer to the inspection requirements ACI CODE 440.11

Staff Analysis: CC # S113-25 and CC # S112-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S113-25

S114-25

IBC: SECTION 1705, 1705.5.2

Proponents: Emily Dunham, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

SECTION 1705 REQUIRED SPECIAL INSPECTIONS AND TESTS

Revise as follows:

1705.5.2 Metal-plate-connected wood trusses spanning 60 feet or greater. Where a truss clear span is 60 feet (18 288 mm) or greater, the *special inspector* shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the ~~*approved* truss submittal package~~ design prepared in accordance with section 2303.4.1.3.

Reason: Section 2303.4.1.3 requires a truss plan to be developed by a registered design professional for truss bracing in trusses 60 feet or greater. Special inspections of the truss bracing should be performed in reference to this document rather than a truss submittal as the truss submittal may not include the specific bracing plan. For example, this bracing design could be provided as part of the construction documents, as a deferred submittal, or as a delegated design.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impact is anticipated. This is a clarification of where to find specifications for the bracing that needs to be inspected.

S114-25

S115-25

IBC: 1705.10, SECTION 1708, 1708.1, 1708.2, 1708.3 (New)

Proponents: Emily Dunham, Gresham Smith, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Delete without substitution:

~~**1705.10 Structural integrity of deep foundation elements.** . Whenever there is a reasonable doubt as to the structural integrity of a *deep foundation* element, an engineering assessment shall be required. The engineering assessment shall include tests for defects performed in accordance with ASTM D4945, ASTM D5882, ASTM D6760 or ASTM D7949, or other *approved method*.~~

Revise as follows:

SECTION 1708
IN-SITU LOAD AND INTEGRITY TESTS

1708.1 General. Whenever there is a reasonable doubt as to the structural integrity, stability or load-bearing capacity of a completed *building*, *structure* or portion thereof for the expected *loads*, an engineering assessment shall be required. The engineering assessment shall involve ~~either~~ a structural analysis, ~~or an~~ in-situ load tests, or both. The structural analysis shall be based on actual material properties and other as-built conditions that affect stability or load-bearing capacity, and shall be conducted in accordance with the applicable design standard. The in-situ ~~load~~ tests shall be conducted in accordance with Section 1708.2 or 1708.3.

If the *building*, *structure* or portion thereof is found to have inadequate stability or load-bearing capacity for the expected *loads*, modifications to ensure structural adequacy or the removal of the inadequate construction shall be required.

1708.2 In-situ load tests. In-situ load tests shall be conducted in accordance with Section 1708.2.1 or 1708.2.2 and shall be supervised by a *registered design professional*. The test shall simulate the applicable loading conditions specified in Chapter 16 as necessary to address the concerns regarding structural stability of the *building*, *structure* or portion thereof.

Add new text as follows:

1708.3 In-situ structural integrity testing of deep foundation elements. In-situ structural integrity tests of deep foundation elements shall be conducted in accordance with ASTM D4945, ASTM D5882, ASTM D6760, ASTM D7949, or other *approved methods* and shall be supervised by a *registered design professional*.

Reason: Structural integrity testing where there is a reasonable doubt of deep foundation integrity was added to section 1705, Required Special Inspections and Tests, in 2021. Unlike the rest of section 1705, section 1705.10 does not ensure compliance with the code and approved construction documents, but rather are tests to evaluate deep foundations suspected to be out of compliance. These tests would not typically be part of a special inspection and testing program developed prior to construction and therefore should not be included in section 1705. The requirements for integrity testing should be moved to section 1708 where, along with in-situ load testing and structural analysis of as-built conditions, they would be used to evaluate questionable as-built construction.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal is an editorial change moving the clause out of a section intended for special inspections and into a section about in-situ testing.

S115-25

S116-25

IBC: SECTION 1705, 1705.13

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 1705
REQUIRED SPECIAL INSPECTIONS AND TESTS

Revise as follows:

1705.13 Special inspections for seismic resistance. *Special inspections* for seismic resistance shall be required as specified in Sections 1705.13.1 through 1705.13.9, unless exempted by the exceptions of Section 1704.2.

Exception: The *special inspections* specified in Sections 1705.13.1 through 1705.13.9 are not required for *structures* designed and constructed in accordance with one of the following:

1. The *structure* consists of *light-frame construction*; the design spectral response acceleration at short periods, S_{DS}, as determined in Chapter 11 of ASCE/SEI 7 ~~Section 1613.2.4~~, does not exceed 0.5; and the *building height* of the *structure* does not exceed 35 feet (10 668 mm).
2. The *seismic force-resisting system* of the *structure* consists of *reinforced masonry* or reinforced concrete; the design spectral response acceleration at short periods, S_{DS}, as determined in Chapter 11 of ASCE/SEI 7 ~~Section 1613.2.4~~, does not exceed 0.5; and the *building height* of the *structure* does not exceed 25 feet (7620 mm).
3. The *structure* is a detached one- or two-family *dwelling* not exceeding two *stories above grade plane* and does not have any of the following horizontal or vertical irregularities in accordance with Section 12.3 of ASCE 7:
   3.1. Torsional or extreme torsional irregularity.
   3.2. Nonparallel systems irregularity.
   3.3. Stiffness-soft story or stiffness-extreme soft story irregularity.
   3.4. Discontinuity in lateral strength-weak story irregularity.

Reason: Section 16.13.2.4, Design spectral response acceleration parameters, was eliminated from the 2024 IBC by S128-22, by removing the equation for SDS. S128-22 simplified IBC Section 1613 by replacing ground motion acceleration maps with Seismic Design Category (SDC) maps based on default site conditions. Chapter 11 of ASCE 7 provides equation 11.4-1 for SDS. Without this proposed change, the exception will reference a code section and equation that is not contained in the IBC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost – the proposal is editorial in that it cleans up reorganization of Section 1613.

S116-25

S117-25 Part I

IBC: 1803.5.3, ASTM Chapter 35 (New)

Proponents: David Sparks, Felten Group, Inc., representing Post-Tensioning Institute (PTI) DC10.5 Slab-on-ground Committee (david.sparks@feltengroup.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1803.5.3 Expansive soil. In areas likely to have expansive soil, the *building official* shall require soil tests to determine where such soils do exist.Soils meeting all ~~four~~ of Items 1 through 3 or Item 4 of the following provisions shall be considered to be expansive~~, except that tests to show compliance with Items 1, 2 and 3 shall not be required if the test prescribed in Item 4 is conducted~~:

1. Plasticity Index (PI) of 15 or greater, determined in accordance with ASTM D4318.
2. More than 10 percent of the soil particles pass a No.200 sieve (75 µm), determined in accordance with ASTM D6913 .
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM ~~D6913~~ D7928 .
4. Expansion Index greater than 20, determined in accordance with ASTM D4829.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

D7928-21E1	Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

S117-25 Part I

S117-25 Part II

IRC: R403.1.8.1, ASTM Chapter 44, ASTM Chapter 44 (New)

Proponents: David Sparks, Felten Group, Inc., representing Post-Tensioning Institute (PTI) DC10.5 Slab-on-ground Committee (david.sparks@feltengroup.com)

2024 International Residential Code

Revise as follows:

R403.1.8.1 Expansive soils classifications. Soils meeting all of Items 1 through 3 or Item 4 of the following provisions shall be considered to be expansive~~, except that tests to show compliance with Items 1, 2 and 3 shall not be required if the test prescribed in Item 4 is conducted~~:

1. Plasticity Index (PI) of 15 or greater, determined in accordance with ASTM D4318.
2. More than 10 percent of the soil particles pass a No. 200 sieve (75 µm), determined in accordance with ASTM ~~D422~~ D6913.
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM ~~D422~~ D7928.
4. Expansion Index greater than 20, determined in accordance with ASTM D4829.

Delete without substitution:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

~~D422—63(2007)E2~~	~~Test Method for Particle-Size Analysis of Soils~~

Add new standard(s) as follows:

D6913/D6913M - 17	Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
D7928-21E1	Standard Test Method for Particle Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

Reason: For both the IBC and IRC, the language in the existing code was not clear and/or direct in identifying that two conditions exist. Either you comply with all of items 1 through 3 or you comply with item 4 alone. The revised language is used to simplify and clearly indicate what is required without confusion to the reader. So instead of using the original language which started out stating that a soils is considered expansive when it meets all of the 4 requirements with an exception excluding items 1, 2 and 3 if the user performs testing that meets item 4 requirements, this simplification creates a direct path with the two choices. It does not change the code intent.

1803.5.3 and R403.1.8.1 should match. They describe exactly the same thing, but for some reason they were not aligned. This proposed change brings the two into alignment with all the current testing method standards referenced.

For the IBC:

ASTM D6913 is not the correct standard for item 3. The correct standard is actually ASTM D7928. The correction to the referenced ASTM standard also requires the addition of ASTM D7928 within Chapter 35.

For the IRC:

ASTM D422 is no longer used and instead items 2 and 3 should reference ASTM D6913 and D7928 respectively to be correct and consistent with the IBC. This requires the deletion of the reference to ASTM D422 as well as the addition of D6913 and D7928 within Chapter 44.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is merely clarifying existing language to make the code path clear and also to reference the correct standard for the testing required for compliance with item 3.

Staff Analysis: Part I: A review of the standard proposed for inclusion in the code, ASTM D7928-21E1 Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

Part II: A review of the standard proposed for inclusion in the code, ASTM D7928-21E1 Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

The proposed referenced standard, ASTM D6913/D6913M – 17 Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis, is currently referenced in the IBC.

S117-25 Part II

S118-25

IBC: SECTION 202 (New), 1803.5.6 (New), 1803.6

Proponents: Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com); Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com)

2024 International Building Code

Add new text as follows:

GROUND *IMPROVEMENT*. A technique which modifies the existing ground to improve the load bearing capacity of foundations, control settlement, and/or improve stability.

1803.5.6 *Ground improvement*. Where shallow foundations will bear on *improved* ground, a geotechnical investigation shall be conducted and shall include the following as applicable:

1. Recommended *ground improvement* methods.
2. Required improvement depth and horizontal extent.
3. *Ground improvement* installation procedures.
4. Required testing to confirm design assumptions.
5. Special inspection requirements.
6. Suitability of *ground improvement* materials for the intended environment.
7. Acceptance criteria.
8. Requirements for preparation of construction documents by delegated designer, as appropriate.

Revise as follows:

1803.6 Reporting. Where geotechnical investigations are required, a written report of the investigations shall be submitted to the *building official* by the *permit* applicant at the time of *permit* application. This geotechnical report shall include, but need not be limited to, the following information:

1. A plot showing the location of the soil investigations.
2. A complete record of the soil boring and penetration test logs and soil samples.
3. A record of the soil profile.
4. Elevation of the water table, if encountered.
5. Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement and varying soil strength; and the effects of adjacent *loads*.
6. Expected total and differential settlement.
7. *Deep foundation* information in accordance with Section 1803.5.5.
8. Special design and construction provisions for foundations of *structures* founded on expansive soils, as necessary.
9. Compacted fill material properties and testing in accordance with Section 1803.5.8.
10. *Controlled low-strength material* properties and testing in accordance with Section 1803.5.9.
11. *Ground improvement* system information in accordance with Section 1803.5.6.

Reason: Ground Improvement systems are methods which can enhance the load-bearing capacity of the ground below shallow foundations and/or control total and differential settlements within the zone of influence of the foundations. Ground improvement systems are most often used as an alternative to deep foundations (i.e., pile foundations). There is no established standard for the design or installation of ground improvement systems.

Failures of ground improvement systems can have significant impact on the structural integrity of a building. The objective of this proposal is to provide consistent requirements for a geotechnical investigation where ground improvement is recommended.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Ground improvement is commonly used; this code addition does not cause a cost impact, but provides consistent requirements for the geotechnical investigation report.

S118-25

S119-25

IBC: 1806.2

Proponents: John-Jozef Proczka, representing City of Phoenix Planning and Development Department (john-jozef.proczka@phoenix.gov)

2024 International Building Code

Revise as follows:

1806.2 Presumptive load-bearing values. The load-bearing values used in design for undisturbed supporting soils, compacted fill per the exception to Section 1804.6, and rock near the surface shall not exceed the values specified in Table 1806.2 unless data to substantiate the use of higher values are submitted and *approved*. Where the *building official* has reason to doubt the classification, strength or compressibility of the soil or rock, the requirements of Section 1803.5.2 shall be satisfied.

Presumptive load-bearing values shall apply to materials with similar physical and engineering characteristics. Mud, organic silt and organic clays (OL, OH), peat (Pt) and undocumented fill shall not be assumed to have a presumptive load-bearing capacity unless data to substantiate the use of such a value are submitted.

Exception: A presumptive load-bearing capacity shall be permitted to be used where the *building official* deems the load-bearing capacity is adequate for the support of lightweight or *temporary structures*.

Reason: The presumptive load-bearing values of soils are associated with undisturbed soils. This is present in this section in a round-about way already by indicating that undocumented fill shall not be assumed to have a presumptive capacity, but soil that is disturbed becoming the category of undocumented fill is not a leap that is readily made without this clarification. Additionally, this is already present as a requirement in Section 1809.2 that is specific to shallow foundations, however it should be placed in the presumptive load-bearing section to ensure these presumptive values are not misused and it clarifies the presumptive capacities for embedded posts and poles and deep foundations are not used with disturbed soil.

Section 1804.6 exempts compacted fill material less than 12 inches in depth from requiring a geotechnical report, and without a geotechnical report the only possible source of load bearing values for that fill is contained in these presumptive provisions. This will clarify this path for the code user.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of requirements already present to make them more obvious.

S119-25

S120-25

IBC: 1807.1.1

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Seth Thomas, KPFF Consulting Engineers, representing Self (seth.thomas@kpff.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

1807.1.1 Design lateral soil loads. Foundation walls shall be designed for the lateral soil *loads* set forth in Section 1610. For structures assigned to *Seismic Design Category* D, E or F, the design of foundation walls supporting more than 6 ft. (1829 mm.) of backfill shall incorporate the additional seismic lateral earth pressure in accordance with the geotechnical investigation, where required by Section 1803.2.

Reason: This proposal is intended as a clarification of current design practice, making the seismic lateral earth pressure requirements of Section 1807.1 (foundation walls) consistent with Section 1807.2 (retaining walls). We believe this to be editorial clarification, because we believe that engineers implementing these provisions would consider a foundation wall that retains soil to also be a retaining wall and thus required to meet applicable Section 1807.2 provisions. This clarification is being made in part because the terms foundation wall and retaining wall are used differently in the IRC and could provide confusion for IBC users.

The additional lateral loading from seismic generated earth pressures is an important factor for performance in high seismic hazard areas, particularly in Seismic Design Categories (SDCs) D, E and F. Several studies show, however, that when the peak ground acceleration is below 0.3-0.4g (roughly corresponding to SDC A, B and C) there is an adequate factor of safety built into the static earth pressures, so the additional seismic lateral pressure need not be included.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides editorial clarification consistent with current practice, with no substantive change.

S120-25

S121-25

IBC: 1807.3, 1807.3.1, 1807.3.2.3

Proponents: John-Jozef "JJ" Proczka, City of Phoenix, representing City of Phoenix Planning and Development Department (john-jozef.proczka@phoenix.gov)

2024 International Building Code

1807.3 Embedded posts and poles. Designs to resist both axial and lateral *loads* employing posts or poles as columns embedded in earth or in concrete footings in earth shall be in accordance with Sections 1807.3.1 through 1807.3.3 or ASABE EP 486.3.

Revise as follows:

1807.3.1 Limitations. The design procedures outlined in this section are subject to the following limitations:

1. The frictional resistance for structural walls and slabs on silts and clays shall be limited to one-half of the normal force imposed on the soil by the weight of the footing or slab.
2. Posts embedded in earth shall not be used to provide lateral support for structural or nonstructural materials such as plaster, masonry or concrete unless bracing is provided that develops the limited deflection required.
3. The embedded post or pole shall follow the provisions of this section without being required to follow the *deep foundation* provisions if the ratio of the depth of embedment to the least horizontal dimension of the part embedded in earth is less than or equal to six.
4. The depth of embedment shall not exceed 12 feet for the purpose of calculating lateral pressure.

Wood poles shall be treated in accordance with AWPA U1 for sawn timber posts (Commodity Specification A, Use Category 4B) and for round timber posts (Commodity Specification B, Use Category 4B).

1807.3.2.3 Vertical load. The resistance to vertical *loads* shall be determined using the vertical foundation pressure set forth in Table 1806.2, the downward shaft resistance of Section 1810.3.3.1.4, or as determined in a geotechnical report for this type of foundation..

Reason: *Shallow foundations* and *deep foundations* are defined. With a straight reading, all embedded posts and poles are deep foundations. As such, all of the deep foundation provisions would need to be followed and these embedded post and pole provisions just become poorly located deep foundation provisions in the code. This is not the intent of the code. These embedded posts and poles are intended to be their own category before reaching the nonlinear interaction of soil and foundation for lateral loads that characterizes truly deep foundations.

The primary change in this proposal is to apply the ratio of embedment to least horizontal dimension and apply it to these basic provisions so that all of the deep foundation provisions do not need to be followed, as this will limit the behavior to behave rigidly with respect to the soil.

The 12 foot depth item is already present in the code in the definition of "d" used in the equations. It is a difficult to find/easy to miss item, and is really a limitation, so this proposal brings more prominence to it by placing it in the limitations section.

The shaft resistance provisions for axial loads are brought in as an option to resist downward loading, as they are prescriptive and there is no reason not to allow their use for this type of foundation as an option to the end bearing resistance that is currently the only option. Note that uplift loads are not included as there is a separate deep foundation section for those.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal could increase or could decrease the cost of construction depending on the interpretation that is currently being enforced, due to the current conflict between code intent and code wording. Based upon the intent of the code there would be no cost impact.

S122-25 Part I

IBC: 1808.1, 1808.2.1 (New), PTI Chapter 35 (New)

Proponents: David Sparks, representing Post-Tensioning Institute (PTI) DC10.5 Slab-on-ground Committee (david.sparks@feltengroup.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

1808.1 General. Foundations shall be designed and constructed in accordance with Sections 1808.2 through 1808.9. *Shallow foundations* shall satisfy the requirements of Section 1809. *Deep foundations* shall satisfy the requirements of Section 1810.

Exception: Design of post-tensioned slabs-on-ground need not comply with the requirements of Sections 1808.8, 1809, and 1810. Materials and construction of post-tensioned slabs-on-ground shall comply with PTI DC10.5 and PTI M10.6.

Add new text as follows:

1808.2.1 Post-tensioned slabs-on-ground.. Post-tensioned slabs-on-ground shall be designed in accordance with PTI DC10.5.

Add new standard(s) as follows:

PTI

Post-Tensioning Institute
38800 Country Club Drive
Farmington Hills, MI 48331

M10.6-15	Specification for Unbonded Single Strand Tendons for Slab-on-Ground Construction

S122-25 Part I

S122-25 Part II

IRC: R402.5 (New), R403.6 (New), PTI Chapter 44 (New)

Proponents: David Sparks, representing Post-Tensioning Institute (PTI) DC10.5 Slab-on-ground Committee (david.sparks@feltengroup.com)

2024 International Residential Code

Add new text as follows:

R402.5 Post-tensioned slabs-on-ground.. Post-tensioned slabs-on-ground materials and installation shall be in accordance with PTI DC10.5 and PTI M10.6.

R403.6 Post-tensioned slabs-on-ground.. Post-tensioned slabs-on-ground constructed on soil not classified as expansive in accordance with Section R403.1.8.1 shall be designed in accordance with PTI DC10.5.

Add new standard(s) as follows:

PTI

Post-Tensioning Institute
38800 Country Club Drive
Farmington Hills, MI 48331

M10.6-15	Specification for Unbonded Single Strand Tendons for Slab-on-Ground Construction

Reason: Currently, the IBC only contains a reference to the PTI DC10.5 standard for Post-Tensioned Slabs-On-Ground (PTSOG) within chapter 1808.6.2 (which is under expansive soils). The title of the PTI DC10.5 standard does include soils that are not considered expansive as defined by 1803.5.3. Without a reference to the PTI DC10.5 standard from a section of 1808 that is not exclusive to expansive soils, there is currently no path from the IBC to the PTI DC10.5 document for the design of PTSOG on stable soils. Because the PTI DC10.5 standard contains stand-alone provisions for concrete specifications and shallow foundation design methodologies, it is necessary to add an exception in 1808.1 indicating that PTSOG need not comply with 1808.8, 1809, and because it is not a deep foundation 1810. Additionally, since all foundations must be designed for capacity and settlement including non-expansive and expansive soils, the reference for non-expansive soils can be inserted into a subsection of 1808.2 - 1808.2.1. This will direct PTSOG design for non-expansive soils to the DC10.5 standard.

Although the 2024 IRC added a reference to the DC10.5 standard in Chapter 5 (Floors), this did not address the need for a reference to the standard under Chapter 4 (Foundations) beyond Section R403.1.8 for expansive soils which refers back to 1808.6 in the IBC. In order to better define the PTSOG as a foundation, we suggest adding section R402.5 for the materials and installation of PTSOG directing scope to DC10.5 and additionally the M10.6 document. Once that is in place, then a new section under R403 for PTSOG (R403.6) which will indicate that PTSOG on soils not classified as expansive per R403.1.8.1 shall be designed per the DC10.5 standard, with a reference to R403.1.8 for expansive soils).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These changes to the IBC and IRC are meant to clarify the scope of the DC10.5 document as it pertains to non-expansive soils. As such, there is no cost increase or decrease associated with the changes.

Staff Analysis: A review of the standard proposed for inclusion in the code, PTI M10.6-15 Specification for Unbonded Single Strand Tendons for Slab-on-Ground Construction, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S122-25 Part II

S123-25

IBC: SECTION 202 (New), 1705.6.1 (New), TABLE 1705.6.1 (New), 1809.15 (New), 1809.15.1 (New), 1809.15.1.1 (New), 1809.15.2 (New), 1809.15.3 (New), 1809.15.4 (New)

Proponents: Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com); Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com)

2024 International Building Code

Add new definition as follows:

LOAD TRANSFER LAYER. Granular or cementitious materials placed between ground improvement elements and shallow foundations.

Add new text as follows:

1705.6.1 Ground improvement. Special Inspections and tests shall be performed during installation of *ground improvement* as specified in Table 1705.6.1. The approved geotechnical report and *construction documents* prepared by the *registered design professional* shall be used to determine compliance.

TABLE 1705.6.1 REQUIRED SPECIAL INSPECTIONS AND TESTS OF GROUND IMPROVEMENT

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Inspect implementation and verification procedures and maintain complete accurate records for each application of *ground improvement* systems.	X	-
2. Verify *ground improvement* equipment, materials, locations, diameters, and plumbness, as applicable.	X	-
3. Verify embedment into bearing strata, as applicable. Record relevant ground effects.	X	-
4. Verify working grade elevation	-	X
5. Verify material quantities used, as applicable.	X	-
6. Verify improvement using methods specified in geotechnical report.	-	X

1809.15 Ground improvement. *Ground improvement* shall be in accordance with this section.

1809.15.1 General. *Ground improvement* shall be designed, detailed, and constructed in accordance with sections 1809.15.1 through 1809.15.3.

1809.15.1.1 Geotechnical Investigation. *Ground improvement* shall be designed and installed on the basis of a geotechnical investigation and written report as set forth in Section 1803.

1809.15.2 Design. *Ground Improvement* for shallow foundation support shall be designed by a *registered design professional.* The *registered design professional* shall provide construction documents and calculations that include all of the following:

1. Structural loads, including vertical, lateral, and rotational, and maximum permissible total and differential settlements as provided by the *registered design professional in responsible charge* for the structure being supported.
2. Cut and fill heights, as shown on the site plan.
3. Geotechnical and structural capacity analyses.
4. Where required, thickness and characteristics of the load transfer layer.
5. Allowable bearing pressures.
6. Minimum safety factor used to determine the allowable bearing pressure. Where ground improvement includes individual elements, provide separate factors of safety for the individual elements and the overall system.
7. Predicted maximum total and differential settlements.

8. Recommended testing and acceptance criteria for the installation of the *ground improvement.*

9. Plans and specifications necessary for the completion of the work.

1809.15.3 Installation. *Ground improvement* shall be installed in accordance with construction documents provided by the *registered design professional.*

1809.15.4 Special inspection. Special inspections in accordance with 1705.6.1 shall be provided for *ground improvement.*

Reason: Ground Improvement systems are *methods which* can enhance the load-bearing capacity of the ground below shallow foundations and/or control total and differential settlements within the zone of influence of the foundations. Ground improvement systems are most often used as an alternative to deep foundations (i.e., pile foundations). There is no established standard for the design or installation of ground improvement.

Failures of ground improvement systems can have significant impact on the structural integrity of a building. The objective of this proposal is to provide consistent requirements for the design, construction, and inspection of ground improvement systems.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Ground improvement is commonly used; this code addition does not cause a cost impact, but provides consistent requirements for design, construction, and inspection of ground improvement systems.

S123-25

S124-25

IBC: SECTION 202 (New), 1705.6.2 (New), TABLE 1705.6.2 (New), 1809.16 (New), 1809.16.1 (New), 1809.16.2 (New), 1809.16.2.1 (New), 1809.16.2.2 (New), 1809.16.2.3 (New), 1809.16.2.4 (New), 1809.16.2.4.1 (New), 1809.16.2.4.2 (New), 1809.16.2.4.2.1 (New), 1809.16.2.4.2.2 (New), 1809.16.2.4.2.3 (New), 1809.16.3 (New), 1809.16.4 (New)

Proponents: Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com); Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com)

2024 International Building Code

Add new definition as follows:

RIGID INCLUSIONS. Vertical elements within the ground consisting of timber, steel, *concrete*, grout, or other combination of cementitious materials mixed with aggregates, or other materials that are significantly stiffer than the ground in which they are installed and do not require lateral confinement of the surrounding soil for internal stability. Rigid inclusions are not connected directly to foundations.
RIGID INCLUSION SYSTEMS. *Rigid inclusions*, the strata and materials in which they are installed, and a *load transfer layer*.

Add new text as follows:

1705.6.2 Rigid inclusion systems. Special Inspections and tests shall be performed during installation of rigid inclusion systems as specified in Tables 1705.6.1 and 1705.6.2. The approved geotechnical investigation and *construction documents* prepared by the *registered design professional(s)* shall be used to determine compliance.

TABLE 1705.6.2 REQUIRED SPECIAL INSPECTIONS AND TESTS OF RIGID INCLUSION SYSTEMS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Inspect installation and load testing operations, and maintain complete and accurate records for each *rigid inclusion*	X	-
2. Verify *rigid inclusion* materials, placement locations, diamters, and plubness. Verify embedment into bearing strata and adequate end-bearing strata capacity. Record concrete or grout volumes. Verify top of *rigid inclusions* elevations.	X	-
3. Perform test and *special inspections* on *concrete* or grout in accordance with applicable requirements of Section 1705.3	In accordance with Section 1705.3	
4. During *rigid inclusion* load transfer/layer installation, verify use of proper materials, procedures, material densities, and lift thicknesses.	X	-

1809.16 Rigid inclusions. *Rigid inclusions* shall be in accordance with this section.

1809.16.1 General. Where *ground improvement systems* use *rigid inclusions*, *rigid inclusion systems* shall be designed, detailed and installed in accordance with sections 1809.16.2 through 1809.16.1.3.

1809.16.2 Design and detailing. *Rigid inclusion systems* shall be designed and detailed in accordance with sections 1809.16.2.1 through 1809.16.2.4.

1809.16.2.1 Design requirements. In addition to the requirements of Section 1809.15.1, the *registered design professional* shall provide construction documents and calculations that include all of the following:

1. The load distribution and strain compatibility between the *rigid inclusions* and surrounding strata.
2. The structural compatibility between the *rigid inclusions* and the shallow foundations including impacts of concentrated reaction loads imposed by the *rigid inclusions* on shallow foundations.
3. Minimum number and configuration of *rigid inclusions* to establish vertical, lateral, and rotational stability of foundations.

1809.16.2.2 Allowable stresses. The allowable stresses for materials used in *rigid inclusions* shall be in accordance with section

1810.3.2.6. Allowable stresses for materials not included in section 1810.3.2.6 shall be approved by the *building official.*

1809.16.2.3 Load Test. Where *rigid inclusions* are used to increase bearing capacity, or where predicted settlements without *rigid inclusions* would cause harmful distortion or instability in the structure, control test elements shall be tested in accordance with ASTM D1143 or ASTM D4945. One or more load tests shall be conducted in each area of similar subsurface conditions. The resulting allowable load shall be not more than one-half of the ultimate load bearing capacity as assessed by one of the published methods listed in section 1810.3.3.1.3.

1809.16.2.4 Seismic Design Categories C through F. For structures assigned to *seismic design category* C, D, E or F, materials used in *rigid inclusions* shall comply with section 1809.16.2.4.1, and reinforcement shall be provided in accordance with section 1809.16.2.4.2.

1809.16.2.4.1 Materials. For structures assigned to *seismic design category* C, D, E or F, materials used in rigid inclusions shall comply with one of the following:

1. Steel elements meeting the requirements of 1810.3.2.3.
2. Timber elements meeting the requirements of 1810.3.2.4.
3. Concrete elements meeting the requirements of 1808.8.1.
4. Other *approved* materials, which have adequate strength and ductility to resist imposed ground curvatures.

1809.16.2.4.2 Seismic reinforcement for concrete rigid inclusions. Where a *structure* is assigned to *Seismic Design Category* C, reinforcement shall be provided in accordance with Section 1809.16.2.4.2.1. Where a *structure* is assigned to *Seismic Design Category* D, E or F, reinforcement shall be provided in accordance with Sections 1809.16.2.4.2.2 and 1809.16.2.4.2.3.

1809.16.2.4.2.1 Seismic reinforcement in Seismic Design Category C. For *structures* assigned to *Seismic Design Category* C, concrete *rigid inclusions* shall be reinforced as specified in this section. Reinforcement shall be provided where required by analysis. At least one longitudinal bar, with a minimum longitudinal reinforcement ratio of 0.002, shall be provided throughout the minimum reinforced length of the element as defined in this section starting at the top of the element. The minimum reinforced length of the *rigid inclusion* shall be taken as the greatest of the following:

1. One-third of the element length.
2. A distance of 10 feet (3048 mm).
3. Three times the least element dimension.
4. Three times the least element dimension below the interfaces of strata that are hard or stiff and strata that are liquefiable or are composed of soft- to medium-stiff clay.

Exception: The requirements of this section shall not apply to concrete *rigid inclusions* cast in structural steel pipes or tubes.

1809.16.2.4.2.2 Seismic reinforcement in Seismic Design Categories D through F. For *structures* assigned to *Seismic Design Category* D, E or F, concrete *rigid inclusions* shall be reinforced as specified in this section. Reinforcement shall be provided where required by analysis. For *Site Class* A, B, BC, C, CD, D or DE sites, not less than one longitudinal bar, with a minimum longitudinal reinforcement ratio of 0.003, shall be provided throughout the minimum reinforced length of the *rigid inclusion*. For *Site Class* E and F sites, not less than four longitudinal bars, with a minimum longitudinal reinforcement ratio of 0.005, shall be provided throughout the minimum reinforced length of the *rigid inclusion*. The minimum reinforced length of the *rigid inclusion* is defined in this section as starting at the top of the element. The minimum reinforced length of the *rigid inclusion* shall be taken as the greatest of the following:

1. One-half of the element length.

2. A distance of 10 feet (3048 mm).
3. Three times the least element dimension.
4. Seven times the least element dimension below the interfaces of strata that are hard or stiff and strata that are liquefiable or are composed of soft- to medium-stiff clay.

Exceptions: The requirements of this section shall not apply to concrete cast in structural steel pipes or tubes.

1809.16.2.4.2.3 Transverse Confinement for Site Classes E and F. For *Site Class* E or F sites, transverse confinement reinforcement shall be provided in the rigid inclusion in accordance with Section 1810.3.9.4.2.2.

1809.16.3 Installation. The *rigid inclusion systems* shall be installed in accordance with construction documents provided by the *rigid inclusion systems* designer.

1809.16.4 Special inspection. *Special Inspections* in accordance with 1705.6.1 and 1705.6.2 shall be provided for *rigid inclusion systems*.

Reason: Ground Improvement systems are *methods which* can enhance the load-bearing capacity of the ground below shallow foundations and/or control total and differential settlements within the zone of influence of the foundations. Ground improvement systems are most often used as an alternative to deep foundations (i.e., pile foundations). Rigid inclusions are not presently addressed in the IBC. There is no established standard for the design or installation of rigid inclusion systems.

Failures of ground improvement systems can have significant impact on the structural integrity of a building. The objective of this proposal is to provide consistent requirements for the design, construction, and inspection of rigid inclusions systems.

Graphical comparison of different foundation systems:

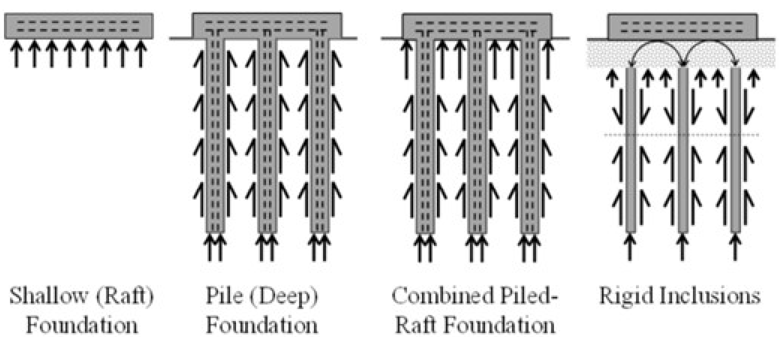

Figure 1. Generalized load path diagrams for typical foundation systems.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Cost impact is the cost of reinforcement in each rigid inclusion, where it will be required and has not been previously used in design. The increase could be on the order of $3 to $16 per foot of length of rigid inclusions.

Estimated Immediate Cost Impact Justification (methodology and variables):

Where reinforcement will be required to be used in a rigid inclusion, there may be a cost increase, as not all designers are including it now. Where reinforcement is required, the cost increase will depend on:

- the amount of steel needed - from a single bar to a full cage
- the length the reinforcement is needed - a single bar will likely be for the full length, but a cage might only be needed in the upper 10 to 20 feet.

Estimated Life Cycle Cost Impact:

This proposal will not impact life cycle cost.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Once constructed, there is no cost change over the life cycle of the structure.

S124-25

S125-25

IBC: 1810.2.2

Proponents: Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com); Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com)

2024 International Building Code

Revise as follows:

1810.2.2 Stability. *Deep foundation* elements shall be braced to provide lateral stability in all directions. Three or more elements connected by a rigid cap shall be considered to be braced, provided that the elements are located in radial directions from the centroid of the group not less than 60 degrees (1 rad) apart. A two-element group in a rigid cap shall be considered to be braced along the axis connecting the two elements. Isolated cast-in-place *deep foundation* elements without lateral bracing shall be considered braced where adequate lateral support in accordance with Section 1810.2.1 is provided for the entire height and analysis demonstrates that the element can support the required loads, including mislocations required by Section 1810.3.1.3, with neither harmful distortion nor instability in the *structure*. ~~Methods used to brace *deep foundation* elements shall be subject to the approval of the *building official*.~~

Deep foundation elements supporting walls shall be placed alternately in lines spaced not less than 1 foot (305 mm) apart and located symmetrically under the center of gravity of the wall load carried, unless effective measures are taken to provide for eccentricity and lateral forces, or the foundation elements are adequately braced to provide for lateral stability. Methods used to brace *deep foundation* elements shall be subject to the approval of the *building official*.

Exception~~s~~: A single row of *deep foundation elements* without lateral bracing is permitted for one- and two-family *dwellings* and lightweight construction not exceeding two *stories above grade plane* or 35 feet (10 668 mm) in *building height*, provided that the centers of the elements are located within the width of the supported wall.

1. ~~Isolated cast-in-place *deep foundation* elements without lateral bracing shall be permitted where the least horizontal dimension is not less than 2 feet (610 mm), adequate lateral support in accordance with Section 1810.2.1 is provided for the entire height and analysis demonstrates that the element can support the required loads, including mislocations required by Section 1810.3.1.3, with neither harmful distortion nor instability in the *structure*.~~
2. ~~A single row of *deep foundation* elements without lateral bracing is permitted for one- and two-family *dwellings* and lightweight construction not exceeding two *stories above grade plane* or 35 feet (10 668 mm) in *building height*, provided that the centers of the elements are located within the width of the supported wall.~~

Reason: This section has been reformatted for clarity. The first exception has been slightly reworded and moved into the main section, as this exception is actually an example of acceptably braced elements and not an exception to the bracing requirement. It follows the given “deemed to comply” bracing examples of a group of 3 piles and a group of 2 piles. The “not less than 2 feet” requirement has been removed, as the analysis required makes the current 2 feet limit unnecessary. The 2 feet limit can increase costs on projects where analysis shows smaller shafts are acceptable.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposal will decrease the cost of construction. The expected cost savings range from $0 to $3500 per foundation. These cost savings are based in a unit rate basis.

Estimated Immediate Cost Impact Justification (methodology and variables):

The current 2 feet size limit for isolated deep foundation elements can increase costs where analysis shows that smaller shafts are acceptable. Deleting this limit will reduce costs on some projects. For example, a 24-inch diameter concrete deep foundation element that is 50 feet deep will have a volume of 5.82 cubic yards. A 16-inch diameter concrete deep foundation element that is 50 feet deep will have a volume of 2.59 cubic yards. The unit cost of concrete deep foundation elements can vary greatly. However, a unit cost of $1000/CY can be considered a reasonable value. If analysis can demonstrate that a 16-inch diameter deep foundation element can be used where the code currently requires a 24-inch diameter element, the expected savings per element would be $1000 x (5.82-2.59) =

$3230.

Estimated Life Cycle Cost Impact:

This proposal will have no impact on the estimated life cycle cost.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

This proposal does not impact the durability or the expected maintenance costs of deep foundations.

S125-25

S126-25

IBC: 1810.3.1.4, 1810.3.1.5

Proponents: Nathalie Boeholt, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (nathalie.boeholt@seattle.gov); Julius Carreon, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (jcarreon@bellevuewa.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov)

2024 International Building Code

Revise as follows:

1810.3.1.4 Driven piles. Driven piles shall be designed and manufactured in accordance with accepted engineering practice to resist all stresses induced by handling, driving, ~~and~~ service, and design loads.

1810.3.1.5 Helical piles. *Helical piles* shall be designed and manufactured in accordance with accepted engineering practice to resist all stresses induced by installation into the ground and service and design loads.

Reason: The proposed change is a clarification to add the term "design loads" to the list of design conditions. It seems obvious that driven piles and helical piles should be designed for "design loads" and not just "service loads" but the term "service loads", even though it is not defined in the IBC, was added as a new definition in ASCE 7-16. Its definition includes the following: "...Service live loads and environmental loads for a particular limit state are permitted to be less than the design loads specified in the standard...". The words "less than the design loads" could add confusion and create situations where driven piles and helical piles are under designed. This change will avoid this potential confusion.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No impact to cost, this is simply a code language clarification. Most designers should already know and do this.

S126-25

S127-25

IBC: 1810.3.3.1.2, CHAPTER 35, ASTM Chapter 35 (New)

Proponents: Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com); Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com)

2024 International Building Code

Revise as follows:

1810.3.3.1.2 Load tests. Where design compressive *loads* are greater than those determined using the allowable stresses specified in Section 1810.3.2.6, where the design *load* for any *deep foundation* element is in doubt, or where cast-in-place *deep foundation* elements have an enlarged base formed either by compacting concrete or by driving a precast base, control test elements shall be tested in accordance with ASTM D1143<u>,</u> ~~or~~ ASTM D4945<u>, or ASTM D8169</u>. One element or more shall be load tested in each area of uniform subsoil conditions. Where required by the *building official*, additional elements shall be load tested where necessary to establish the safe design capacity. The resulting allowable *loads* shall not be more than one-half of the ultimate axial load capacity of the test element as assessed by one of the published methods listed in Section 1810.3.3.1.3 with consideration for the test type, duration and subsoil. The ultimate axial load capacity shall be determined by a *registered design professional* with consideration given to tolerable total and differential settlements at design *load* in accordance with Section 1810.2.3. In subsequent installation of the balance of *deep foundation* elements, all elements shall be deemed to have a supporting capacity equal to that of the control element where such elements are of the same type, size and relative length as the test element; are installed using the same or comparable methods and equipment as the test element; are installed in similar subsoil conditions as the test element; and, for driven elements, where the rate of penetration (for example, net displacement per blow) of such elements is equal to or less than that of the test element driven with the same hammer through a comparable driving distance.

CHAPTER 35
REFERENCED STANDARDS

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

<u>ASTM D8169/D8169M-18</u> <u>Standard Test methods for Deep Foundations Under Bi-Directional Static Axial Compressive Load</u>

Reason: ASTM D8169 is the standard test method for deep foundations under bi-directional static axial compressive load. Bi-directional load tests have been routinely used for decades and are becoming increasingly common. For elements with high ultimate capacities, especially drilled shafts, bi-directional tests can be the only practical option to conduct a static load test. Adding this test method to the Code will allow building officials, engineers, and contractors to better characterize the response of deep foundation elements under load. These tests can increase safety and reduce costs, both for the test and the foundation.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Top-down tests conducted in accordance with ASTM D1143 are generally more economical than bi-directional tests conducted in accordance with ASTM D8169. However, for high-capacity load tests bi-directional tests can be more cost effective than traditional top-down tests (ASTM D1143). Expected savings could range from $0 to $40,000 per test. This cost was calculated on a unit rate basis.

Bi-directional tests can also be performed for relatively high loads where top-down tests are not practical. Because bi-directional load tests can be conducted at higher loads than top-down tests, they can be used to justify higher allowable loads for deep foundations. Higher allowable loads will decrease the overall cost of construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

The costs of load test are project specific and vary considerably. A high-capacity (e.g. 1000 tons) top-down load test may cost as much as $100,000, whereas a comparable bi-directional load test would cost approximately $60,000. This would produce a net savings of $40,000 per test. In addition, bi-directional load tests can be used to confirm tension capacity, which would eliminate the need to perform separate tension load tests. This could save an additional $50,000 per tension test.

Because of the multiple variables involved, it is difficult to assess the potential cost decrease which could be realized from the higher allowable foundation loads justified from bi-directional load tests. These savings can potential far exceed the potential decrease in the cost of the tests.

Estimated Life Cycle Cost Impact:

This proposal will not impact life cycle cost.

Staff Analysis: A review of the standard proposed for inclusion in the code, ASTM D8169/D8169M-18 Standard Test Methods for Deep Foundations Under Bi-Directional Static Axial Compressive Load, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S127-25

S128-25

IBC: 1810.3.3.1.2

Proponents: Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com); Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com)

2024 International Building Code

Revise as follows:

1810.3.3.1.2 Load tests. Where design compressive *loads* are greater than those determined using the allowable stresses specified in Section 1810.3.2.6, where the ultimate axial load capacity~~design *load*~~ for any *deep foundation* element is in doubt, or where cast-in-place *deep foundation* elements have an enlarged base formed either by compacting concrete or by driving a precast base, control test elements shall be tested in accordance with ASTM D1143 or ASTM D4945. One element or more shall be load tested in each area of ~~uniform subsoil~~similar subsurface conditions. Where required by the *building official*, additional elements shall be load tested where necessary to establish the allowable loads~~safe design capacity~~. The resulting allowable *loads* shall not be more than one-half of the ultimate axial load capacity of the test element as assessed by one of the published methods listed in Section 1810.3.3.1.3 with consideration for the test type, duration and subsoil. The ultimate axial load capacity shall be determined by a *registered design professional* with consideration given to tolerable total and differential settlements at design *load* in accordance with Section 1810.2.3. In subsequent installation of the balance of *deep foundation* elements, all elements shall be deemed to have an ultimate axial load capacity ~~supporting capacity~~ equal to that of the control element where such elements are of the same type, size and relative length as the test element; are installed using the same or comparable methods and equipment as the test element; are installed in similar ~~subsoil~~ subsurface conditions as the test element; and, for driven elements, where the rate of penetration (for example, net displacement per blow) of such elements is equal to or less than that of the test element driven with the same hammer through a comparable driving distance.

Reason: The purpose of this proposal is to clarify the code by using more consistent and accurate terminology. Current code language in this section uses the terms "design load", "safe design capacity", "supporting capacity", and "allowable load" interchangeably. This inconsistent terminology can be confusing, as it is sometimes difficult to tell if the current terminology is referring to the allowable load or the ultimate load capacity.

To be consistent with the title of the parent section 1810.3.3 (Determination of allowable loads), the term "allowable load" will be used when referring to the maximum load that is permitted to be applied to a deep foundation element. When referring to the load which would cause failure, the term "ultimate axial load capacity" will be used. Also, the term "subsoil" will be replaced with the more accurate term "subsurface", to add consistency with previous sections in chapter 18 (1803.3).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the code by using more consistent terminology. It does not change code requirements.

S128-25

S129-25

IBC: 1810.3.3.1.5, ASTM Chapter 35 (New)

Proponents: Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com); Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com)

2024 International Building Code

Revise as follows:

1810.3.3.1.5 ~~Uplift capacity~~Allowable uplift load of a single deep foundation element. Where required by the design, the uplift capacity of a single *deep foundation* element shall be determined by an *approved* method of analysis based on a minimum safety factor ~~of safety~~ of three or by load tests conducted in accordance with ASTM D1143, ASTM D3689, ASTM D4945, or ASTM D8169. Where uplift capacity is determined by load tests conducted in accordance with ASTM D1143, the test element shall be instrumented to determine load transfer response. The maximum allowable uplift *load* shall not exceed the ultimate load capacity ~~as determined in Section 1810.3.3.1.2, using the results of load tests conducted in accordance with ASTM D3689, divided by a factor of safety of two.~~ evaluated in accordance with one of the following methods divided by a safety factor of two:

1. The test load which produces a net upward movement equal to the theoretical elastic lengthening plus 0.15 inch (4 mm).
2. Other method *approved* by the *building official*.

Exception: Where uplift is due to wind or seismic loading, the minimum safety factor ~~of safety~~ shall be two where capacity is determined by an analysis and one and one-half where capacity is determined by load tests.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

D8169/D8169M-18 Standard Test Methods for Deep Foundations Under Bi-Directional Static Axial Compressive Load

Reason: Terminology has been revised to be more consistent with other code sections. The title of the parent Section 1810.3.3 is “Allowable axial load,” and the title of the following Section 1810.3.3.6 is “Allowable uplift load of grouped deep foundation elements.” The title of this section has been changed to “Allowable uplift load of a single deep foundation element” for consistency.

Current code states that the ultimate load capacity shall be as determined in Section 1810.3.3.1.2. However, Section 1810.3.3.1.2 addresses only compressive load tests. Section 1810.3.3.1.2 does not say how to determine the ultimate load capacity for compressive or tensile loads. For compressive load tests, Section 1810.3.3.1.2 refers to Section 1810.3.3.1.3 for load test evaluation methods. The evaluation methods given in 1810.3.3.1.3 (with the possible exception of #4, “Other methods approved by the building official”) are not applicable for tension load tests. For these reasons, the reference to Section 1810.3.3.1.2 has been removed, and replaced with criteria appropriate for tension load tests.

Load tests conducted in accordance with ASTM D4945, ASTM D8169, and ASTM D1143 (when elements are properly instrumented) are frequently used to evaluate tensile capacity of deep foundation elements. Therefore, we have added these standards as acceptable test methods for the determination of allowable uplift loads.

The proposed method #1 for evaluating the ultimate tension load capacity is the same as given in AASHTO specifications.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposal will decrease the cost of construction. Expected cost decrease ranges from $0 to $30,000 per load test. This cost was calculated on a unit rate basis.

Estimated Immediate Cost Impact Justification (methodology and variables):

In some cases, this proposal would decrease the cost of construction by permitting more economical load test methods. The cost of a standard tension load test conducted in accordance with ASTM D3689 can vary greatly. However, most tests can be conducted for $50,000 or less. Load tests conducted in accordance with ASTM D4945 and D8169 can assess both the compression and tension capacity of deep foundation elements, negating the need for a separate tension load test. The potential savings are therefore up to $50,000 per test.

Estimated Life Cycle Cost Impact:

There is no impact on estimated life cycle cost impact.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

This proposal will not impact the life cycle cost of buildings. It does not impact the durability of foundations nor the expected maintenance cost.

Staff Analysis: A review of the standard proposed for inclusion in the code, ASTM D8169/D8169M-18 Standard Test Methods for Deep Foundations Under Bi-Directional Static Axial Compressive Load, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S129-25

S130-25

IBC: 1810.3.3.2, ASTM Chapter 35 (New)

Proponents: Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com); Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com)

2024 International Building Code

Revise as follows:

1810.3.3.2 Allowable lateral load. Where required by the design, the allowable lateral load ~~capacity~~ of a single *deep foundation* element or a group thereof shall be determined by an *approved* method of analysis. ~~to not less than twice the proposed design working *load*. *The* resulting~~ allowable lateral *load* shall not be more than ~~one-half of~~ the *load* that produces a gross lateral movement of 1/2 ~~1~~ inch (~~25~~13 mm) at the lower of the top of the foundation element and the ground surface. ~~, unless it can be shown that the predicted lateral movement shall cause neither harmful distortion of, nor instability in, the *structure*, nor cause any element to be loaded beyond its capacity.~~ Group effects shall be evaluated where required by Section 1810.2.5.

Exception: Lateral movements exceeding 1/2 inch shall be permitted where the *registered design professional in responsible charge* determines that the predicted lateral movement shall cause neither harmful distortion of, nor instability in, the *structure*, nor cause any element to be loaded beyond its capacity.

Where lateral load tests are performed, elements shall be tested in accordance with ASTM D3966. Load tests shall be evaluated considering pile head fixity, soil stratification, and group effects.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

D3966/D3966M Standard Test Methods for Deep Foundation Elements Under Static Lateral Load

Reason: The section has been reorganized for clarity. An implied exception "…the predicted lateral movement shall cause neither harmful distortion of, nor instability in, the structure, nor cause any element to be loaded beyond its structural capacity" has been moved to an explicit exception. It has been clarified that it is the registered design professional in responsible charge who shall be able to invoke this exception.

An analysis should always be performed to determine the allowable lateral load of a deep foundation element. A load test alone is not a reliable method of determining the allowable lateral load of a deep foundation element. Load tests are usually conducted with different boundary conditions than those deep foundation elements used for support of actual structures. Conventional load tests do not provide information regarding moments and shears along the length of the deep foundation element, which is needed to design the element structurally. Only an analysis will provide this information.

The acceptance criterion has been changed from "not be more than one-half of the *load* that produces a gross lateral movement of 1 inch" to "not be more than the load that produces a gross lateral movement of 1/2 inch." The movement response of deep foundation members subjected to lateral loads is nonlinear. The current code provision produces inconsistent movement at the allowable lateral loads. Allowable movements for serviceability are evaluated at the allowable ASD loads. The proposed change creates consistency with current engineering practice.

Where lateral load tests are performed, it has been clarified that lateral load tests shall be conducted in accordance with ASTM D3966.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposed change clarifies the code and makes code more consistent with current engineering practice. On some projects, there could be a slight decrease in construction costs due to the revised movement criteria. However, the overall impact on construction cost will be insignificant.

Staff Analysis: A review of the standard proposed for inclusion in the code, ASTM D3966/D3966M Standard Test Methods for Deep Foundation Elements Under Static Lateral Load, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S130-25

S131-25

IBC: SECTION 1810, 1810.3.9.4.1, 1810.3.9.4.2

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

SECTION 1810
DEEP FOUNDATIONS

Revise as follows:

1810.3.9.4.1 Seismic reinforcement in Seismic Design Category C. For *structures* assigned to *Seismic Design Category* C, cast-in-place *deep foundation* elements shall be reinforced as specified in this section. Reinforcement shall be provided where required by analysis.

Not fewer than four longitudinal bars, with a minimum longitudinal reinforcement ratio of 0.0025, shall be provided throughout the minimum reinforced length of the element as defined in this section starting at the top of the element. The minimum reinforced length of the element shall be taken as the greatest of the following, <u>but need not exceed the length of the member</u>:

1. One-third of the element length.
2. A distance of 10 feet (3048 mm).
3. Three times the least element dimension.
4. The distance from the top of the element to the point where the design cracking moment determined in accordance with Section 1810.3.9.1 exceeds the required moment strength determined using the load combinations of ASCE 7, Section 2.3.

Transverse reinforcement shall consist of closed ties or spirals with a minimum $^3/_8$ inch (9.5 mm) diameter. Spacing of transverse reinforcement shall not exceed the smaller of 6 inches (152 mm) or 8-longitudinal-bar diameters, within a distance of three times the least element dimension from the bottom of the pile cap. Spacing of transverse reinforcement shall not exceed 16 longitudinal bar diameters throughout the remainder of the reinforced length.

Exceptions:

1. The requirements of this section shall not apply to concrete cast in structural steel pipes or tubes.
2. A spiral-welded metal casing of a thickness not less than the manufacturer's standard No. 14 gage (0.068 inch) is permitted to provide concrete confinement in lieu of the closed ties or spirals. Where used as such, the metal casing shall be protected against possible deleterious action due to soil constituents, changing water levels or other factors indicated by boring records of site conditions.

1810.3.9.4.2 Seismic reinforcement in Seismic Design Categories D through F. For *structures* assigned to *Seismic Design Category* D, E or F, cast-in-place *deep foundation* elements shall be reinforced as specified in this section. Reinforcement shall be provided where required by analysis.

Not fewer than four longitudinal bars, with a minimum longitudinal reinforcement ratio of 0.005, shall be provided throughout the minimum reinforced length of the element as defined in this section starting at the top of the element. The minimum reinforced length of the element shall be taken as the greatest of the following<u>, but need not exceed the length of the member:</u>

1. One-half of the element length.
2. A distance of 10 feet (3048 mm).
3. Three times the least element dimension.
4. The distance from the top of the element to the point where the design cracking moment determined in accordance with Section 1810.3.9.1 exceeds the required moment strength determined using the load combinations of ASCE 7, Section 2.3.

Transverse reinforcement shall consist of closed ties or spirals not smaller than No. 3 bars for elements with a least dimension up to 20 inches (508 mm), and No. 4 bars for larger elements. Throughout the remainder of the reinforced length outside the regions with transverse confinement reinforcement, as specified in Section 1810.3.9.4.2.1 or 1810.3.9.4.2.2, the spacing of transverse reinforcement shall not exceed the least of the following:

1. 12 longitudinal bar diameters.
2. One-half the least dimension of the element.
3. 12 inches (305 mm).

Exceptions:

1. The requirements of this section shall not apply to concrete cast in structural steel pipes or tubes.
2. A spiral-welded metal casing of a thickness not less than manufacturer's standard No. 14 gage (0.068 inch) is permitted to provide concrete confinement in lieu of the closed ties or spirals. Where used as such, the metal casing shall be protected against possible deleterious action due to soil constituents, changing water levels or other factors indicated by boring records of site conditions.

Reason: Clarifies requirements for deep foundations less than 10 feet in depth, (or the depth is less than 3 times the least element dimension) and provides consistency with the reference standard. Avoids interpretations that imply deep foundations under these conditions would need to be a minimum of 10 feet deep (or 3 times the least dimension in depth).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost – the proposal is a clarification of the depth of foundation and does not contain any new requirements.

S131-25

S132-25

IBC: 1810.3.11.2, 1810.3.11.2.1 (New)

Proponents: Nathalie Boeholt, representing Seattle Dept. of Construction and Inspections (SDCI) (nathalie.boeholt@seattle.gov); Micah Chappell, representing Seattle Dept. of Construction and Inspections (SDCI) (micah.chappell@seattle.gov)

2024 International Building Code

Revise as follows:

1810.3.11.2 Seismic Design Categories D through F. For *structures* assigned to *Seismic Design Category* D, E or F, *deep foundation* element resistance to uplift forces or rotational restraint shall be provided by anchorage into the pile cap, designed considering the combined effect of axial forces due to uplift and bending moments due to fixity to the pile cap. ~~Anchorage shall develop not less than 25 percent of the strength of the element in tension~~. Anchorage of deep foundation elements into the pile cap shall comply with the following:

1. The anchorage shall be designed to resist a tensile force of not less than 25 percent of the strength of the element in tension. In addition, in the case of steel H-piles or unfilled steel pipe piles, the anchorage shall be designed to resist a tensile force of not less than 10 percent of the pile compression capacity.

~~1~~ 2. In the case of uplift, the anchorage shall be ~~capable of developing~~ designed to resist a tensile force of not less than the least of the following:

   ~~1.1~~ 2.1. The nominal tensile strength of the longitudinal reinforcement in a concrete element.

   ~~1.2~~ 2.2. The nominal tensile strength of a steel element.

   ~~1.3~~ 2.3. The frictional force developed between the element and the soil multiplied by 1.3.

   2.4 The axial tension force resulting from load combinations with the seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.

   ~~**Exception:** The anchorage is permitted to be designed to resist the axial tension force resulting from the seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

~~2~~ 3. In the case of rotational restraint, the anchorage shall be designed to resist the axial and shear forces, and moments resulting from not less than the least of the following:

   3.1 The load combinations with the seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~ or~~

   3.2 The ~~anchorage shall be capable of developing the~~ full axial, bending and shear nominal strength of the element.

~~3. The connection between the pile cap and the steel H-piles or unfilled steel pipe piles in *structures* assigned to *Seismic Design Category* D, E or F shall be designed for a tensile force of the least of the following not less than 10 percent of the pile compression capacity.~~

   ~~**Exceptions:**~~

   ~~1. Connection tensile capacity need not exceed the strength required to resist seismic *load effects* including overstrength of ASCE 7 Section 12.4.3 or 12.14.3.2.~~

   ~~2. Connections need not be provided where the foundation or supported *structure* does not rely on the tensile capacity of the piles for stability under the design seismic force.~~

Exception: Anchorage of steel H-piles or unfilled steel pipe piles into the pile cap need not be provided where the foundation or supported structure does not rely on the tensile capacity of the piles for stability under the design seismic force.

Where the vertical lateral-force-resisting elements are columns, the pile cap flexural strengths shall exceed the column flexural strength. ~~The connection between batter piles and pile caps shall be designed to resist the nominal strength of the pile acting as a short column. Batter piles and their connection shall be designed to resist forces and moments that result from the application of seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

Add new text as follows:

<u>**1810.3.11.2.1 Batter Piles.** The anchorage between batter piles and piles caps shall be designed to resist the greatest of the following:</u>

1. <u>The nominal strength of the pile acting as a short column.</u>
2. <u>The axial and shear forces, and moments resulting from the load combinations with seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.</u>

Reason: Section 1810.3.11.2 concerns the anchorage of pile caps to deep foundation elements (i.e. piles) in seismic design categories D, E and F. It was amended by proposal S132-19 in the 2021 IBC to add sub-section 3 related specifically to steel H-piles and unfilled steel pipe piles. This proposal does not remove the content of sub-section 3 but rather reorganizes the whole section to make it clearer and more homogeneous rather than a piece-mealed section. There were already requirements for steel piles in sub-section 1, so it makes sense to combine these requirements. This proposal is editorial and does not change the technical intent of this section.

The sentence "anchorage shall develop not less than 25 percent of the strength of the element in tension" has moved to a new sub-section 1 and the next sub-sections have moved down, 1 has become 2 and 2 has become 3. The reason for this move is that it represents a minimum load the anchorage must be designed for and should not get lost in the first paragraph. The other minimum anchorage requirement is specific to steel piles where the anchorage must be designed for 10% of the pile compression capacity; this minimum has been moved from section 3 to the new sub-section 1. These changes allow the minimum requirements to be together in the same sub-section and clearly noted in the overall section.

The existing exceptions related to using the seismic load effects including overstrength are deleted and moved to 2.4 and 3.1 in the requirements for "the case of uplift" (sub-section 2) and "the case of rotational restraint" (sub-section 3) respectively. They were not really exceptions since the language was already listing minimum design loads ("the least of"), but rather another lower threshold the anchorage can be designed for.

As explained above, previous sub-section 3 related to steel piles is deleted and its requirements are moved as such:

- The requirement for 10% of the pile compression capacity has moved to sub-section 1.
- Previous sub-section 3 exception 1, concerning the option to design for a tensile force including overstrength, was repetitive and already included in the uplift case requirements (new sub-section 2.4).
- Previous sub-section 3 exception 2, concerning an exception in the case where there is no uplift, has been moved into a single exception located after the three sub-sections and has been kept to only apply to steel piles.

The last reorganization is the creation of section 1810.3.11.2.1 where the requirements specific for batter piles have been relocated. Their anchorage requirements were located in the last paragraph, the same paragraph as an unrelated requirement for pile cap design where the LFRS is columns, so it makes sense to separate them. For added clarity, batter piles now get their own section, so that their anchorage requirements are not missed, and are clear and separate from the general anchorage requirements above. No technical change is proposed, the technical content is simply moved. Two new sub-items are created, one for each requirement, and the language "the greatest of the following" is added to clarify the apparent original intent of this language: since it didn't include "the least of", it was assumed the intent was to design for the maximum of the two load cases.

Throughout this section, this proposal replaces the term "connection" with the term "anchorage". The term "connection" was imported from ASCE 7 in the 2021 code and was not coordinated with the terminology previously used in this code section. This proposal resolves this inconsistency in code language.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is a re-organization of section 1810.3.11.2 and does not increase the cost of construction. The technical requirements for the anchorage of deep foundation elements to pile caps do not change.

Staff Analysis: CC # S132-25 and CC # S133-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S132-25

S133-25

IBC: 1810.3.11.2, 1810.3.11.2.1 (New), 1810.3.11.2.2 (New)

Proponents: Daniel Stevenson, Berkel and Company Contractors, Inc., representing GeoCoalition (dstevenson@berkelapg.com); Lori Simpson, Langan, representing Geocoalition (lsimpson@langan.com)

2024 International Building Code

Revise as follows:

1810.3.11.2 Seismic Design Categories D through F. For *structures* assigned to *Seismic Design Category* D, E or F, connection of *deep foundations* to pile caps shall be designed in accordance with 1810.3.11.2.1 and 1810.3.11.2.2. Where the vertical lateral-force-resisting elements are columns, the pile cap flexural strengths shall exceed the column flexural strength.~~*deep foundation* element resistance to uplift forces or rotational restraint shall be provided by anchorage into the pile cap, designed considering the combined effect of axial forces due to uplift and bending moments due to fixity to the pile cap. Anchorage shall develop not less than 25 percent of the strength of the element in tension. Anchorage into the pile cap shall comply with the following:~~

1. ~~In the case of uplift, the anchorage shall be capable of developing the least of the following:~~
   - ~~1.1. The nominal tensile strength of the longitudinal reinforcement in a concrete element.~~
   - ~~1.2. The nominal tensile strength of a steel element.~~
   - ~~1.3. The frictional force developed between the element and the soil multiplied by 1.3.~~

   ~~**Exception:** The anchorage is permitted to be designed to resist the axial tension force resulting from the seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

2. ~~In the case of rotational restraint, the anchorage shall be designed to resist the axial and shear forces, and moments resulting from the seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7 or the anchorage shall be capable of developing the full axial, bending and shear nominal strength of the element.~~
3. ~~The connection between the pile cap and the steel H-piles or unfilled steel pipe piles in *structures* assigned to *Seismic Design Category* D, E or F shall be designed for a tensile force of not less than 10 percent of the pile compression capacity.~~

   ~~**Exceptions:**~~

   1. ~~Connection tensile capacity need not exceed the strength required to resist seismic *load effects* including overstrength of ASCE 7 Section 12.4.3 or 12.14.3.2.~~
   2. ~~Connections need not be provided where the foundation or supported *structure* does not rely on the tensile capacity of the piles for stability under the design seismic force.~~

~~Where the vertical lateral-force-resisting elements are columns, the pile cap flexural strengths shall exceed the column flexural strength. The connection between batter piles and pile caps shall be designed to resist the nominal strength of the pile acting as a short column. Batter piles and their connection shall be designed to resist forces and moments that result from the application of seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.~~

Add new text as follows:

1810.3.11.2.1 Connections. *Deep foundation* element resistance to uplift forces or rotational restraint shall be provided by connection to the pile cap, designed considering the combined effect of axial forces due to uplift and bending moments due to fixity to the pile cap. Connections shall develop not less than 25 percent of the strength of the element in tension. For elements required to resist uplift forces, provide rotational restraint, or both, connection to the pile cap shall comply with the following:

1. In the case of uplift, the connection shall be capable of developing the least of the following:
   1.1. The nominal tensile strength of the longitudinal reinforcement in a concrete element.
   1.2. The nominal tensile strength of a steel element.
   1.3. The frictional force developed between the element and the soil multiplied by 1.3.

   Exception: The connection is permitted to be designed to resist the axial tensile force resulting from the seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.

2. In the case of rotational restraint, the connection shall be designed to resist the axial and shear forces, and moments resulting from the seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7 or the connection shall be capable of developing the full axial, bending and shear nominal strength of the element.
3. The connection between the pile cap and the steel H-piles or unfilled steel pipe piles in *structures* assigned to *Seismic Design Category* D, E or F shall be designed for a tensile force of not less than 10 percent of the pile compression capacity.

   Exceptions:

   1. Connection tensile capacity need not exceed the strength required to resist seismic *load effects* including overstrength of ASCE 7 Section 12.4.3 or 12.14.3.2.
   2. Connections need not be provided where the foundation or supported *structure* does not rely on the tensile capacity of the piles for stability under the design seismic force.

1810.3.11.2.2 Batter Piles. The connection between batter piles and pile caps shall be designed to resist the nominal strength of the pile acting as a short column. Batter piles and their connection shall be designed to resist axial forces and moments that result from the application of seismic *load effects* including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7.

Reason: Section 1810.3.11.2 has been reorganized for clarity. Terminology has been revised for clarity and accuracy. Current code language uses the terms "anchorage" and "connection" interchangeably. While the term "anchorage" is generally considered to apply only to tensile forces, the more general term "connection" is considered to apply to tensile, compressive, and shear forces. This section has requirements for resistance of tension, compression, and shear loads. Therefore, the term "anchorage" has been replaced with the more inclusive term "connection".

Also, the existing code language is sometimes confusing and can appear contradictory. The requirements of " ...not less than 25 percent of the strength of the element intension.", and then later "The nominal tensile strength..." appear contradictory if one does not realize that the more restrictive requirement is only required for piles required to resist uplift forces. The added phrase "For elements required to resist uplift forces or provide rotational restraint" clarifies that the intent of the code is that the more restrictive requirements apply only to elements required to resist uplift forces or provide rotational restraint. This added phrase is taken verbatim from ASCE-7 section 12.13.6.5, except that the word “pile” has been changed to “element”. ASCE section 12.13.6.5 contains the same requirements as IBC section 1810.3.11.2. Adding this phrase into 1810.3.11.2 will provide more consistency between IBC and referenced standard ASCE-7.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not change any code requirement, it only clarifies the code. Therefore there is no cost impact.

Staff Analysis: CC # S133-25 and CC # S132-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S134-25

IBC: 1901.2, 1901.2.2 (New), 1901.2.2.1 (New), 1901.2.2.2 (New), 1901.2.2.3 (New), 1901.2.2.4 (New), ASTM Chapter 35 (New)

Proponents: David Fanella, representing Concrete Reinforcing Steel Institute (dfanella@crsi.org); Michael Ugalde, representing nVent - Director (michael.ugalde@nvent.com)

2024 International Building Code

1901.2 Plain and reinforced concrete. Structural concrete shall be designed and constructed in accordance with the requirements of this chapter and ACI 318 as supplemented in Section 1905 of this code.

Add new text as follows:

1901.2.2 Structural concrete with mechanical splices of deformed steel reinforcing bars in tension or compression. Mechanical splices shall satisfy the requirements of ASTM A1034. Mechanical splices classified as Type 1, 2, or 3 in accordance with ASTM A1034 shall be permitted in accordance with this section.

1901.2.2.1 Type 1 mechanical splices. Type 1 mechanical splices shall not be permitted for the following:

1. In locations where yielding of reinforcement is expected under applicable strength design load combinations specified in Section 1605.
2. For splicing the following reinforcement: (a) integrity reinforcement, (b) reinforcement in regions where moment redistribution has been applied in design, (c) reinforcement in regions where moments are determined using the simplified method of analysis, and (d) reinforcement in two-way slabs where moments are determined using the direct design method of analysis.

1901.2.2.2 Type 3 mechanical splices. Reinforcing bars in a Type 3 mechanical splice shall conform to ASTM A706 and shall be longitudinally aligned.

1901.2.2.3 Mechanical splices in special moment frames and special structural walls. Mechanical splices in special moment frames and special structural walls shall satisfy this section:

1. Mechanical splices shall be Type 2 or Type 3.
2. Type 3 mechanical splices shall be permitted at any location for cast-in-place construction.
3. Type 2 mechanical splices in special moment frames are prohibited within joints, within a distance equal to twice the member depth from the column or beam face, and within a distance equal to twice the member depth from critical sections where yielding of the reinforcement is likely to occur as a result of lateral displacements beyond the linear range of behavior.
4. Type 2 mechanical splices in special structural walls are prohibited within the following:

   4.1. Boundary regions over a height h_{sx} above and l_d below critical sections where yielding of the longitudinal reinforcement is likely to occur as a result of lateral displacements where h_{sx} need not exceed 20 ft (6.1 m). Boundary regions shall include those with lengths that extend horizontally from the extreme compression fiber a distance at least the greater of $c - 0.1l_w$ and $c/2$ and within a length equal to the wall thickness measured beyond the intersecting region(s) of connected walls.

   4.2. Coupling beams

   4.3. A distance equal to twice the member depth from critical sections where yielding of the reinforcement is likely to occur as a result of lateral displacements beyond the linear range of behavior.

1901.2.2.4 Mechanical splices in diaphragms and collectors assigned to Seismic Design Category D, E, or F. Type 2 or Type 3 mechanical splices are required where mechanical splices are used in the region of the connection between the diaphragm and the vertical elements of the seismic force-resisting system.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

A1034/A1034M-24 Standard Specification for Mechanical Splices for Steel Reinforcing Bars

Reason: This proposal requires that mechanical splices of deformed steel reinforcing bars in tension or compression conform with the requirements in ASTM A1034/A1034M—Standard Specification for Mechanical Splices for Steel Reinforcing Bars. This standard is proposed as a referenced standard in this code change proposal. A new type of mechanical splice is included that can be used within any region of a structural member assigned to any seismic design category.

The acceptance criteria in ASTM A1034/A1034M were created with significant input and collaboration amongst mechanical splice producers. The latest results from an on-going joint CRSI, ACI, and Pankow Foundation-sponsored research project that addresses the use of mechanical splices with high-strength reinforcement in the potential flexural yielding regions of special structural systems formed the basis of the acceptance criteria in this standard.
Three types of mechanical splices are defined in ASTM A1034/A1034M: Type 1, Type 2, and Type 3. The Type 1 and Type 2 mechanical splice nomenclature is the same as the industry has relied on for decades. The new Type 3 mechanical splice can be utilized within any region of a structural member assigned to any seismic design category; this type of mechanical splice will substantially improve constructability of structural members in seismic design category D and above, especially for special reinforced concrete structural walls.
Referencing ASTM A1034/A1034M provides an opportunity to revise the mechanical splice requirements, if required, in a timely fashion as new test data become available compared to having to wait for changes to be introduced in the 2031 edition of ACI 318.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

- The cost of construction will not increase for Type 1 and Type 2 mechanical splices because reference to these types is well known in the reinforced concrete industry and because mechanical splice producers have test data based on the acceptance criteria requirements in ASTM A1034/A1034M.
- Additional testing for Type 3 mechanical splices may be required based on the ASTM A1034/A1034M acceptance criteria requirements; however, this testing will be required regardless of which code or standard requirements take precedence, which means there is no impact on cost.

Staff Analysis: A review of the standard proposed for inclusion in the code, ASTM A1034/A1034M-24 Standard Specification for Mechanical Splices for Steel Reinforcing Bars, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S134-25

S135-25

IBC: 1901.2, 1901.2.2 (New), ASTM Chapter 35 (New)

Proponents: David Fanella, representing Concrete Reinforcing Steel Institute (dfanella@crsi.org); Michael Ugalde, representing nVent - Director (michael.ugalde@nvent.com); Robbie Hall, Headed Reinforcement Corp. (HRC), representing HRC / Concrete Reinforcing Steel Institute (robbie.hall@hrc-usa.com)

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1901.2 Plain and reinforced concrete. Structural concrete shall be designed and constructed in accordance with the requirements of this chapter and ACI 318 as supplemented in Section 1905 of this code.

Add new text as follows:

1901.2.2 Development of headed deformed bars in tension. Use of a head to develop a deformed bar in tension shall be permitted if conditions (1) through (6) are satisfied:

1. Headed deformed bar conforms to ASTM A970 including Annex A1 requirements for Class HA heads.
2. Bar size does not exceed No. 11.
3. Net bearing area of head A_{brg} is at least 4A_b for Grade 60 and Grade 80 bars.
4. Concrete is normal weight.
5. Clear cover for bar is at least 2d_b.
6. Center-to-center spacing between bars is at least 3d_b.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428
USA

A970/A970M-24 Standard Specification for Headed Steel Bars for Concrete Reinforcement

Reason: This proposal provides minimum conditions for the use of Grade 60 and Grade 80 headed deformed bars in tension. The basis of the proposal is on the findings of recent research that examines the impact of the net bearing area on the tension development length of the deformed headed bar as a function of steel grade.

Grade 60 and Grade 80 headed bars with bearing areas of 4A_b are well-researched and well-established within the industry with demonstrated successful in-service performance in reinforced concrete structures. The term A_b is the area of the deformed reinforcing bar. Research of headed deformed bars conducted and published by the University of Kansas over the last 8 years has confirmed the implementation of a minimum bearing area equal to 4A_b in ACI 318 and ASTM A970/A970M Annex A1 for headed bars. The following two University of Kansas reports are of particular interest with respect to head size (see attached reports):

- SMR Report No. 117, *Anchorage of Conventional and High-Strength Headed Reinforcing Bars*. The main conclusion of this report is that there are no clear differences in anchorage strength associated with head size ranging from 3.8 to 9.5A_b for both Grade 60 and Grade 80 bars.
- SMR Report No. 127, *Anchorage of Headed Reinforcing Bars in Concrete*. The report states that an increase in net bearing area of the head from 4 to 9.5A_b has no effect on the anchorage strength.

The standard ASTM A970/A970M—Standard Specification for Headed Steel Bars for Concrete Reinforcement is proposed as a referenced standard in this code change proposal.

Grade 80 headed bars with 4A_b have been prevalent since headed bar applications were first adopted, and are commonly used across the United States, especially in areas where seismic detailing is required. Grade 80 headed bars are commonly used to reduce reinforcement congestion and enhance constructability. In many cases, designs are so complex, and reinforcement arrangements are so congested, that Grade 80 headed bars are an absolute necessity for the physical installation of reinforcing bars and placement/consolidation of concrete in accordance with ACI 318 requirements and project documents. The industry is not aware of any concerns or issues with in-service performance of Grade 80 headed reinforcing bars with net bearing areas of $4A_b$.

- **SM Report No. 127_R.pdf**
  https://www.cdpaccess.com/proposal/11553/35471/documentation/183531/attachments/download/8864/
- **SM_Report_No_117_R.pdf**
  https://www.cdpaccess.com/proposal/11553/35471/documentation/183531/attachments/download/8863/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Based on the findings from substantial research projects, Grade 60 and Grade 80 headed reinforcing bars have been successfully used in many types of building projects for many years, especially in projects where constructability issues must be addressed. Thus, this proposal results in no impact on the cost of construction.

Staff Analysis: A review of the standard proposed for inclusion in the code, ASTM A970/A970M-24 Standard Specification for Headed Steel Bars for Concrete Reinforcement, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S135-25

S136-25

IBC: 1901.2, 1901.2.1 (New), ACI Chapter 35 (New)

Proponents: Edith Gallandorm, PCI, representing Precast/Prestressed Concrete Institute (egallandorm@pci.org); Stephen Skalko, Stephen V. Skalko, P.E. & Associates LLC, representing Precast/Prestressed Concrete Institute (svskalko@svskalko-pe.com); Stephen Szoke, representing American Concrete Institute (steve.szoke@concrete.org)

2024 International Building Code

1901.2 Plain and reinforced concrete. Structural concrete shall be designed and constructed in accordance with the requirements of this chapter and ACI 318 as supplemented in Section 1905 of this code.

Add new text as follows:

1901.2.1 Precast pretensioned concrete. Precast pretensioned concrete members and connections shall be permitted to be designed in accordance with ACI/PCI CODE 319.

Add new standard(s) as follows:

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331-3439

ACI/PCI CODE 319-25

Structural Precast Concrete - Code Requirements

Reason: ACI/PCI CODE 319 is a new standard jointly developed through a consensus process compliant with ICC's Council Policy 28. It contains methodologies, alternative systems, and specialized construction requirements unique to precast, and precast, pretensioned concrete. ACI/PCI CODE 319 does not address the design of cast-in-place. Design of precast members or structures will require the use of both ACI 318 and ACI-PCI CODE 319. Code provisions relating to both cast-in-place and precast concrete have not been repeated where not necessary. Requirements concerning cover over reinforcement and design load combinations are examples of non-repetition. Section numbering for ACI/PCI CODE 319 follows the format of ACI 318 for easy referencing between the two documents. Where new items occur, they have been placed with new section numbers in the appropriate location.

The process for developing ACI-PCI CODE 319 code was composed of two primary activities. First, sections of ACI 318 applicable to precast, pretensioned concrete were identified, which would be used in ACI-PCI CODE 319. The committee voted first on which sections should be included and which would be either out-of-scope or referenced directly to ACI 318. Language of duplicated sections was adjusted to narrow the scope to precast concrete.

Secondly, PCI's Design Standard Committee (PCI-DSC) developed and incorporated new precast, pretensioned provisions into ACI/PCI CODE 319. A list of items that needed to be in the new precast code was developed. Items with completed research were prioritized and balloted within the PCI-Design Standard Committee (DSC), reviewed/approved by PCI TAC and submitted to the ACI-PCI 319 Committee for review and balloting before inclusion in ACI-PCI CODE 319. Examples include intermediate precast structural walls, precast diaphragms with cast-in-place pour strips, and torsion design of compact sections.

Both organizations and committees worked collaboratively to coordinate the development of this document.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This document provides additional design methodologies typically used in Precast concrete construction. There are no signifcant changes that would increase or decreease the cost of using precst concrete as a building material.

Staff Analysis: A review of the standard proposed for inclusion in the code, ACI/PCI CODE 319-25 Structural Precast Concrete - Code Requirements, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S137-25

IBC: 1901.2.1

Proponents: Stephen Szoke, representing American Concrete Institute (steve.szoke@concrete.org); Jerzy Zemajtis, NEx, An ACI Center of Excellence for Nonmetallic Building Materials, representing Jerzy Zemajtis, NEx (jerzy.zemajtis@nonmetallic.org); Doug Gremel, representing Owens Corning (douglas.gremel@owenscorning.com); Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); Dr. Julian Mills-Beale, representing National Ready Mixed Concrete Association (jmills-beale@nrmca.org); Vicki Brown, Widener University, representing American Concrete Institute (vlbrown@widener.edu); John Busel, representing American Composites Manufacturers Association (jbusel@acmanet.org)

2024 International Building Code

Revise as follows:

1901.2.1 Structural concrete with GFRP reinforcement. Cast-in-place structural concrete internally reinforced with glass fiber reinforced polymer (GFRP) reinforcement conforming to ASTM D7957 and designed in accordance with ACI CODE 440.11 shall be permitted where fire-resistance ratings are not required, and ~~only for~~

1. In any structural elements of buildings ~~*structures*~~ assigned to *Seismic Design Category* A, or
2. In structural elements not part of the seismic force resisting system in buildings assigned to SDC B or C.

Reason: This proposal aligns the limitations in the IBC for the use of glass fiber reinforced polymer reinforcement with the limitations in ACI CODE 440.11-22 Building Code Requirements for Structural Concrete Reinforced with Glass Fiber-Reinforced Polymer (GFRP) Bars. When initially introduced into the IBC, to avoid confusion, the permissible use was presented as overly conservative with regard to use in structural elements. This proposal does retain restrictions for use in structural elements that are part of the seismic force resisting system in buildings assigned to SDC B or C. This alignment will expand the acceptable use the IBC by aligning with the requirements of ACI CODE 440.11 increasing applications where non-corrosive GFRP may be used to enhance building safety and durability. Further the alignment will avoid possible confusion by eliminating differences between the provisions of the IBC and ACI CODE 440.11.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact as this proposal only expands the permissible use of GRFP reinforcement, furthering options for alternative design and construction.

S137-25

S138-25

IBC: 1901.3, ACI Chapter 35 (New)

Proponents: Michael Brown, representing Simpson Strong-Tie Company (mibrown@strongtie.com); Tarek Alkhrdaji, representing Structural Technologies; Anthony Lamanna, representing Arizona State University (drtony@asu.edu); David Ojala, Thornton Tomasetti, Inc., representing Self (dojala@thorntontomasetti.com); Ricky Bagby, representing Pullman SST Inc. (r.bagby@hotmail.com); Mark Ziegler, representing DEWALT (mark.ziegler@sbdinc.com); Chris Kimball, Building Code Solutions, representing Self (chris@bcscodegroup.com)

2024 International Building Code

Revise as follows:

1901.3 Anchoring to concrete. Anchoring to concrete shall be in accordance with ACI 318 as supplemented in Section 1905, and applies to cast-in (headed bolts, headed studs and hooked J- or L-bolts), post-installed expansion (torque-controlled and displacement-controlled), undercut, screw, and adhesive anchors.

Exception: Seismic qualification of post-installed concrete anchors shall be permitted to be in accordance with ACI 355.2 for post-installed expansion, undercut, and screw anchors and in accordance with ACI 355.4 for post-installed adhesive anchors.

Add new standard(s) as follows:

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331-3439

355.2-22	Post-Installed Mechanical Anchors in Concrete - Qualification Requirements
355.4-19 (21)	Qualification of Post-Installed Adhesive Anchors in Concrete

Attached Files

- **C1 v. C2 European Capacity Comparisons.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9480/
- **ASPC 1 vs ASPC 2 - Design Example.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9479/
- **DEWALT_letter_IBC2027_SeismicAnchorQualification_2025.01.09.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9478/
- **Code Change Support Letter_TT.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9477/
- **CodeChangeSupportLetter_M.LIM.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9476/
- **Code Change Support Letter_J.Tehaney.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9475/
- **CodeChangeSupportLetter_T.Alkhrdaji.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9474/
- **CodeChangeSupportLetter_Gouvis.Engineering.Group.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9473/
- **Code Change Support Letter_KDG.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9472/

- **CodeChangeSupportLetter_BSB.Design.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9326/
- **CodeChangeSupportLetter_Meghan.Halligan.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9201/
- **CodeChangeSupportLetter_TG ENGINEERING.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9133/
- **CodeChangeSupportLetter_Option One.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9131/
- **CodeChangeSupportLetter_Felten Group.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9129/
- **Code Change Support Letter_WA.Lopez.SE.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9128/
- **Code Change Support Letter_United.Structural.Design.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9127/
- **Code Change Support Letter_CS Design Group.pdf**
  https://www.cdpaccess.com/proposal/11491/35946/files/download/9126/

Reason: The purpose of this code change is to counteract new overly conservative requirements for seismic testing and load-rating of post-installed concrete anchors. These conservative and stringent seismic qualification protocols were added into the most recent versions of ACI 355.2 and ACI 355.4, which were published in November of 2024. The ACI 355.2 standard governs the qualification of post-installed mechanical anchors, while the ACI 355.4 standard governs the qualification of post-installed adhesive anchors. The new 2024 versions of the ACI 355 testing standards have also **eliminated** the current simulated seismic testing regime that has been successfully used by these standards for the last two decades to load-rate anchors that resist earthquake-induced forces. The revisions made to the seismic testing regime within these standards have been shown to significantly reduce the capacity of post-installed anchors. ACI 355.2 and ACI 355.4 are currently not referenced directly by the IBC, but they are instead referenced by ACI 318, which is referenced directly by the IBC for concrete design, including anchorage to concrete. This code change will directly reference the previous versions of the ACI 355 testing standards in the IBC, specifically for the seismic qualification of post-installed anchors in concrete.

The following are specific reasons that the new criteria should not be adopted into the IBC:

1. The revised seismic testing parameters included within the new ACI 355 qualification standards are overly restrictive due to the reasons below.

   a. **Incorrect application:** The wider concrete cracks specified in the new ACI 355 standards are only considered to occur right at the edges of plastic hinge zones within lateral-force resisting systems in concrete frame buildings, yet they will be applied to all post-installed anchors within any concrete element located anywhere in the structure.

   b. **Testing representativeness**: The new standards mandate testing for wider crack widths of 0.032” for 25 cycles. This is not representative of real data from earthquake responses of buildings, which typically result in maximum shaking for only 4-5 cycles.

   c. **Misaligned with the original intent of the testing regime:** The new testing protocols come from European design methodology and anchor qualification methods. In Europe, a three-tier seismic qualification exists. Low hazard and risk structures do not require any cyclic testing (the lowest tier), in the US this has been called *ASPC0*. ASPC stands for ‘Anchor Seismic Performance Category’. The middle tier is called “C1” in Europe (*ASPC1* in the US), which corresponds to the current seismic testing regime used in US building codes today. The most severe tier in Europe is called “C2” (*ASPC2* in the US) and has rigorous testing requirements that are required for a limited subset of buildings that are under higher seismic hazard and risk levels only. However, this highest tier, *ASPC2*, has been implemented within the new ACI test standards as the **only** method for seismic qualification, and is required in all structures Seismic Design Category C and above.

Proponents and researchers involved with developing the *ASPC2* testing regime integrated into the new ACI 355 qualification standards never intended this protocol to 'replace' the *ASPC1* regime. Per Marhenholtz and Wood, "*Principally, the integration of the C2 performance category in the U.S. design standards is feasible. However, one critical issue to be discussed and further explored is when is it appropriate to use C1 or C2 anchors. To date, the European approach is inconclusive in this sense…*" and "*The European design requirements can be considered very stringent due to the generally lower peak ground acceleration requiring C1 or even C2 qualified anchors*"(*Reference 1*). As such, the *ASPC2*-only approach within the new ACI 355 standards is not appropriate, overly conservative, and uncalibrated to the design standards referenced in the US model building code, which have yet to adopt this three-tier approach.

d. **Not driven by a real-world need:** There does not appear to be a demand from industry, designers, owners, or building officials for a change in the seismic qualification of post-installed anchors in the United States. Marhenholtz and Wood, who were researchers involved in the development of the C2 testing protocols in Europe, state in their ACI Structural Journal article, "*On the other hand, the current ACI 355 seismic qualification is generally perceived to be sufficient as United States building authorities did not ask for more rigorous qualification requirements, and it is used by many U.S. and international designers and specifiers*" (*Reference 1*).

2. It is inappropriate to apply the new seismic qualification testing protocols to a wide range of building types and anchor applications.

a. **Based on simulation of one type of building:** The justification of the cyclic loading and crack width protocols in the new qualification standards were derived from 2D-frame analytical models of concrete special moment frames and ordinary moment frames coupled with concrete shearwalls (*Reference 2*). Other building types like steel-framed structures, light-framed construction, metal building systems, or low-rise pre-cast or tilt-up structures were not considered. Yet, the new testing requirements will be applied to all anchor applications in all building types.

b. **Based on simulation of one seismic hazard:** The selected seismic hazard assumed in the research used to develop the new seismic testing protocols was located in the Los Angeles basin with comparatively high spectral acceleration values of 2.01g for S_S and 0.61g for S_1. Per Marenholtz et al., "*While it is recognized that a variety of seismic conditions exist throughout the world, the significant seismic hazard of the selected site is anticipated to conservatively represent demands at many locations*" (*Reference 2*). The application of this hazard to all sites in Seismic Design Categories C and above is too broad and overly conservative.

c. **Large cracks only occur in limited locations:** The research simulations showed that large cracks of 0.032" only occur in or near plastic hinge zones in these concrete buildings (*Reference 2*). But even within concrete frame buildings, the vast majority of anchors are installed away from plastic hinge zones, and ACI 318 already excludes the use of anchors within plastic hinge zones. Per Marhenholtz and Wood, "*However, it is noted that the 0.8 mm (0.032") width crack represents a maximum value not generally to be anticipated and the structural analysis may result in smaller crack widths*" (*Reference 1*). Therefore, the wider crack width criteria is not appropriate in most applications.

3. There will be a significant reduction in the capacity of post-installed concrete anchors, which will result in increased construction costs and potentially impractical design solutions.

a. **Reduced Capacities:** Application of the new seismic testing requirements will result in a reduction in capacity of post-installed concrete anchors in all buildings that are Seismic Design Category C and above, regardless of the application.

While there is currently no published data in the United States of new capacities tested to the 2024 versions of the ACI 355 standards, equivalent capacity reductions in Europe shed light on what reductions to expect. Please refer *Reference 1* and the "*C1 v. C2 European Capacity Comparisons*" document attached to this proposal for additional information.

A design example based on a US-sold adhesive anchor product that has completed third-party testing with both the previous version of ACI 355.4 and the new 2024 version has been developed to provide a US-product based data point. Please refer to the attached document "*ASPC 1 vs ASPC 2 – Design Example*" for this information.

b. **Increased costs:** This reduced anchor capacity will result in increased costs of anchorage construction, due to both a reduced supply of available anchors that meet the new requirements, and a need to install larger, longer, and/or a higher quantity of anchors compared to what would be required under current qualification standards.

c. **Impact on current design practices:** The reduction in the capacity of anchors that have been successfully used for years will require designers to revise existing anchor solutions due to the overly conservative qualifications. In some cases, the new solutions may be impractical or inappropriate due to other design and construction constraints. Refer to the multiple letters of support from practicing engineers and engineering firms attached to this proposal to appreciate the impact this will have on designers.

4. A 3-tiered system has not been adopted in the U.S.: While a 3-tiered approach including this more conservative testing regime was proposed to the ASCE 7-22 Seismic Subcommittee last cycle, the ASCE 7-22 standard only references existing seismic qualification and design standards (namely ACI 355.2-19 and ACI 318-19) that align with *ASPC1* level qualification testing.

5. The ACI 355 standards are referenced in ACI 318. Since these new test requirements are located in standards that were part of ACI 318-25 by reference only, the full ACI 318 committee may not have considered the effects that the revisions to the newly published ACI 355 standards would have on the industry, and how they might need to be coordinated with the existing seismic requirements for concrete anchorage design within Chapter 17 of ACI 318. Due to the late publication of the ACI 355 standards, there was not adequate time for the ACI 318-25 committee to deliberate on these matters, and as such, the design assumptions within ACI 318 are not currently aligned with the 2024 versions of the ACI 355 testing standards.

6. The requirements are not based on real-world observations. Oftentimes, building code changes typically occur due to examples of failures in the field, or when recurring substandard conditions are found in the industry. The proponents are not aware of real-world failures of currently qualified, properly installed anchors that would justify the need for these new severe qualification requirements. Refer to the Thornton Tomasetti letter of support, authored by Ojala and Cochran, as well as other letters that are attached to this proposal, for additional commentary and perspective in this regard.

7. There will be effects on published documents that will require revisions: ICC and FEMA documents, among others, will be required to be revised because any anchor selections will likely have to be changed due to the decreased anchor capacities under the new qualification protocols.

a. One example is the soon-to-be-published ICC 1300, Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings, which in turn is based on FEMA P1100. These documents give prescriptive solutions for seismic retrofitting. Some of the anchorage specified uses post-installed concrete anchors, and the spacing is based on current capacities, which were presumably considered adequate.

b. Another example of prescriptive anchorage that may be affected is Appendix A, Chapter A3 of the IEBC (Guidelines for the Seismic Retrofit of Existing Buildings).

In summary, the implementation of the severe seismic testing regime within the 2024 versions of the ACI 355 standards is unnecessarily conservative and is not implemented in a way that is compatible with other design standards that are referenced in the building code. For this code cycle, it is strongly recommended to keep the seismic qualification of post-installed concrete anchors the same as it currently is, to allow for a rational and compatible 3-tiered approach that will apply the highest level of testing only where necessary, as well as be calibrated to the design assumptions within ACI 318 and ASCE 7, in a future code cycle.

Bibliography: 1. Philipp Mahrenholtz, Richard L. Wood, *European Seismic Performance Categories C1 and C2 for Post-Installed Anchors*, ACI Structural Journal, Volume 117, Issue 6 (2020). 10.14359/51728071.
https://www.concrete.org/publications/internationalconcreteabstractsportal/m/details/id/51728071

2. Philipp Mahrenholtz, Richard L. Wood, Rolf Eligehausen, Tara C. Hutchinson, Matthew S. Hoehler, *Development and validation of European guidelines for seismic qualification of post-installed anchors*, Engineering Structures, Volume 148 (2017). ISSN 0141-0296. https://pmc.ncbi.nlm.nih.gov/articles/PMC5714297/

Cost Impact: Decrease

Estimated Immediate Cost Impact:

If this code change is not approved, costs of post-installed anchor solutions within Seismic Design Category C and above will increase significantly. If this code change is approved, costs will remain the same as previous versions of the code; but since this proposal prevents an otherwise increase in costs, the proponents consider this proposal to result in a cost decrease ($0 minimum decrease).

Estimated Immediate Cost Impact Justification (methodology and variables):

A design example was performed using a 1/2" diameter adhesive anchor in 5000 psi concrete, having a tension load of 6500 lbs and a shear load in one direction of 1000 lbs. In this case the 1/2" anchor would require an embedment of 8" under current code requirements. Under the new requirements that would be in place were this code change **not** approved, the 1/2" anchor with 8" embedment would be overstressed by 300%, and instead a 3/4" anchor with 5.25" embedment would be required to achieve the same capacity. This will require a 100% increase in adhesive volume for the larger diameter anchor, along with a 60% increase in steel threaded rod material. If this code change were **not** approved, additional labor (installed) costs and construction time will also apply in most cases, due to a combination of larger holes and/or deeper embedment depths to drill, or an increase in the quantity of anchors required to achieve sufficient design capacity. Also, refer to the Design Example attached to this proposal for additional details and information.

Overall Interaction Comparison Case 1 vs Case 2				
	ASPC1- 1/2" GR55 at 8" Embedment		ASPC2 - 3/4" GR55 at 5.25" Embed	
Loading Case	Capacity	DCR	Capacity	DCR
Steel Tension	7988 lbf	0.814	8830 lbf	0.7361
Breakout Tension	13260 lbf	0.490	7049 lbf	0.9221
Bond Tension	7185 lbf	**0.905**	6756 lbf	**0.9621**
Steel Shear	3115 lbf	**0.321**	5569 lbf	**0.1796**
Pryout Shear	24384 lbf	0.041	19403 lbf	0.0515
Interaction		**99.67%**	**Interaction**	**99.47%**

Estimated Life Cycle Cost Impact:

No life cycle impact. Initial cost only.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

No life cycle impact. Initial cost only.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

ACI 355.2-22 Post-Installed Mechanical Anchors in Concrete - Qualification Requirements

ACI 355.4-19 (21) Qualification of Post-Installed Adhesive Anchors in Concrete

S138-25

S139-25

IBC: CHAPTER 19, SECTION 1901, 1901.7, 1901.7.1, 1901.7.2, ACI Chapter 35

Proponents: Edith Gallandorm, representing Precast/Prestressed Concrete Institute (egallandorm@pci.org); Kerry Sutton, representing ACI (kerry.sutton@concrete.org); Stephen Szoke, representing American Concrete Institute (steve.szoke@concrete.org); Stephen Skalko, Stephen V. Skalko, P.E. & Associates LLC, representing Precast/Prestressed Concrete Institute (svskalko@svskalko-pe.com)

2024 International Building Code

CHAPTER 19
CONCRETE

SECTION 1901
GENERAL

Delete without substitution:

~~**1901.7 Tolerances for structural concrete.** Where not indicated in *construction documents* , structural tolerances for concrete structural elements shall be in accordance with this section.~~

Revise as follows:

1901.7 ~~**1901.7.1 Cast-in-place concrete tolerances**~~ **Tolerances for structural concrete.** Where not indicated in *construction documents,* ~~Structural~~ structural tolerances for ~~cast-in-place~~ concrete structural elements shall be in accordance with ACI 117.

Exceptions:

1. Group R-3 detached one- or two-family *dwellings* are not required to comply with this section.
2. Shotcrete is not required to comply with this section.

Delete without substitution:

~~**1901.7.2 Precast concrete tolerances.** Structural tolerances for precast concrete structural elements shall be in accordance with ACI ITG-7.~~

~~**Exception:** Group R-3 detached one- or two-family *dwellings* are not required to comply with this section.~~

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331-3439

~~ITG—7-09~~ ~~Specification for Tolerances for Precast Concrete~~

Reason: ACI ITG-7 is no longer being updated and will be added to ACI 117.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no change to existing requirements.

S139-25

S140-25

IBC: CHAPTER 19, SECTION 1905, 1905.1, 1905.3, 1905.3.1, ACI Chapter 35 (New)

Proponents: Edith Gallandorm, representing Precast/Prestressed Concrete Institute (egallandorm@pci.org); Stephen Skalko, Stephen V. Skalko, P.E. & Associates LLC, representing Precast/Prestressed Concrete Institute (svskalko@svskalko-pe.com)

2024 International Building Code

CHAPTER 19
CONCRETE

SECTION 1905
SEISMIC REQUIREMENTS

1905.1 General. In addition to the provisions of ACI 318, structural concrete shall comply with the requirements of Section 1905.

Revise as follows:

1905.3 Intermediate precast structural walls. Intermediate precast structural walls shall comply with Section 18.5 of ~~ACI 318~~ ACI/PCI CODE 319 ~~and this section~~.

Delete without substitution:

~~**1905.3.1 Connections designed to yield.** Connections that are designed to yield shall be capable of maintaining 80 percent of their *design strength* at the deformation induced by the design displacement or shall use Type 2 mechanical splices.~~

Add new standard(s) as follows:

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331-3439

ACI/PCI CODE 319-25

Structural Precast Concrete - Code Requirements

Reason: Reference to ACI/PCI 319 aligns with current industry requirements for the design of this type of lateral systems. The document clarifies requirements of design of strong and ductile connections between precast concrete components. The refernce to ACI/PCI 319 allows the subsection, 1905.3.1 to be deleted.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no substantiave change in requirements that would have a cost implication.

Staff Analysis: A review of the standard proposed for inclusion in the code, ACI/PCI CODE 319-25 Structural Precast Concrete - Code Requirements, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S140-25

S141-25

IBC: CHAPTER 19, SECTION 1909 (New), 1909.1 (New), CHAPTER 35, PCI Chapter 35 (New)

Proponents: Edith Gallandorm, representing Precast/Prestressed Concrete Institute (egallandorm@pci.org); Stephen Skalko, Stephen V. Skalko, P.E. & Associates LLC, representing Precast/Prestressed Concrete Institute (svskalko@svskalko-pe.com)

2024 International Building Code

CHAPTER 19
CONCRETE

Add new text as follows:

SECTION 1909
PRECAST CONCRETE INSULATED WALL PANELS

1909.1 General. Precast concrete insulated wall panels shall be in accordance with the requirements of ANSI/PCI 150.

CHAPTER 35
REFERENCED STANDARDS

Add new standard(s) as follows:

PCI

Precast Prestressed Concrete Institute
8770 West Bryn Mawr, Suite 1150
Chicago, IL 60631-3517

ANSI/PCI 150	Specification for the Design of Precast Concrete Insulated Wall Panels

Reason: This change introduces a special methodology of construction. Historically this type of construction was addressed in State-of-the-art documents or proprietary information. The document was developed through a consensus process compliant with ICC's Council Policy 28.

Bibliography: *ANSI/PCI 150-24 Specification for the Design of Precast concrete Insulated Wall Panels*

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Procedure in new document is comparable to current design and construction methodology. There may be minor to insignificant cost increase due to clarification of minimum reinforcement requirements, potentially 0-2% of insulated precast concrete panel cost.

Staff Analysis: A review of the standard proposed for inclusion in the code, ANSI/PCI 150 Specification for the Design of Precast Concrete Insulated Wall Panels, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S141-25

S142-25

IBC: CHAPTER 19, SECTION 1909 (New), 1909.1 (New), 1909.1.1 (New), 1909.1.2 (New), 1909.1.3 (New), 1909.2 (New), 1909.2.1 (New), 1909.3 (New), 1909.4 (New), 1909.5 (New), 1909.6 (New), 1909.7 (New), 1909.8 (New), 1909.9 (New), 1909.10 (New), ASTM Chapter 35 (New)

Proponents: Jennifer Hatfield, J. Hatfield & Associates, representing National Roof Deck Contractors Association (jen@jhatfieldandassociates.com)

2024 International Building Code

CHAPTER 19
CONCRETE

Add new text as follows:

SECTION 1909
LIGHTWEIGHT INSULATING CONCRETE ROOF INSULATION

1909.1 Lightweight insulating concrete. Material produced with or without aggregate additions to hydraulic cement, water and air to form a hardened material possessing insulating qualities, which, when oven dried shall have a unit weight no greater than 50 pcf (801 kg/m^3).

1909.1.1 Lightweight cellular insulating concrete. Insulating concrete formulated by mixing a hydrated cementitious matrix around discrete air cells created by the addition of preformed foam formed from surfactants. The cured cellular lightweight insulating concrete shall have minimum compressive strength of 160 psi (1103 kPa) when tested in accordance with ASTM C495 and C796.

1909.1.2 Lightweight aggregate insulating concrete. Insulating concrete formulated by mixing lightweight aggregates such as Vermiculite or Perlite. The cured lightweight aggregate insulating concrete shall have minimum compressive strength of 160 psi (1103 kPa) when tested in accordance with ASTM C495.

1909.1.3 Lightweight cellular/aggregate (hybrid) insulating concrete. Insulated concrete formulated by combining preformed foam with lightweight aggregates to impart properties of both lightweight aggregate and cellular lightweight insulating concrete. It shall have a minimum compressive strength of 200 psi (1379 kPa) when tested in accordance with ASTM C495.

1909.2 Materials. Lightweight insulating concrete may be poured over galvanized metal decks vented and nonvented, cementitious wood fiber acoustical decks, structural concrete slabs, lightweight structural concrete slabs, precast concrete, prepared structural wood decks, and existing roof systems. Where manufacturer installation instructions require, lightweight insulating concrete over structural concrete slabs, twin tees, precast units or other nonventing substrate shall be vented.

1909.2.1 Limitations of use. Lightweight insulating concrete, in conjunction with galvanized formed steel sheets, shall not be used as a roof deck in areas where highly corrosive chemicals are used or stored. Lightweight insulating concrete shall not be poured directly over a painted or nongalvanized steel deck.

1909.3 Minimum thickness. Minimum thickness of lightweight insulating concrete shall be 2 inches (51 mm) over the top plane of the substrate unless otherwise specified in the product approval. Lightweight insulating concrete shall be of sufficient thickness to receive the specified base ply fastener length.

1909.4 Galvanized coatings. Galvanized coatings of formed steel sheets shall be in accordance with ASTM A525. Base steel shall be in accordance with ASTM A446, Grade A, B, C, D or greater and ASTM A1008 C, D or E.

1909.5 Vermiculite or perlite. Vermiculite or perlite shall be in accordance with ASTM C332, Group I.

1909.6 Preformed foam. Preformed foam surfactants shall be in accordance with ASTM C869.

1909.7 Base ply fasteners. All base ply fasteners for use with a specific lightweight insulating concrete roof deck system shall be approved for use in the manufacturer’s installation instructions and the design pressure requirements of Section 1609.

1909.8 Fastener withdrawal. The lightweight insulating concrete fastener withdrawal shall have a minimum resistance of 40 pounds (178 N) at time of roofing.

1909.9 Insulation board. Insulation board shall comply with the following:

1. When used with lightweight insulating concrete, insulation board shall conform to Type I expanded polystyrene insulation density or greater, as defined in ASTM C578 or as approved for use in the manufacturer's installation instructions.
2. Packaged insulation board delivered to the job site shall comply with the provisions of Section 2603.2.
3. Installation of insulating board in conjunction with lightweight insulating concrete shall comply with the uplift requirements in Section 1609.
4. Insulation panels shall be placed in a minimum $^{1}/_{8}$-inch (3.2 mm) slurry of insulating concrete while the material is still in a plastic state. The insulating concrete shall be cast over the insulation boards according to the insulating concrete manufacturer’s installation instructions. Insulation panels shall be provided with holes and/or slots for keying and venting.

1909.10 Reinforcing mesh. Reinforcing mesh shall be provided as required to meet fire-rating and/or special structural design requirements, and follow the manufacturer's installation instructions. Fiber reinforcement may be used.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

A446-76(1981)e1	Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) By The Hot-Dip Process, Structural (Physical) Quality
A525-91be1	Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
A1008/A1008M-24	Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable
C332-17	Standard Specification for Lightweight Aggregates for Insulating Concrete
C495-12 (2019)	Standard Test Method for Compressive Strength of Lightweight Insulating Concrete
C618-22	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
C796/C796M-19	Standard Test Method for Foaming Agents for Use in Producing Cellular Concrete Using Preformed Foam
C869/C869M-11(2016)	Standard Specification for Foaming Agents Used in Making Preformed Foam for Cellular Concrete

Reason: Currently, the IBC has no requirements for lightweight insulating concrete (LWIC) roof insulation, a type of roofing system that has been successfully applied throughout the country for over 70 years. This system combines lightweight concrete and expanded polystyrene (EPS) insulation to create a durable, energy efficient roof insulation.

This proposal creates a new section under Chapter 19 for LWIC roof insulation, providing requirements to assist code officials and contractors on proper application. This language stems directly from LWIC roof insulation requirements that have been in the Florida Building Code since its inception in 2001. Those provisions also fall within Chapter 19 of the Florida Building Code.

Many other states have looked to Florida's LWIC concrete provisions for guidance on LWIC installation. This proposal improves the code by ensuring requirements exist within the IBC, eliminating the need to look to Florida's code for direction. The proposal relies both on Florida provisions and industry best practices, and will ensure LWIC roof systems are installed properly by giving code users the requirements to reference when addressing LWIC roof insulation systems.

Bibliography: Florida Building Code, Building, Section 1917

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Minimum decrease would be $0.

The addition of lightweight insulating concrete installation requirements will bring clarity to both industry and code officials by having a clear set of requirements within the code. Having clear provisions, rather than relying on guidelines and best practices that may sometimes conflict, will eliminate confusion and lessen permitting and inspection time. Thereby, resulting in a decrease in time and cost.

Estimated Immediate Cost Impact Justification (methodology and variables):

The methodology used is based on no current I-code requirements existing for LWIC roof insulation systems. Although industry best practices, product manufacturer guidelines, and Florida code provisions do exist, conflicting information could cause confusion in the field. It is not possible to put an exact figure on any possible decrease, as it could vary widely, but clarity for industry and code officials should lessen cost.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

ASTM A446-76(1981)e1 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) By The Hot-Dip Process, Structural (Physical) Quality

ASTM A525-91be1 Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

ASTM A1008/A1008M-24 Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable

ASTM C332-17 Standard Specification for Lightweight Aggregates for Insulating Concrete

ASTM C495-12 (2019) Standard Test Method for Compressive Strength of Lightweight Insulating Concrete

ASTM C618-22 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

ASTM C796/C796M-19 Standard Test Method for Foaming Agents for Use in Producing Cellular Concrete Using Preformed Foam

ASTM C869/C869M-11(2016) Standard Specification for Foaming Agents Used in Making Preformed Foam for Cellular Concrete

S142-25

S143-25

IBC: SECTION 2103, 2103.1

Proponents: Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org)

2024 International Building Code

SECTION 2103
MASONRY CONSTRUCTION MATERIALS

Revise as follows:

2103.1 Masonry units. Concrete *masonry units*, clay or shale *masonry units*, stone *masonry units*, *glass unit masonry* ~~and~~ *AAC masonry* units <u>and manufactured stone veneer units</u> shall comply with Article 2.3 of TMS 602. Architectural *cast stone* shall conform to TMS 504.

> **Exception:** *Structural clay tile* for nonstructural use in fireproofing of structural members and in wall furring shall not be required to meet the compressive strength specifications. The *fire-resistance rating* shall be determined in accordance with ASTM E119 or UL 263 and shall comply with the requirements of Table 705.5.

Reason: Section 2103.1 references The Masonry Society (TMS) 602 for requirements for various masonry units. It lists the types of units that are covered in the reference section. Missing from this list is manufactured stone veneer units. This change proposes to add that so the list of materials encompasses those in Article 2.3 of TMS 602.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply aligns the list of materials with the reference standard included.

S143-25

S144-25

IBC: 2103.2.3, 2103.2.3.1, 2103.2.3.2, 2103.2.3.7, ANSI Chapter 35 (New)

Proponents: Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); James Farny, Portland Cement Association, representing US cement manufacturers (jfarny@cement.org); Dr. Julian Mills-Beale, representing National Ready Mixed Concrete Association (jmills-beale@nrmca.org); Nicholas Lang, representing Concrete Masonry & Hardscapes Association (nlang@masonryandhardscapes.org); Ryan marino, representing Tile Council of North America (rmarino@tileusa.com)

2024 International Building Code

Revise as follows:

2103.2.3 Mortars for ceramic wall and floor tile. ~~Portland~~ Cement *mortars* for installing ceramic wall and floor tile shall comply with ANSI A108.1A and ANSI A108.1B and be of the compositions indicated in Table 2103.2.3.

2103.2.3.1 Dry-set ~~Portland~~ cement mortars. Premixed prepared ~~Portland~~ cement *mortars*, which require only the addition of water and are used in the installation of ceramic tile, shall comply with ANSI A118.1. The shear bond strength for tile set in such *mortar* shall be as required in accordance with ANSI A118.1. Tile set in dry-set ~~Portland~~ cement *mortar* shall be installed in accordance with ANSI A108.5.

2103.2.3.2 ~~Latex-modified~~ Modified ~~Portland~~ dry-set cement mortar. ~~Latex-modified~~ Modified ~~Portland~~ dry-set cement ~~thin-set~~ *mortars* in which ~~latex is added to~~ additives have been incorporated to improve performance above an ANSI A118.1 dry-set *mortar* ~~as a replacement for all or part of the gauging water~~ that are used for the installation of ceramic tile shall comply with ANSI A118.4 or ANSI A118.15. Tile set in ~~latex-~~modified ~~Portland~~ dry-set cement *mortar* shall be installed in accordance with ANSI A108.5.

2103.2.3.7 ~~Portland cement~~ Cement grouts. ~~Portland cement~~ Cement grouts used for the installation of ceramic tile shall comply with ANSI A118.6 or A118.7. ~~Portland cement~~ Cement grouts for tile work shall be installed in accordance with ANSI A108.10.

Add new standard(s) as follows:

ANSI

American National Standards Institute
25 West 43rd Street, Fourth Floor
New York, NY 10036

A118.7-19	Standard Specifications for High Performance Cement Grouts for Tile Installation
A118.15-23	Specifications for Improved Modified Dry-Set Cement Mortar

Reason: This proposal is part of a series of proposals to the IBC and IRC to update cement terminology in the building codes.

The proposed revisions reflect current cement technology and market conditions, which can vary across regions. Nationally, the market is no longer dominated by portland cement. More than sixty percent of the current cement market consists of blended cement, including portland-limestone cement (PLC) and other blended cements that meet the requirements of ASTM C595/C595M, Specification for Blended Hydraulic Cements (Portland Cement Association, 2025). ASTM C595/C595M is referenced in the International Building Code/ International Residential Code.

This specific proposal also updates terminology based on standards currently referenced related to dry-set cement mortars.

The revised terminology in the proposal is consistent with ANSI A118.1. ANSI A118.1 no longer uses the term portland in its title, and instead refers to dry-set cement. The standard also allows for types of cement other than portland cement.

In ANSI A118.4, the terms portland and latex are no longer used, and instead refer to “modified dry-set cement mortars.”

Finally, the proposal adds reference to ANSI A118.7 and A118.15 for high performance cement grouts for tile installation and modified dry-set cement mortars.

Bibliography: Portland Cement Association, 2025. Reducing Carbon at the Cement Plant. https://cementprogress.com/reducing-carbon-at-the-cement-plant/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This editorial code change will not impact the cost of construction. See reason statement.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

ANSI A118.7-19 Standard Specifications for High Performance Cement Grouts for Tile Installation

ANSI A118.15-23 Specifications for Improved Modified Dry-Set Cement Mortar

S144-25

S145-25

IBC: CHAPTER 21, SECTION 2107, 2107.3

Proponents: Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org); Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2024 International Building Code

CHAPTER 21
MASONRY

SECTION 2107
ALLOWABLE STRESS DESIGN

Delete without substitution:

~~**2107.3 TMS 402, Section 6.1.7, splices of reinforcement.** Add to Section 6.1.7 as follows:~~

> ~~6.1.7 – Splices of reinforcement. Lap splices, welded splices or mechanical splices are permitted in accordance with the provisions of this section. Welding shall conform to AWS D1.4. Welded splices shall be of ASTM A706 steel reinforcement. Reinforcement larger than No. 9 (M #29) shall be spliced using mechanical connections in accordance with Section 6.1.7.2.~~

Reason: ASCE 7-02 added Chapter 14, which modified the various material standard's seismic design criteria. Since then, several of the materials standard's development organizations have been working with ASCE 7's seismic committee to reconcile the differences between these documents. TMS is one of them. TMS 402 has revised their provisions and subsequently removed almost all of the masonry provisions from recent editions of ASCE 7.

The 2003 IBC code development process considered the provisions of ASCE 7 Chapter 14, and placed some, but not all of those provisions in the material chapters of the IBC. This provision was one of them. In the ensuing twenty-plus years this provision has been revised and adopted into the current masonry standard, TMS 402, and removed from ASCE 7. Now it is time to remove it from the IBC to avoid an archaic conflict.

TMS 402-22 Section 6.1.7.3 deals with welded splices, and is identical to this IBC revision, except it goes further and allows welding of other grades of reinforcing bars, if a carbon equivalent is provided. This is in accordance with AWS D1.4. The TMS Standard improves on this portion of the IBC.

TMS 402-22 Section 6.1.7.2 deals with mechanical splices and is much more specific than the IBC. It includes provisions for size and placement of mechanical splices in Section 6.1.7.2.3 (a) through (e). Subsequent to these changes, the ASCE 7 seismic and main committees removed this provision from Section 14.4 of ASCE 7. It now needs to be removed from the IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change aligns the IBC with current versions of TMS 402 and ASCE 7.

S145-25

S146-25

IBC: CHAPTER 21, SECTION 2108, 2108.3

Proponents: Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org); Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2024 International Building Code

CHAPTER 21
MASONRY

SECTION 2108
STRENGTH DESIGN OF MASONRY

Revise as follows:

2108.3 TMS 402, Section 6.1.7, splices. Add to Sections~~s~~ 6.1.7.2.1 ~~and 6.1.7.3.1~~ as follows:

> ~~6.1.7.3.1 – Welded splices shall not be permitted in plastic hinge zones of intermediate or special reinforced walls.~~
>
> 6.1.7.2.1 – Mechanical splices shall be classified as Type 1 or 2 in accordance with Section 18.2.7.1 of ACI 318. Type 1 mechanical splices shall not be used within a plastic hinge zone or within a beam-column joint of intermediate or special *reinforced masonry* shear walls. Type 2 mechanical splices are permitted in any location within a member.

Reason: ASCE 7-02 added Chapter 14, which modified the various material standard's seismic design criteria. Since then, several of the materials standard's development organizations have been working with ASCE 7's seismic committee to reconcile the differences between these documents. TMS is one of them. TMS 402 has revised their provisions and subsequently removed almost all of the masonry provisions from recent editions of ASCE 7.

The 2003 IBC code development process considered the provisions of ASCE 7 Chapter 14, and placed some, but not all of those provisions in the material chapters of the IBC. This provision was one of them. In the ensuing twenty-plus years this provision has been revised and adopted into the current masonry standard, TMS 402, and removed from ASCE 7. Now it is time to remove it from the IBC to avoid an archaic conflict.

TMS 402-22 Section 6.1.7.3 deals with welded splices. The TMS Standard does not permit welded splices to be in the plastic hinge zones, which makes this IBC modification no longer necessary.

Subsequent to this change in TMS 402-22, the ASCE 7 seismic and main committees removed this provision from Section 14.4 of ASCE 7. It now needs to be removed from the IBC.

NOTE: A separate proposal has been submitted to remove the modification to TMS 402 Section 6.1.7.2.1 from this section. If both proposals are approved, it is the intent that all of Section 2108.3 be deleted.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change aligns the IBC with current versions of TMS 402 and ASCE 7.

S146-25

S147-25

IBC: CHAPTER 21, SECTION 2108, 2108.3

Proponents: Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org); Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2024 International Building Code

CHAPTER 21
MASONRY

SECTION 2108
STRENGTH DESIGN OF MASONRY

Revise as follows:

2108.3 TMS 402, Section 6.1.7, splices. Add to Section~~s~~ ~~6.1.7.2.1 and~~ 6.1.7.3.1 as follows:

6.1.7.3.1 – Welded splices shall not be permitted in plastic hinge zones of intermediate or special reinforced walls.

~~6.1.7.2.1 – Mechanical splices shall be classified as Type 1 or 2 in accordance with Section 18.2.7.1 of ACI 318. Type 1 mechanical splices shall not be used within a plastic hinge zone or within a beam-column joint of intermediate or special *reinforced masonry* shear walls. Type 2 mechanical splices are permitted in any location within a member.~~

Reason: ASCE 7-02 added Chapter 14, which modified the various material standard's seismic design criteria. Since then, several of the materials standard's development organizations have been working with ASCE 7's seismic committee to reconcile the differences between these documents. TMS is one of them. TMS 402 has revised their provisions and subsequently removed almost all of the masonry provisions from recent editions of ASCE 7.

The 2003 IBC code development process considered the provisions of ASCE 7 Chapter 14, and placed some, but not all of those provisions in the material chapters of the IBC. This provision was one of them. In the ensuing twenty-plus years this provision has been revised and adopted into the current masonry standard, TMS 402, and removed from ASCE 7. Now it is time to remove it from the IBC to avoid an archaic conflict.

TMS Section 6.1.7.2.1 requires all mechanical splices to develop 125% of f_y, and thus be Type 2 splices. That eliminates the need for this provision.

Subsequent to this change, the ASCE 7 seismic and main committees removed this provision from Section 14.4 of ASCE 7. It now needs to be removed from the IBC.

NOTE: A separate proposal has been submitted to remove the modification to TMS 402 Section 6.1.7.3.1 from this section. If both proposals are approved, it is the intent that all of Section 2108.3 be deleted.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change aligns the IBC with current versions of TMS 402 and ASCE 7.

S147-25

S148-25

IBC: 2111.12

Proponents: Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2024 International Building Code

Revise as follows:

2111.12 Fireplace clearance. ~~Any portion of a *masonry* fireplace located in the interior of a *building* or within the *exterior wall* of a *building* shall have a clearance to combustibles of not less than 2 inches (51 mm) from the front faces and sides of *masonry* fireplaces and not less than 4 inches (102 mm) from the back faces of *masonry* fireplaces. The airspace shall not be filled, except to provide *fireblocking* in accordance with Section 2111.13.~~ Wood beams, joists, studs and other combustible materials shall have a clearance of not less than 2 inches (51 mm) from the front faces and sides of masonry fireplaces and not less than 4 inches (102 mm) from the back faces of masonry fireplaces. The airspace shall not be filled except for non combustible material or to provide fire blocking in accordance with Section 2111.13.

Exceptions:

1. *Masonry* fireplaces *listed* and *labeled* for use in contact with combustibles in accordance with UL 127 and installed in accordance with the manufacturer's instructions are permitted to have combustible material in contact with their *exterior surfaces*.
2. ~~Where *masonry* fireplaces are constructed as part of *masonry* or concrete walls, combustible materials shall not be in contact with the *masonry* or concrete walls less than 12 inches (306 mm) from the inside surface of the nearest firebox lining.~~ Masonry fireplaces with walls at least 12 inches 305 mm) thick are permitted to have combustible material in contact with their exterior surface.
3. Exposed combustible *trim* and the edges of sheathing materials, such as wood siding, flooring and drywall, are permitted to abut the *masonry* fireplace sidewalls and hearth extension, in accordance with Figure 2111.12, provided that such combustible *trim* or sheathing is not less than ~~12 inches (306 mm)~~ 8 inches (203 mm) from the inside surface of the nearest firebox lining. Where the fireplace opening is 6 square feet (0.6 m2) or larger such combustible or sheathing shall be permitted to abut the masonry fireplace sidewalls and hearth extension provided such combustible or sheathing is not less than 12 inches (305 mm) from the inside surface of the nearest firebox lining.
4. Exposed combustible mantels or *trim* is permitted to be placed directly on the *masonry* fireplace front surrounding the fireplace opening, provided that such combustible materials shall not be placed within 6 inches (153 mm) of a fireplace opening. Combustible material directly above and within 12 inches (305 mm) of the fireplace opening shall not project more than $^{1}/_{8}$ inch (3.2 mm) for each 1-inch (25 mm) distance from such opening. Combustible materials located along the sides of the fireplace opening that project more than $1^{1}/_{2}$ inches (38 mm) from the face of the fireplace shall have an additional clearance equal to the projection.

Reason: This code change is editorial to align the IBC fireplace clearance provisions with those in the IRC.

Referring to "masonry or concrete walls" in Exception 2 can be ambiguous and confusing. What matters is that combustible materials should not be less than 12 inches (305 mm) from the inside surface of the nearest firebox lining. The change in Exception 3 is to be consistent with Section 2111.11 allowing small fireplaces with openings under 6 square feet to have hearth extensions 8 inches beyond the fireplace opening,

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal will not increase or decrease the cost of construction. This change is just a clarification. Refer to reason statement.

S149-25

IBC: 2113.19

Proponents: Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2024 International Building Code

Revise as follows:

2113.19 Chimney clearances. Any portion of a *masonry* chimney located in the interior of the *building* or within the *exterior wall* of the *building* shall have a minimum airspace clearance to combustibles of 2 inches (51 mm). Chimneys located entirely outside the *exterior walls* of the *building*, including chimneys that pass through the soffit or *cornice*, shall have a minimum airspace clearance of 1 inch (25 mm). The airspace shall not be filled, except to provide *fireblocking* in accordance with Section 2113.20.

Exceptions:

1. *Masonry* chimneys equipped with a chimney lining system *listed* and *labeled* for use in chimneys in contact with combustibles in accordance with UL 1777, and installed in accordance with the manufacturer's instructions, are permitted to have combustible material in contact with their exterior surfaces.
2. ~~Where *masonry* chimneys are constructed as part of *masonry* or concrete walls, combustible materials shall not be in contact with the *masonry* or concrete wall less than 12 inches (305 mm) from the inside surface of the nearest flue lining.~~ Masonry chimneys with chimney walls at least 8 inches (203 mm) thick are permitted to have combustible material in contact with their exterior surface.
3. ~~Exposed combustible *trim* and the edges of sheathing materials, such as wood siding, are~~ Combustible materials shall be permitted to abut the *masonry* chimney sidewalls, in accordance with Figure 2113.19, provided that such combustible ~~*trim* or sheathing~~ material is not less than ~~12 inches (305 mm)~~ 8 inches (203 mm) from the inside surface of the nearest flue lining. ~~Combustible material and *trim* shall not overlap the corners of the chimney by more than 1 inch (25 mm).~~

Reason: This code change proposal is primarily to align the IBC chimney clearances with those in the IRC Section R1003.18.

Referring to "masonry or concrete walls" can be ambiguous and confusing. What matters is that combustible materials should not be less than 8 inches (203 mm) from the inside surface of the nearest flue lining. Since we determined that an 8 inch thick masonry wall in contact with combustible framing was safer than a 4 inch wall and 2 inches of airspace, there is no reason to limit the requirement for 8 inch thick chimney walls to "Exposed combustible trim and the edges of sheathing materials, such as wood siding and flooring."

Bibliography: The engineering study at https://www.rumford.com/code/EightInchThickTestReport.pdf supports changing the provisions in this Section as shown in this proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal will not increase or decrease the cost of construction. This change is just a clarification. Refer to reason statement.

S149-25

S150-25

IBC: 2201.3

Proponents: Bonnie Manley, representing AISC (manley@aisc.org)

2024 International Building Code

Revise as follows:

2201.3 Protection against corrosion. ~~The protection of steel~~ Steel members shall be protected against corrosion in accordance with the applicable referenced standards within this chapter.

Reason: Last cycle, Proposal S187-22 successfully reorganized and streamlined Chapter 22. Recent questions received by the AISC Steel Solution Center have indicated some confusion about the simple reference to "protection." Rather than leave it vague and open to interpretation, this proposal clarifies that the steel is to be “protected against corrosion,” which is in keeping with the provision in previous editions of the IBC (specifically, IBC-21 Section 2203.1).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is intended to be an editorial clarification of the existing provisions and is not intended to impact the cost of construction.

S150-25

S151-25

IBC: 2203.1

Proponents: Bonnie Manley, representing AISC (manley@aisc.org)

2024 International Building Code

Revise as follows:

2203.1 General. The design, fabrication, and erection of ~~austenitic and duplex~~ structural stainless steel shall be in accordance with AISC 370.

Reason: This proposal fixes the charging language for the adoption of AISC 370. Specifically, AISC 370 includes precipitation hardening stainless steel for tension members in addition to austenitic and duplex stainless steels. Rather than have IBC include a laundry list of the various types of structural stainless steel, it would be more appropriate to point to AISC 370, where detailed limits on alloys are provided.

The change from “manufacture” to "fabrication" returns the language to that approved in Proposal S187-22 Section 2203.1. AISC 370, Section A1 states that AISC 370 “shall apply to the design, fabrication, and erection of structural stainless steel systems…” The use of “manufacture” is inappropriate in this instance. Please note, this portion of the change has been submitted as possible errata on the 2024 IBC.

AISC makes its standards available to all free of charge at https://www.aisc.org/publications/steel-standards/.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is intended to be an editorial clarification of the existing provisions and is not intended to impact the cost of construction.

Staff Analysis: Note: This proposal reflects staff identified errata for Section 2203.1 (correction of "fabrication" to replace "manufacture")

S151-25

S152-25

IBC: 2303.1.1

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org)

2024 International Building Code

Revise as follows:

2303.1.1 Sawn lumber. Sawn lumber used for load-supporting purposes, including end-jointed, face-glued or edge-glued lumber, machine stress-rated or machine-evaluated lumber, shall be identified by the grade *mark* of a lumber grading or inspection agency that has been *approved* by an *accreditation body* that complies with DOC PS 20 or equivalent. Grading practices and identification shall comply with rules published by an agency approved in accordance with the procedures of DOC PS 20 or equivalent procedures.

Reason: DOC PS 20 establishes the grading and inspection standards for various sawn wood products, which includes face-glued lumber in addition to end-jointed and edge-glued lumber. IBC 2303.1.1 currently refers to end-jointed and edge-glued lumber and does not mention face-glued lumber. This omission may cause confusion regarding its acceptance under the IBC. This proposal aims to clarify that face-glued lumber is indeed permitted alongside the other glued lumber products identified in DOC PS 20.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. Face-glued lumber is already included in DOC PS 20. This change only adds it to a list of sawn lumber products in Section 2303.1.1 to avoid confusion.

S152-25

S153-25

IBC: SECTION 202 (New), 2303.1.1.3 (New), 2303.1.1.3.1 (New), ASTM Chapter 35 (New)

Proponents: Garian Cika, representing City of Eugene

2024 International Building Code

Add new definition as follows:

SALVAGE LUMBER. Sawn lumber that has been previously used in buildings or other structures.

Add new text as follows:

2303.1.1.3 Salvage lumber. *Salvage lumber* shall be free of areas of decay and insect damage. *Salvage lumber* shall be permitted for use in structural applications in accordance with Section 2303.1.1.3.1. *Salvage lumber* that does not meet the provisions of Section 2303.1.1.3.1 shall be permitted for use in non-structural applications.

2303.1.1.3.1 Salvage lumber in structural applications. *Salvage lumber* used in structural applications shall be free of locations where net section has been reduced. Each piece of salvage lumber to be used in structural applications shall be proof loaded in flat-wise, third-point bending in accordance with ASTM D4761 to 2.1 times the reference bending design value, adjusted by the flat use factor, assigned to the selected grade of lumber in the AWC NDS. Pieces of *salvage lumber* that do not exhibit structural failure at a load corresponding to 2.1 times the reference bending design value shall be permitted for use in structural applications.

Exception: *Salvage lumber* identified by an existing *grade mark* in accordance with 2303.1.1 shall be permitted to use 90% of the design values assigned to that grade of sawn lumber in the AWC NDS provided the following conditions are met:

1. The *salvage lumber* is free of locations where net section has been reduced.
2. A visual inspection of the salvage lumber shows no sign of failure.
3. It is known that the *salvage lumber* has not been subjected to sustained exposure to elevated temperatures above 100°F (38°C).

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

ASTM D4761-19 Standard Test Methods for Mechanical Properties of Lumber and Wood-Based Structural Materials

Reason: Research, including studies by the Consortium for the Research on Renewable Industrial Materials (CORRIM 2010), highlights a key advantage of salvage lumber over materials reused like steel and concrete when it comes to energy use and carbon footprint (Lippke et al. 2004, Perez-Garcia et al. 2005). The timber framing industry understood this as early as the 1970s, using salvage lumber from industrial structures for new projects. Over the last 30 years, businesses selling salvage sawn lumber from deconstructed buildings have grown rapidly.

There's a significant opportunity here: since the early 1900s, more than 3 trillion board feet of lumber have been processed in the United States, much of which is still in use today (Steer 1948, Howard 2001). However, current building codes do not appear to specifically recognize the use of salvage sawn lumber, creating inconsistencies in how it's handled on job sites. Some building inspectors may allow salvage sawn lumber because it has a proven track record, while others may reject it outright due to a lack of official guidance administered by code. This uncertainty can be solved by updating codes to reflect the value of this material, permitting salvage sawn lumber to be reused safely.

Bibliography: American Forest & Paper Association (AF&PA). 2012.

National Design Specification (NDS) for Wood Construction. 2024.

ASTM International. 2012. Standard practice for establishing allowable properties for visually-graded dimension lumber from in-grade tests of full-size specimens. ASTM D1990-07. In: Annual Book of Standards. Vol. 4.10. ASTM, West Conshohocken, Pennsylvania.

Bergman, R. D., H. Gu, and R. H. Falk. 2010. Reusing reclaimed framing lumber and flooring in construction: Measuring environmental impact using life-cycle inventory. In: Proceedings of the Forest Products Society 64th International Convention, June 20–21, 2010, Madison, Wisconsin.

Consortium for Research on Renewable Industrial Materials (CORRIM). 2010. Research guidelines for life-cycle inventories. CORRIM, Inc., University of Washington, Seattle. 47 pp.

Falk, R.H., S.C. Cramer, J.E. Evans; 2013, Framing Lumber from Building Removal: How Do We Best Utilize this Untapped Structural Resource?, Feature Article, Forest Products Journal, Vol. 62, No 7/8, pg. 492-499; 2013.
Falk, B. 2009. Wood as a sustainable building material. Forest Prod. J. 59(9):6–12.

Falk, R. H., D. DeVisser, S. Cook, and D. Stansbury. 1999. Military deconstruction: Lumber grade yield from recycling. Forest Prod. J. 49(7):71–79.

Falk, R. H., D. G. Maul, S. M. Cramer, J. Evans, and V. Herian. 2008. Engineering properties of Douglasf ir lumber reclaimed from deconstructed buildings. Research Paper FPL-RP-650. USDA Forest Service, Forest Products Laboratory, Madison, Wisconsin.

Green, D. W. and J. W. Evans. 1988. Mechanical properties of visually graded lumber: Volumes 1–8. PB-88-159-371. US Department of Commerce, National Technical Information Service, Springfield, Virginia.

Howard, J. L. 2001. U.S. timber production, trade consumption, and price statistics 1965 to 1999. Research Paper FPL-RP-595. USDA Forest Service, Forest Products Laboratory, Madison, Wisconsin. 90 pp.

Lippke, B., J. Wilson, J. Perez-Garcia, J. Bowyer, and J. Meil. 2004. CORRIM: Life-cycle environmental performance of renewable building materials. Forest Prod. J. 54(6):13.

Napier, T. R., D. T. McKay, and N. D. Mowry. 2007. A life cycle perspective on recycling construction materials (the most sustainable materials may be the ones we already have). In: Proceedings of the International Conference on Sustainable Construction Materials and Technologies, Y. M. Chun, P. Claisse, T. R. Naik, and E. Ganjian (Eds.), June 11–13, 2007, Coventry, UK; Taylor and Francis, London. ISBN 13: 498 FALK ET AL.978-0-415-44689-1. pp. 563–573.

National Institute of Standards and Technology (NIST). 2010. Voluntary product standard. PS 20-10. NIST, US Department of Commerce, Gaithersburg, Maryland. 50 pp. Perez-Garcia, J., B. Lippke, D. Briggs, J. Wilson, J. Bowyer, and J. Meil. 2005. The environmental performance of renewable building materials in the context of residential construction. Wood Fiber Sci. 37(12):3–17.

Steer, H. B. 1948. Lumber production in the US 1799–1946. Miscellaneous Publication 669. USDA Forest Service, Washington, D.C.

US Environmental Protection Agency (US EPA). 2009. Estimating 2003 building-related construction and demolition materials amounts. US EPA, Washington, D.C. http://www.epa.gov/osw/conserve/imr/ cdm/pubs/cd-meas.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact because sawn lumber is currently allowed by code. This code proposal adds another lumber choice for builders and designers; it is not a requirement to use salvage lumber. Data showing salvage lumber is equal (or less) in cost to non-salvage lumber from Reuse Institute:

Reclaimed Lumber Prices						
From: The Reuse Center, Bellingham, WA	Prices good for week of: 11/18/2024					
From: 'Deconstruction Dave' Bennink, Owner	*antique wood based on rough-sawn finish, like 100 years old or older; Antique is likely Douglas Fir not Hem Fir					
Warehouse phone 360-733-1363		Reuse Center	Reuse Center	Comparison:	Comparison:	
MATERIAL TYPE	Unit Type	Standard utility grade	Antique/rustic*	Lowes Price	Lowes material	
		Price per unit	Price per unit	listed online	description	
2x4	lineal foot	$0.39	$1	$0.54	Hemfir kiln dried	Lowes
2x6	lineal foot	$0.49	$2	$0.83	Hemfir kiln dried	Lowes

2x8	lineal foot	$0.75	$2.50	$1.12	Hemfir kiln dried	Lowes
2x10	lineal foot	$1.00	$3.35	$1.49	Hemfir kiln dried	Lowes
2x12	lineal foot	$1.33	$4.00	$1.86	Premiun Grade Fir	Home Depot
4x4	lineal foot	$0.65	$2.10	1.36	Premium Grade Fir #2	Home Depot
4x6	lineal foot	$1.10	$2.50	$2.04	Premium Grade Fir #2	Home Depot
6x6 treated post	lineal foot	$2.75	$6.25 Untreated	$6.48	Pole barn treated post, rough	
6x8 treated post	lineal foot	$3.75	$9.25 Untreated	$9.18	Pole barn treated post, rough	

NOTE: Standard Utility/framing grade is lumber milled from the 1970s to present date. Antique/rustic lumber was milled 100 years ago or older. There are many boards that fall between those two date sets and their price will fall between the prices listed for reclaimed.

Staff Analysis: A review of the standard proposed for inclusion in the code, ASTM D4761-19 Standard Test Methods for Mechanical Properties of Lumber and Wood-Based Structural Materials, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S153-25

S154-25 Part I

IBC: 2303.4.1.1

Proponents: Greg Greenlee, SBCA, representing SBCA, Technical Director (ggreenlee@sbcacomponents.com); Jay Jones, representing Truss Plate Institute, Executive Director (jpjones@tpinst.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

Revise as follows:

2303.4.1.1 Truss design drawings. The written, graphic and pictorial depiction of each individual truss shall be provided to the *building official* for approval prior to installation. Truss design drawings shall be provided with the shipment of trusses delivered to the job site. Truss design drawings shall include, at a minimum, the following information~~:~~, and for metal plate connected wood trusses, any additional information required to be included on the *truss design drawings* per *ANSI/TPI 1.*

1. ~~Slope or depth, span and spacing.~~
2. ~~Location of all joints and support locations.~~
3. ~~Number of plies if greater than one.~~
4. ~~Required bearing widths.~~
5. ~~Design *loads* as applicable, including:~~
   - 5.1. ~~Top chord *live load*.~~
   - 5.2. ~~Top chord *dead load*.~~
   - 5.3. ~~Bottom chord *live load*.~~
   - 5.4. ~~Bottom chord *dead load*.~~
   - 5.5. ~~Additional *loads* and locations.~~
   - 5.6. ~~Environmental design criteria and *loads* (such as wind, rain, snow, seismic).~~
6. ~~Other lateral *loads*, including *drag strut loads*.~~
7. ~~Adjustments to wood member and metal connector plate design value for conditions of use.~~
8. ~~Maximum reaction force and direction, including maximum uplift reaction forces where applicable.~~
9. ~~Joint connection type and description, such as size and thickness or gage, and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface.~~
10. ~~Size, species and grade for each wood member.~~
11. ~~Truss-to-truss connections and truss field assembly requirements.~~
12. ~~Calculated span-to-deflection ratio and maximum vertical and horizontal deflection for live and total *load* as applicable.~~
13. ~~Maximum axial tension and compression forces in the truss members.~~
14. ~~Required permanent *individual truss member* restraint location and the method and details of restraint and diagonal bracing to be used in accordance with Section 2303.4.1.2.~~

1. Building code used for design.
2. Slope or depth, span and spacing.

3. Location of all joints and support locations.
4. Number of plies if greater than one.
5. Required bearing widths and if wane is restricted in the bearing area.
6. Design loads as applicable, including:
    6.1. Top chord controlling case of *live load*, reduced *live load* if used, snow load, or rain load;
    6.2. Top chord *dead load*;
    6.3. Bottom chord *live load*;
    6.4. Bottom chord *dead load*;
    6.5. Additional loads and locations;
    6.6. Environmental load design criteria (wind speed, snow, rain, seismic, and all applicable factors as required to calculate the truss loads); and
    6.7. Other lateral loads, including *drag strut loads*.
7. Adjustments to wood member and connector design values for conditions of use.
8. Maximum reaction force and direction at each bearing location, including maximum uplift reaction forces where applicable.
9. Joint connector type, manufacturer, size, and thickness or gauge, and the dimensioned location of each connector except where symmetrically located relative to the joint interface.
10. Size, species, and grade for each wood member.
11. Truss-to-truss connection and truss field assembly requirements.
12. Calculated span-to-deflection ratio and/or maximum vertical and horizontal deflection for live load, and for live plus dead load and KCR as applicable.
13. Maximum axial tension and compression forces in the truss members.
14. Fabrication tolerances as applicable.
15. Required permanent individual truss member restraint locations.
16. Truss designer.
17. A note on each *truss design drawing* to install the permanent *truss member lateral restraint* and *truss diagonal braces* in accordance with Section 2303.4.1.2.

S154-25 Part I

S154-25 Part II

IRC: R502.12.4, R802.10.1

Proponents: Greg Greenlee, SBCA, representing SBCA, Technical Director (ggreenlee@sbcacomponents.com); Jay Jones, representing Truss Plate Institute, Executive Director (jpjones@tpinst.org)

2024 International Residential Code

Revise as follows:

R502.12.4 Truss design drawings. *Truss design drawings*, prepared in compliance with Section R502.12.1, shall be submitted to the *building official* and *approved* prior to installation. *Truss design drawings* shall be provided with the shipment of trusses delivered to the job site. *Truss design drawings* shall include, at a minimum, the following information ~~specified as follows:~~, and for metal plate connected wood trusses, any additional information required to be included on the *truss design drawings* per *ANSI/TPI 1*.

1. ~~Slope or depth, span and spacing.~~
2. ~~Location of all joints.~~
3. ~~Required bearing widths.~~
4. ~~Design loads as applicable:~~
   - 4.1. ~~Top chord *live load*.~~
   - 4.2. ~~Top chord *dead load*.~~
   - 4.3. ~~Bottom chord *live load*.~~
   - 4.4. ~~Bottom chord *dead load*.~~
   - 4.5. ~~Concentrated loads and their points of application.~~
   - 4.6. ~~Controlling wind and earthquake loads.~~
5. ~~Adjustments to lumber and joint connector design values for conditions of use.~~
6. ~~Each reaction force and direction.~~
7. ~~Joint connector type and description, such as size, thickness or gage, and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface.~~
8. ~~Lumber size, species and grade for each member.~~
9. ~~Connection requirements for:~~
   - 9.1. ~~Truss-to-girder-truss.~~
   - 9.2. ~~Truss ply-to-ply.~~
   - 9.3. ~~Field splices.~~
10. ~~Calculated deflection ratio, maximum description for live and total load, or both.~~
11. ~~Maximum axial compression forces in the truss members to enable the building designer to design the size, connections and anchorage of the permanent continuous lateral bracing. Forces shall be shown on the truss drawing or on supplemental documents.~~
12. ~~Required permanent truss member bracing location.~~

1. Building code used for design.
2. Slope or depth, span and spacing.
3. Location of all joints and support locations.

4. Number of plies if greater than one.
5. Required bearing widths and if wane is restricted in the bearing area.
6. Design loads as applicable, including:
   6.1 Top chord controlling case of *live load*, reduced *live load* if used, snow load, or rain load;
   6.2 Top chord *dead load*;
   6.3 Bottom chord *live load*;
   6.4 Bottom chord *dead load*;
   6.5 Additional loads and locations;
   6.6 Environmental load design criteria (wind speed, snow, rain, seismic, and all applicable factors as required to calculate the truss loads); and
   6.7 Other lateral loads, including *drag strut loads*.
7. Adjustments to wood member and connector design values for conditions of use.
8. Maximum reaction force and direction at each bearing location, including maximum uplift reaction forces where applicable.
9. Joint connector type, manufacturer, size, and thickness or gauge, and the dimensioned location of each connector except where symmetrically located relative to the joint interface.
10. Size, species, and grade for each wood member.
11. Truss-to-truss connection and truss field assembly requirements.
12. Calculated span-to-deflection ratio and/or maximum vertical and horizontal deflection for live load, and for live plus dead load and KCR as applicable.
13. Maximum axial tension and compression forces in the truss members.
14. Fabrication tolerances as applicable.
15. Required permanent individual truss member restraint locations.
16. Truss designer.
17. A note on each *truss design drawing* to install the permanent lateral restraint and diagonal braces in accordance with the project-specific bracing requirements when they exist or with standard industry details such as BCSI B3 for metal plate connected wood trusses in the absence of specific information by any registered design professional.

R802.10.1 Truss design drawings. *Truss design drawings*, prepared in conformance to Section R802.10.1, shall be provided to the *building official* and *approved* prior to installation. *Truss design drawings* shall be provided with the shipment of trusses delivered to the job site. *Truss design drawings* shall include, at a minimum, the following information~~:~~, and for metal plate connected wood trusses, any additional information required to be included on the *truss design drawings* per *ANSI/TPI 1*.

~~1. Slope or depth, span and spacing.~~

~~2. Location of all joints.~~

~~3. Required bearing widths.~~

~~4. Design loads as applicable.~~

~~4.1. Top chord *live load* (as determined from Section R301.6).~~

~~4.2. Top chord *dead load*.~~

~~4.3. Bottom chord *live load*.~~

~~4.4. Bottom chord *dead load*.~~

~~4.5. Concentrated loads and their points of application.~~

~~4.6. Controlling wind and earthquake loads.~~

~~5. Adjustments to lumber and joint connector design values for conditions of use.~~

~~6. Each reaction force and direction.~~

~~7. Joint connector type and description such as size, thickness or gage and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface.~~

~~8. Lumber size, species and *grade for each member*.~~

~~9. Connection requirements for:~~

~~9.1. Truss to girder-truss.~~

~~9.2. Truss ply to ply.~~

~~9.3. Field splices.~~

~~10. Calculated deflection ratio or maximum description for live and total load.~~

~~11. Maximum axial compression forces in the truss members to enable the building designer to design the size, connections and anchorage of the permanent continuous lateral bracing. Forces shall be shown on the *truss design drawing* or on supplemental documents.~~

~~12. Required permanent truss member bracing location.~~

1. Building code used for design.

2. Slope or depth, span and spacing.

3. Location of all joints and support locations.

4. Number of plies if greater than one.

5. Required bearing widths and if wane is restricted in the bearing area.

6. Design loads as applicable, including:

   6.1. Top chord controlling case of *live load*, reduced *live load* if used, snow load, or rain load;

   6.2. Top chord *dead load*;

   6.3. Bottom chord *live load*;

   6.4. Bottom chord *dead load*;

   6.5. Additional loads and locations;

   6.6. Environmental load design criteria (wind speed, snow, rain, seismic, and all applicable factors as required to calculate the truss loads); and

   6.7. Other lateral loads, including *drag strut loads*.

7. Adjustments to wood member and connector design values for conditions of use.

8. Maximum reaction force and direction at each bearing location, including maximum uplift reaction forces where applicable.

9. Joint connector type, manufacturer, size, and thickness or gauge, and the dimensioned location of each connector except where symmetrically located relative to the joint interface.
10. Size, species, and grade for each wood member.
11. Truss-to-truss connection and truss field assembly requirements.
12. Calculated span-to-deflection ratio and/or maximum vertical and horizontal deflection for live load, and for live plus dead load and KCR as applicable.
13. Maximum axial tension and compression forces in the truss members.
14. Fabrication tolerances as applicable.
15. Required permanent individual truss member restraint locations.
16. Truss designer.
17. A note on each *truss design drawing* to install the permanent lateral restraint and diagonal braces in accordance with the project-specific bracing requirements when they exist or with standard industry details such as BCSI B3 for metal plate connected wood trusses in the absence of specific information by any registered design professional.

Reason: ANSI/TPI 1 is the referenced standard for metal-plate-connected wood trusses. The requirements for information to be included on metal-plate-connected wood trusses are specified in ANSI/TPI 1. Previously this information had been copied from ANSI/TPI 1 and included in the IRC and IBC for wood trusses. ANSI/TPI 1 is on a development cycle that is different than the IBC and IRC causing the potential for conflicting information. Additionally, currently the language in the IRC and the IBC does not match and does not match what is in ANSI/TPI 1.

It should be noted that the language in these sections is not exclusive to metal-plate-connected wood trusses. While it isn't explicitly stated, presumably truss members are permitted to be joined by nails, glue, bolts, timber connectors, or other approved framing devises in addition to metal connector plates. Accordingly, a pointer to ANSI/TPI 1 has been added for metal-plate connected wood trusses to capture any component specific requirements that may be introduced in the referenced standard.

This change will ensure that the information provided in the truss design drawings is consistent between references in the IRC and IBC, and current with the most recent version of ANSI/TPI 1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change proposal eliminates inconsistent information and reduces confusion. There is no impact on the cost of construction.

S154-25 Part II

S155-25

IBC: SECTION 202, 2303.4.1.2, FIGURE 2303.4.1.2 (1), FIGURE 2303.4.1.2(2), FIGURE 2303.4.1.2(3), FIGURE 2303.4.1.2(4), FIGURE 2303.4.1.2(5), 2303.4.1.2.1

Proponents: Greg Greenlee, SBCA, representing SBCA, Technical Director (ggreenlee@sbcacomponents.com); Jay Jones, representing Truss Plate Institute, Executive Director (jpjones@tpinst.org)

2024 International Building Code

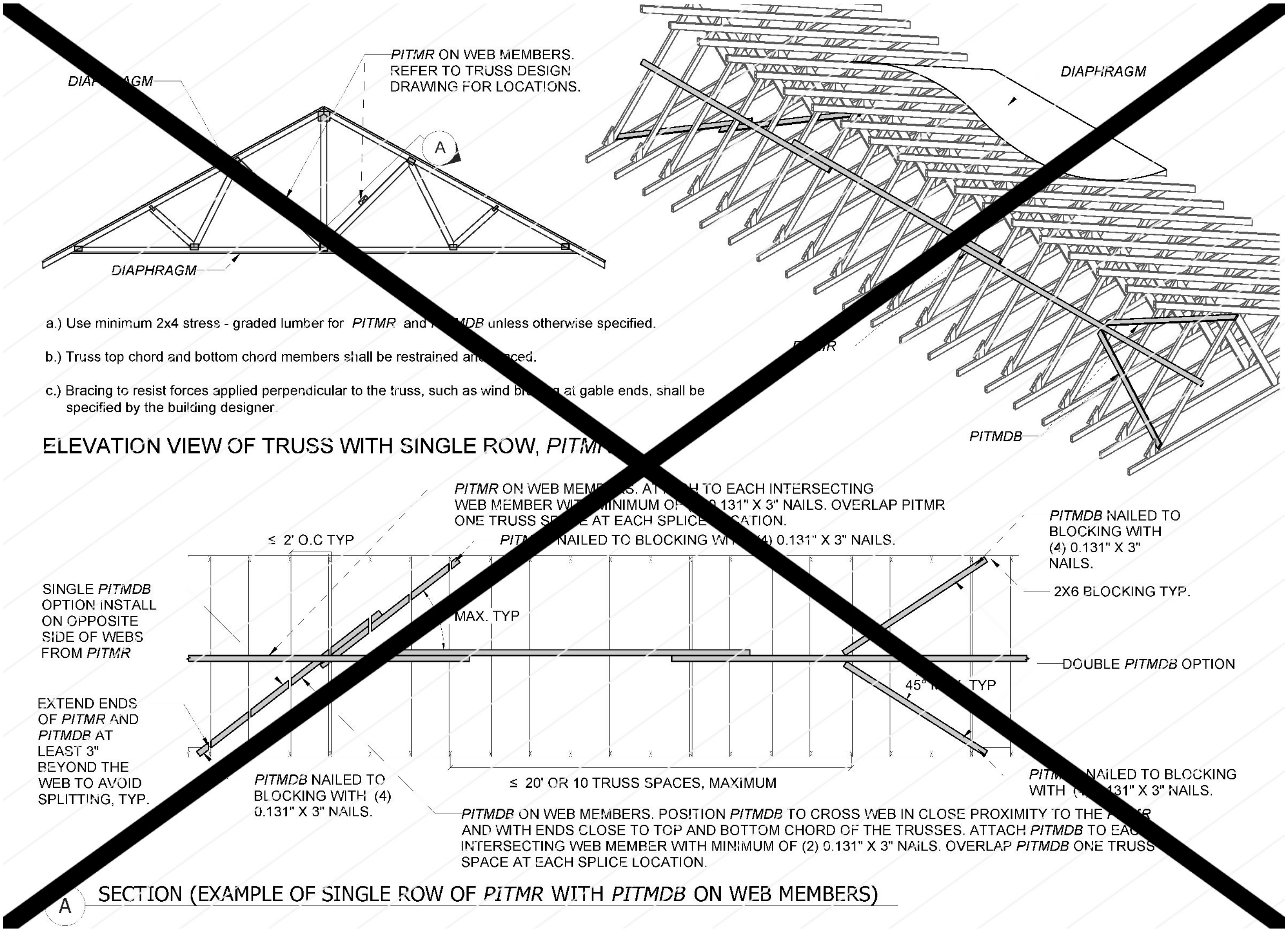
Revise as follows:

[BS] ~~PERMANENT INDIVIDUAL~~ TRUSS ~~MEMBER~~ DIAGONAL BRACING ~~(PITMDB)~~. Structural member or assembly intended to permanently stabilize the ~~*PITMRs*~~ *truss member lateral restraint*.
[BS] ~~PERMANENT INDIVIDUAL~~ TRUSS MEMBER LATERAL RESTRAINT ~~(PITMR)~~. Permanent restraint ~~Restraint~~ that is used to prevent local buckling of an individual truss chord or web member due to ~~because~~ of the axial forces in the *individual truss member.*

2303.4.1.2 Permanent ~~individual~~ truss member lateral restraint ~~(PITMR)~~ and ~~permanent individual~~ truss ~~member~~ diagonal bracing ~~(PITMDB)~~. Where the truss design drawings designate the need for permanent ~~*permanent individual*~~ *truss member lateral restraint*, it shall be accomplished by one of the following methods:

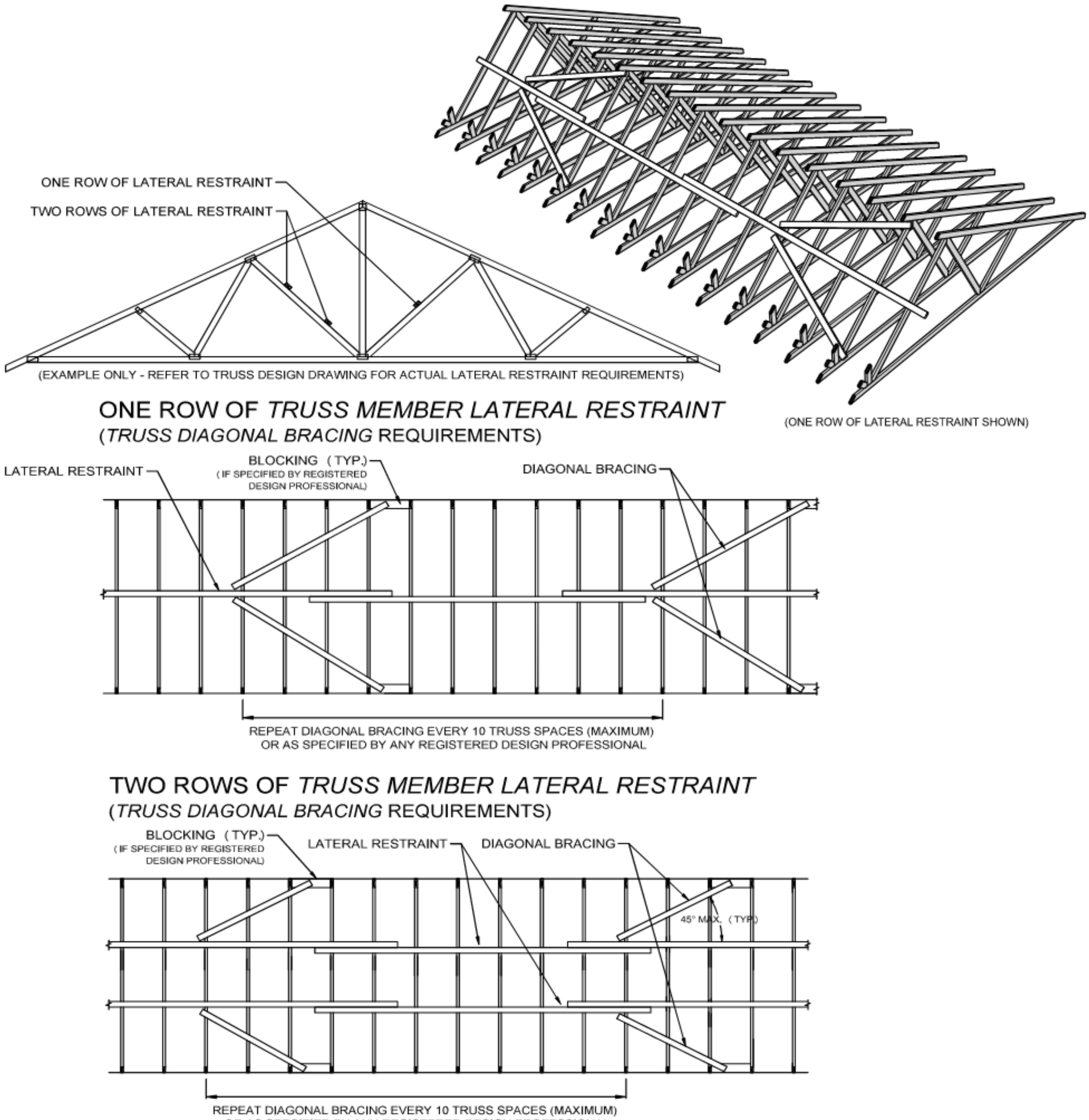
1. ~~*PITMR* and *PITMDB*~~ Permanent *truss member lateral restraint* and *truss diagonal bracing* installed using standard industry lateral restraint and diagonal bracing details in accordance with TPI 1, Section 2.3.3.1.1, accepted engineering practice, or Figures 2303.4.1.2(1) ~~,~~ and (3) ~~, and (5)~~.
2. *Individual truss member* reinforcement in place of the specified lateral restraints (i.e., buckling reinforcement such as T-reinforcement, L-reinforcement, proprietary reinforcement, etc.) such that the buckling of any *individual truss member* is resisted internally by the individual truss. The buckling reinforcement of individual truss members shall be installed as shown on the truss design drawing, on supplemental truss member buckling reinforcement details provided by the truss designer or in accordance with Figure~~s~~ 2303.4.1.2 (2) ~~and (4)~~.
3. A project-specific ~~*PITMR* and *PITMDB*~~ permanent *truss member lateral restraint* and *truss diagonal bracing* design provided by any *registered design professional*.

Delete and substitute as follows:



~~For SI:1 inch = 25.4 mm, 1 foot = 304.8 mm.~~

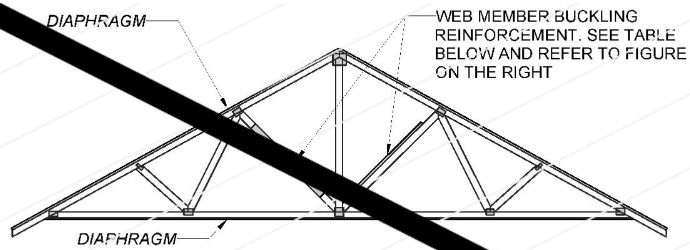
~~FIGURE 2303.4.1.2 (1) PITMR AND PITMDB FOR TRUSS WEB MEMBERS REQUIRING ONE ROW OF PITMR~~



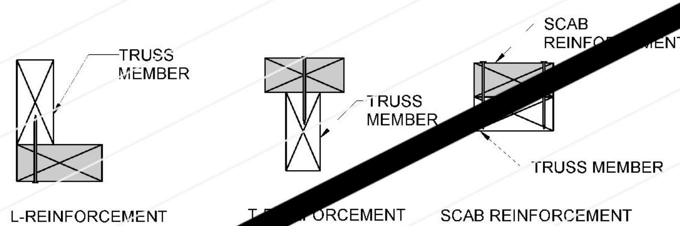
1. Use minimum 2x4 stress-graded lumber for Lateral Restraints and Diagonal Bracing.
2. Attach Lateral Restraints to each intersecting web member with a minimum of (2) 3" x 0.131" nails except use (3) nails where the Diagonal Braces terminate.
3. Attach Diagonal Brace to each intersecting web member with a minimum of (2) 3" x 0.131" nails. Nail to blocking at ends when specified by a registered design professional.
4. Extend ends of Lateral Restraints and Diagonal Braces 3" beyond the web to avoid splitting.
5. Install Diagonal Braces so they terminate in close proximity to the Lateral Restraint and the ends are close to the top and bottom chords.

For SI:1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE 2303.4.1.2 (1) TRUSS MEMBER LATERAL RESTRAINT AND TRUSS DIAGONAL BRACING



ELEVATION VIEW OF L, T OR SCAB REI[illegible]RCEMENT



TYPES OF WEB M[illegible]BER BUCKLING REINFORCEMENT

a.) Truss top chord and bottom chord members shall be restrained and bra[illegible]

b.) Bracing to resist forces applied perpendicular to the truss, such as wind bracing [illegible]ble ends, shall be specifi[illegible] the building designer.

c.) Use the table below unless project specific web member reinforcement is provided on t[illegible] design[illegible]ing or supplemental truss buckling reinforcement details are provided by the truss designer.

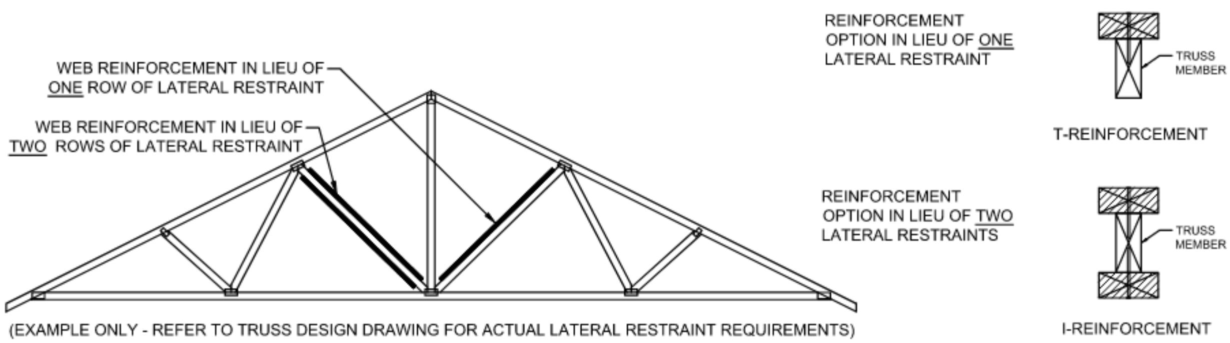
NUMBER OF ROWS OF PITMR SPECIFIED ON WEB MEMBER	SIZE OF TRUSS WEB	TYPE AND SIZE OF WEB REINFORCEMENT¹ FOR T, L OR SC[illegible]	[illegible]RADE OF WE[illegible] REINFORCEMENT	MINIMUM LENGTH OF WEB [illegible]EINFORCEMENT	MINIMUM CONNECTION OF WEB REINFORCEMENT TO WEB
ONE	2x4	2x4	Same species and grade or better than web member	90% of web or extend to within 6" of end of web member, whichever is greater	[illegible]131" x 3") nails at 6" [illegible]center²
	2x6	2x6			
	2x8	2x8			

¹[illegible]aximum allowable web length is 14'

²Attach Scab reinforcement to web with two rows of minimum 0.131" x 3" nails at 6" on-center

~~For SI:1 inch = 25.4 mm, 1 foot = 304.8 mm.~~

~~FIGURE 2303.4.1.2(2) ALTERNATIVE INSTALLATION USING BUCKLING REINFORCEMENT FOR TRUSS WEB MEMBERS IN LIEU OF ONE ROW OF PITMR~~

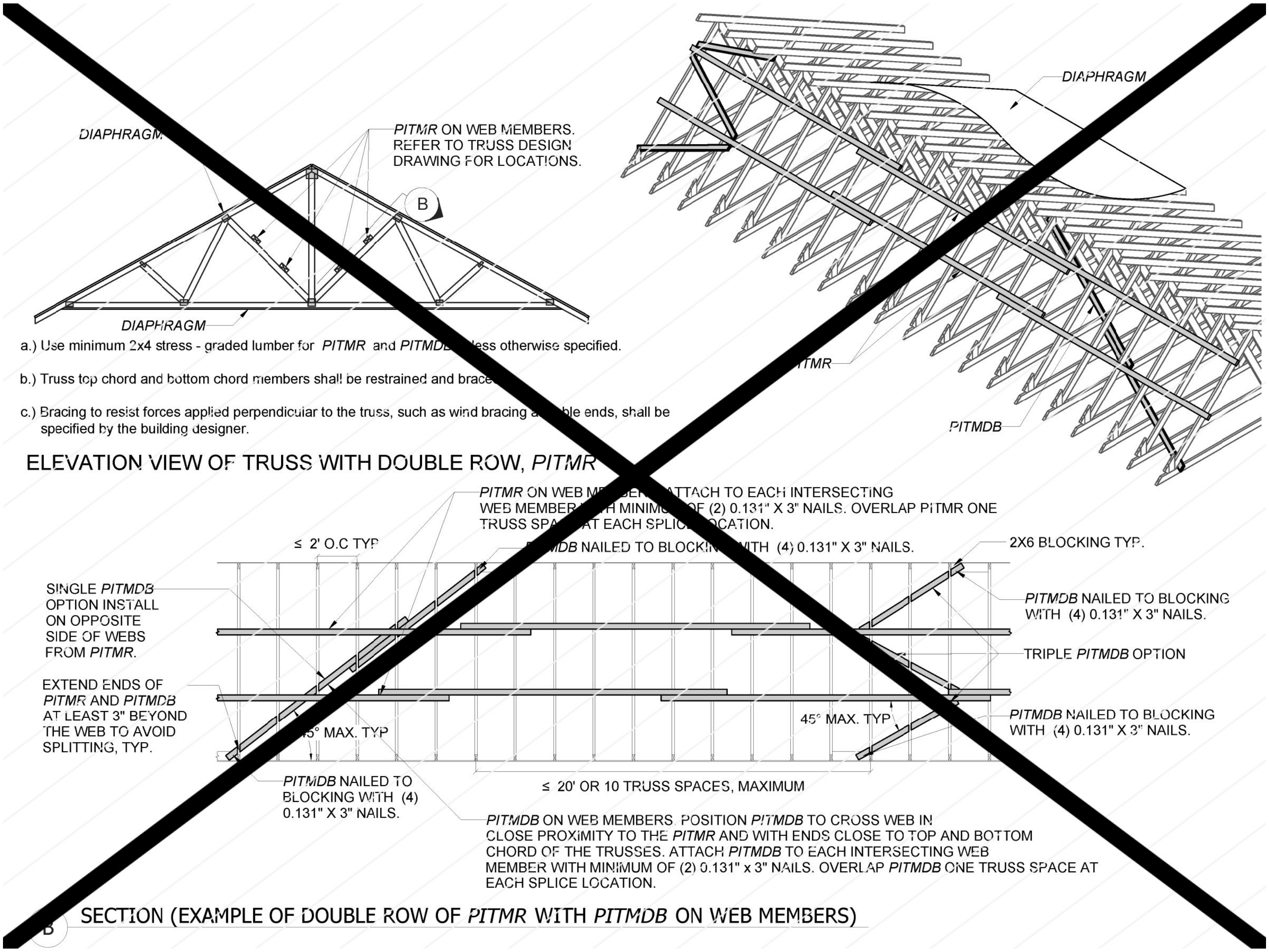


Specified Lateral Restarint	Size of Truss Web	Required Web Reinforcement		Required Grade of Reinforcement	Minimum Length of Reinforcement	Minimum Connection of Reinforcement
						
1 Row	2x4	2x4	---	Same species and grade or better than web member	90% of web or extend to within 6" of end of web member, whichever is greater	3" x 0.131" nails at 6" o.c.
	2x6	2x6	---			
	2x8	2x8	---			
2 Rows	2x4	---	2-2x4			
	2x6	---	2-2x6			
	2x8	---	2-2x8			

1. Table is applicable for webs up to a maximum length of 14 ft.
2. Use the reinforcements shown on this table unless otherwise specified on the truss design drawing or by any registered design professional.

For SI:1 inch - 25.4 mm, 1 foot = 304.8 mm.

FIGURE 2303.4.1.2(2) WEB REINFORCEMENT OPTION IN LIEU OF TRUSS MEMBER LATERAL RESTRAINTS

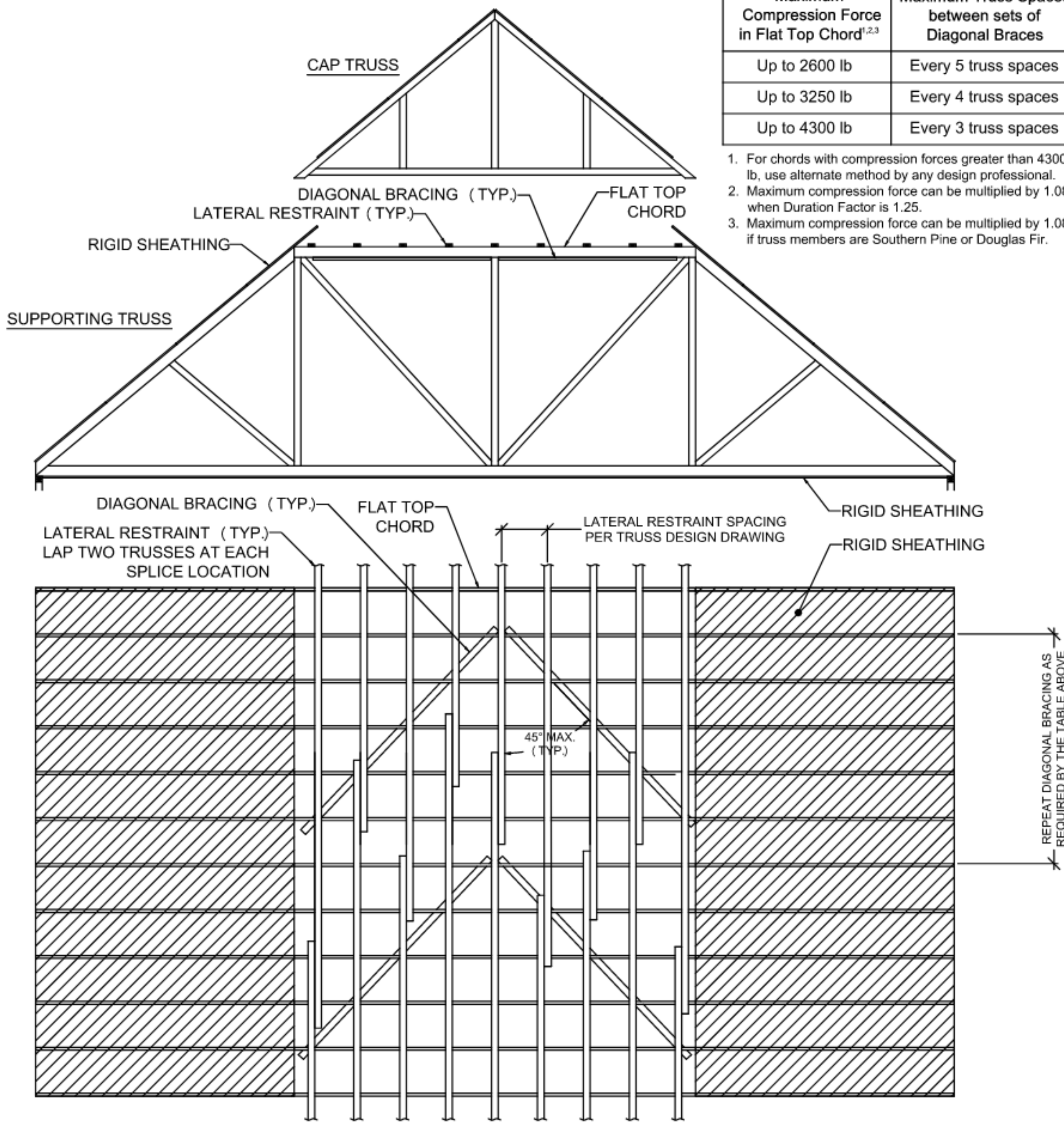


~~For SI:1 inch = 25.4 mm, 1 foot = 304.8 mm.~~

~~FIGURE 2303.4.1.2(3) PITMR AND PITMDB FOR TRUSS WEB MEMBERS REQUIRING TWO ROWS OF PITMR~~

Maximum Compression Force in Flat Top Chord[1,2,3]	Maximum Truss Spaces between sets of Diagonal Braces
Up to 2600 lb	Every 5 truss spaces
Up to 3250 lb	Every 4 truss spaces
Up to 4300 lb	Every 3 truss spaces

1. For chords with compression forces greater than 4300 lb, use alternate method by any design professional.
2. Maximum compression force can be multiplied by 1.087 when Duration Factor is 1.25.
3. Maximum compression force can be multiplied by 1.085 if truss members are Southern Pine or Douglas Fir.



1. Use minimum 2x4 stress-graded lumber for Lateral Restraints and Diagonal Bracing.
2. Attach Lateral Restraints to each intersecting chord member with a minimum of (2) 3" x 0.131" nails.
3. Attach Diagonal Braces to each intersecting chord member with a minimum of (3) 3" x 0.131" nails.
4. Extend ends of Lateral Restraints and Diagonal Braces 3" beyond chords to avoid splitting.

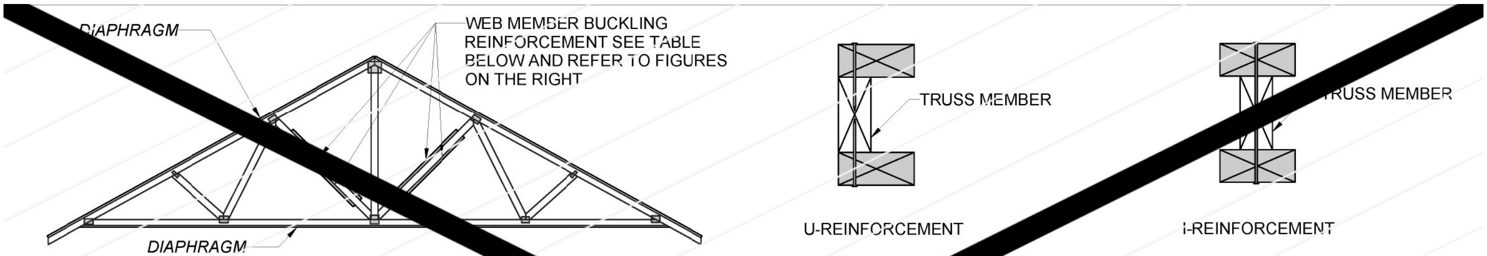
FIGURE 2303.4.1.2 (3)
TRUSS MEMBER LATERAL RESTRAINT AND TRUSS DIAGONAL BRACING FOR FLAT TOP CHORD PORTION OF PIGGYBACK TRUSS ASSEMBLY

For SI:1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE 2303.4.1.2(3) TRUSS MEMBER LATERAL RESTRAINT AND TRUSS DIAGONAL BRACING FOR FLAT TOP CHORD

PORTION OF PIGGYBACK TRUSS ASSEMBLY

Delete without substitution:



ELEVATION VIEW OF I OR U REINFORCEMENT

TYPES OF WEB MEMBER BUCKLING REINFORCEMENT

a.) Truss top chord and bottom chord members shall be restrained and braced.

b.) Bracing to resist forces applied perpendicular to the truss, such as wind bracing at gable ends, shall be specified by the building designer.

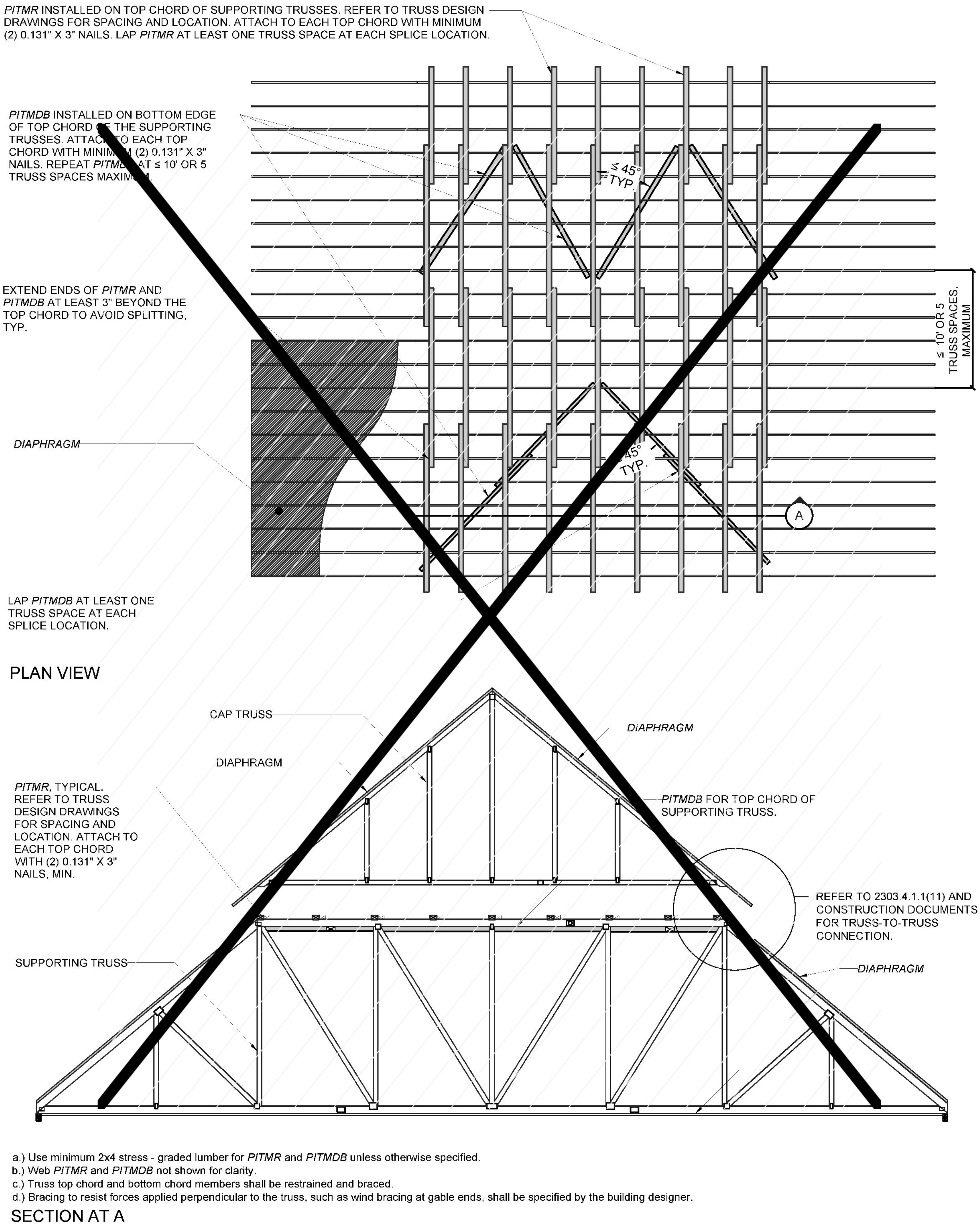
c.) Use the table below unless project specific web member reinforcement is provided on the truss design drawing or supplemental truss buckling reinforcement details are provided by the truss designer.

NUMBER OF ROWS OF PITMR SPECIFIED ON WEB MEMBER	SIZE OF TRUSS WEB	TYPE AND SIZE OF WEB FOR I OR U REINFORCEMENT[1]	GRADE OF WEB REINFORCEMENT	MINIMUM LENGTH OF WEB REINFORCEMENT	MINIMUM CONNECTION OF WEB REINFORCEMENT TO WEB
TWO	2x4	(2) -2x4	Same species and grade or better than web member	90% of web or extend to within 6" of end of web member, whichever is greater	(0.131" x 3") nails at 6" on-center
	2x6	(2) -2x6			
	2x8	(2) -2x8			

[1]Maximum allowable web length is 14'

~~For SI:1 inch = 25.4 mm, 1 foot = 304.8 mm.~~

~~FIGURE 2303.4.1.2(4) ALTERNATIVE INSTALLATION USING BUCKLING REINFORCEMENT FOR TRUSS WEB MEMBERS IN LIEU OF TWO ROWS OF PITMR~~



~~For SI:1 inch = 25.4 mm, 1 foot = 304.8 mm.~~

~~FIGURE 2303.4.1.2(5) PITMR AND PITMDB FOR FLAT PORTION OF TOP CHORD IN A PIGGYBACK ASSEMBLY~~

Delete and substitute as follows:

~~**2303.4.1.2.1 Trusses installed without a diaphragm.** Trusses installed without a *diaphragm* on the top or bottom chord shall require a project specific *PITMR* and *PITMDB* design prepared by a *registered design professional.*~~

~~**Exception:** Group U occupancies.~~

<u>**2303.4.1.2.1 Trusses installed without continuous wood or gypsum panels bracing the truss chords.** Truss top chords not braced with continuous wood structural panels fastened per Table 2304.10.2 and truss bottom chords not braced with gypsum panel product fastened per Table 2508.1 or continuous wood structural panels fastened per Table 2304.10.2 shall require a project specific permanent *truss member lateral restraint* and *truss diagonal bracing* design prepared by a *registered design professional.*</u>

<u>**Exceptions:**</u>

1. <u>Group U occupancies.</u>
2. <u>Floor trusses without compression forces in the bottom chord</u>
3. <u>Piggyback base truss top chords and other trusses with partially over-framed chords</u>

Reason: This proposal is intended to address and clarify a few issues related to permanent restraint and bracing for wood trusses. Each item is described below.

<u>Nomenclature Consistency</u>

Between TPI 1, SBCA's BCSI and the IBC multiple terms and acronyms have been adopted to describe a member used to restrain a truss web and the members used to collect the restraining forces and resolve them. As an industry we are working to consolidate the terminology across all these documents.

This past year members of the Structural Building Components Association (SBCA), Truss Plate Institute (TPI) and National Framers Council (NFC) formed a task group to review and update the Building Component Safety Information (BCSI) document. During these meetings the task group discussed and determined that the terms 'lateral restraint' and 'diagonal bracing' are the most widely used and best understood within the industry. PITMR and PITMDB are not widely considered to be part of the truss industry's vernacular. When these terms were added to the IBC in 2018 it was an attempt to better describe the terminology. We have found that this has not happened as intended.

To maintain clarity in the code the terms 'truss member lateral restraint' and 'truss diagonal bracing' were added. These will replace PITMR and PITMD in the definitions, Section 2303.4.1.2 and 2303.4.1.2.1, and Figures 2303.4.1.2 (1) and (3).

The updated version of BCSI uses the terms 'lateral restraint' and 'diagonal bracing'. When ANSI/TPI 1 is up for its next review a similar terminology consolidation review will occur with the intention to match what has been used in ANSI/TPI 1 and proposed in this modification. Adding these defined terms and modifications to these sections and figures were made to use these terms consistently.

<u>Consolidation and Correction in Figures</u>

Figure 2303.4.1.2 (1) was combined with Figure 2303.4.1.2 (3), and Figure 2303.4.1.2 (2) was combined with Figure 2303.4.1.2 (4). These figures were also modified to replace the use of PITMR and PITMBD with the terms 'lateral restraint' and 'diagonal bracing'. The diagonal brace spacing is shown incorrectly in Figures 2303.4.1.2 (1) and (3) which has been corrected in the new Figure 2303.4.1.2 (1). Finally, nailing requirements for the lateral restraint and diagonal brace members were clarified.

<u>Figures 2303.4.1.2 (1) and (3)</u>

In both Figures 2303.4.1.2(1) and (3) the single brace option has been removed with a preference for the double brace option that provides more capacity with the prescriptive nailing requirements. The change coincides with recement modifications to the BCSI document.

The note in the current Figures 2303.4.1.2(1) and (3) requiring blocking at the ends of the diagonal braces has been revised to indicate that blocking is only required when specified by a registered design professional. This change was made because the prescriptive conditions addressed by this detail do not inherently require blocking at these locations. However, blocking may be required if the bracing is designed by a registered design professional and a different bracing solution is specified. The new Figure 2303.4.1.2(1) shows the blocking and includes a note regarding the registered design professional.

For the condition currently shown in Figure 2303.4.1.2 (1) and (3), and in the proposed version, the bracing force at the joint where the blocking is specified is limited by the prescriptive two-nail connection of the lateral restraint to the web (three-nail connection in the proposed version), where the diagonal braces terminate. This bracing force is distributed equally between the two diagonal braces and transferred to the joint where blocking is shown. Therefore, using this detail, the maximum force that can be transferred to that joint is low and field performance confirms that this low force can be effectively transferred without blocking.

Figures 2303.4.1.2 (2) and (4)

The web reinforcing tables in Figures 2303.4.1.2 (2) and (4) were combined and revised by removing the 'L', 'U', and scab reinforcement options, matching revisions made to the latest version of BCSI. Although, the 'L', 'U', and scab reinforcements are viable options, they are not always equivalent to the 1 or 2 rows of CLRs as indicated in the current table. The condensed table is shown in the new Figure 2303.4.1.2 (2).

Figure 2303.4.1.2 (5)

The permanent restraint and bracing requirements in Figure 2303.4.1.2 (5) were enhanced to limit diagonal brace spacing as a function of the compressive force in the flat portion of the base truss top chord. Field observations have shown that these are critical elements, and it is important that the connections in the bracing and restraint system are not over stressed. A table has been added providing maximum diagonal bracing spacing requirements for different levels of compression forces in the flat portion of the top chord member. Also, an upper applicability limit for the prescriptive detail has been added so that it is not used in conditions that may overstress the prescribed connections.

Use of the Term 'Diaphragm'

The defined term 'diaphragm' was replaced in Section 2303.4.1.2.1 with 'continuous wood panel' or 'gypsum panel' sheathing to underscore that a diaphragm is not necessarily needed to brace the chord of a truss. A building designer may opt to use a diaphragm, but it isn't a requirement to brace the truss. Continuous sheathing is the term used in ANSI/TPI 1, DSB and BCSI. With the addition of the terms 'wood structural panel' and gypsum panel product' references for required fastening for each of these added.

Added Exceptions

Two exceptions were added to clarify where the code provision does not apply and a project specific permanent restraint and bracing plan is not required. First, Exception 2 was added for when a floor truss is not subject to compression forces in the bottom chord, and buckling isn't a concern. Exception 3 clarifies that the provision does not apply to piggyback base truss top chords and other trusses with partially over-framed chords where there are other controlling requirements, such as the new Figure 2303.4.1.2 (3).

Bibliography: *National Design Standard for Bracing Metal Plate Connected Wood Trusses* (DSB-22), TPI
Building Component Safety Information Guide to Good Practice for Handling, Installing, Restraining and Bracing of Structural Building Components (BCSI-2025), SBCA

Cost Impact: Increase

Estimated Immediate Cost Impact:

Terminology Changes

The terminology changes in this proposal are editorial.

Cost Impact: **NONE**

Reference to a "Diaphragm"

The proposed change clarifies that "rigid sheathing" is required to brace the truss chords rather than referencing a "diaphragm." This is not a change in policy but rather a correction to align the code language with standard industry practices. Historically, diaphragms have not been explicitly designed to brace truss chords, and current construction methods already rely on rigid sheathing for this purpose. Therefore, this proposal does not introduce any changes to typical construction practices. Instead, it ensures the model code is technically accurate and eliminates potential confusion during code enforcement.

Cost Impact: **NONE**

Change in Blocking Guidance for Diagonal Bracing for Truss Webs

The current Figures 2303.4.1.2 (1 and 3) include a note requiring blocking at the ends of all diagonal braces. The proposed change updates this requirement, specifying that blocking is only necessary when indicated by a Registered Design Professional. Truss designs utilizing the prescriptive methods outlined in these figures do not require blocking under this change. As a result, costs will decrease for conditions where this prescriptive method is used (see "*Blocking Cost Justification*" below for cost decrease calculations).

Cost Impact: **DECREASE $0.03/sq ft**

<u>Change to Diagonal Brace Frequency for Truss Webs</u>

In Figures 2303.4.1.2 (1 and 3) the proposed change adjusts the dimension used to specify the spacing between sets of diagonal bracing. The dimension will now reflect the distance between lateral restraint anchor points rather than to the end of the diagonal brace. This revision reduces the allowable spacing between sets of diagonal bracing from 26 feet on center (effectively) to 20 feet on center. As a result, this change will lead to a slight increase in construction costs (see "Web Diagonal Brace Cost Justification" below for cost increase calculations).

Cost Impact: **INCREASE $0.01/sq ft.**

-

<u>Revisions to the Web Reinforcement Tables - Figures 2303.4.1.2(2 and 4)</u>

The proposed changes to these tables involve removing two of the four options for web reinforcement. Since the remaining two alternatives are equivalent in terms of installation cost, these revisions will not impact overall construction costs.

Cost Impact: **NONE**

<u>Change to Diagonal Brace Frequency for Piggyback Trusses</u>

This proposal introduces guidance for the required spacing of diagonal brace sets in piggyback trusses. Currently, Figure 2304.1.2(5) prescriptively requires diagonal brace sets every 10 feet for <u>all</u> conditions and is dimensioned to the end of the Diagonal Brace set. The proposed change adjusts the brace set frequency based on the compression force in the flat top chord and is dimensioned between anchor points. As a result, closer spacing will be required in certain cases where the compression force is high in the flat top chord, leading to a slight increase in construction costs for these specific conditions (see "Piggyback Diagonal Brace Cost Justification" below for cost increase calculation).

Cost Impact: **INCREASE 0.04/sq ft.** (where piggyback trusses are used that have high compression forces)

Estimated Immediate Cost Impact Justification (methodology and variables):

<u>Blocking Cost Justification</u>

Assumptions

1. A typical 40 ft span truss requires, on average, 2 Lateral Restraints.
2. Diagonal Bracing is required every 20 ft along each line of Lateral Restraint. (This results in 4 Diagonal Braces every 20 ft.)
3. Each Diagonal Brace requires 1 Block.

Calculation of Blocks per Square Foot

For a 40 ft x 20 ft area (800 sq ft):
4 Blocks are needed per 800 sq ft. or 4/800 = **0.005 Blocks /sq ft.**

Material Cost

1. Size of one Block: 24 inches (2 ft) long.
2. Cost of Blocking Material: **$1.00 per 24-inch block** (2x6 SPF #1/#2) (*)

Labor Rate

1. Framer Rate: $50/hour (*)
2. Time to install one Block: 5 minutes (or 1/12 of an hour)

Labor Cost to install one block:

$50/hr. /12 = **$4.17 /Block**

Total Installed Cost per Block

Material Cost + Labor Cost = $1.00 + $4.17 = **$5.17/Block**

Total Installed Cost per Square Foot

Since 1 block covers 200 sq ft:

$5.17/200 sq ft = **$0.03/sq ft.**

Summary

- Material Cost per Block: **$1.00**
- Labor Cost per Block: **$4.17**
- Total Installed Cost per Block: **$5.17**
- Total Installed Cost per Square Foot: **$0.03/sq ft**

** The cost estimates for material and labor were confirmed as reasonable values by a large truss manufacturing company located in Illinois.*

Web Diagonal Brace Cost Justification

Assumptions

1. A typical 40 ft span truss requires, on average, 2 Lateral Restraints.
2. Currently in 2024 IBC, Diagonal Bracing is required every **26 ft** (effectively) along each line of Lateral Restraint
3. It is **proposed** to correct this figure to show Diagonal Bracing required every **20 ft** along each line of Lateral Restraint.

Calculation of Diagonal Brace Sets per Square Foot

Current:

For a 40 ft x 26 ft area (1040 sq ft):

Two Diagonal Brace Sets are needed per 1040 sq ft. or 2/1040 = **0.00192 Diagonal Brace Sets /sq ft.**

Proposed:

For a 40 ft x 20 ft area (800 sq ft):

Two Diagonal Brace Sets are needed per 800 sq ft. or 2/800 = **0.00250 Diagonal Brace Sets /sq ft.**

Material Cost

1. One Diagonal Brace assumed to be 10 ft long
2. Cost of Diagonal Brace material: **$4.00 per 10 ft** board (2x4 SPF #1/#2) (*)

2 Diagonals in each set = 2 x $4.00 = **$8.00** / **Diagonal Brace Set**

Labor Cost

1. Framer Rate: **$50/hour**(*)
2. Time to cut and install one Diagonal Brace Set: 10 minutes (or 1/6 of an hour)

$50/hr. /6 = **$8.33** / **Diagonal Brace Set**

Total Installed Cost per Diagonal Brace Set

Material Cost + Labor Cost = $8.00 + $8.33 = **$16.33**/ **Diagonal Brace Set**

Change in Cost per Square Foot

Current:

$16.33 x 0.00192 = $0.0314/ sq ft.

Proposed:

$16.33 x 0.00250 = $0.0408/ sq ft.

Difference:

$0.0408 – $0.0314 = $0.0094 (**About 1 cent /sq ft**. increase)

* *The cost estimates for material and labor were confirmed as reasonable values by a large truss manufacturing company located in Illinois.*

Piggyback Diagonal Brace Cost Justification

Assumptions

1. A typical 40 ft span piggyback truss requires 4 Diagonal Braces to form one Brace Set.
2. Currently in 2024 IBC, Diagonal Brace Sets are required every **10 ft** throughout the run or trusses.
3. It is **proposed** to decrease the spacing between Diagonal Bracing sets in certain cases (high force flat top chord members) to as little as every **6 ft**.

Calculation of Diagonal Brace Sets per Square Foot

Current:

For a 40 ft x 10 ft area (400 sq ft):

One Diagonal Brace Set per 400 sq ft. or 1/400 = **0.00250 Diagonal Brace Sets /sq ft.**

Proposed for certain conditions:

For a 40 ft x 6 ft area (240 sq ft):

One Diagonal Brace Set per 240 sq ft. or 1/240 = **0.0042 Diagonal Brace Sets /sq ft.**

Material Cost

1. One Diagonal Brace in the set assumed to be 6 ft long
2. Cost of Diagonal Brace material: **$3.00 per 6 ft** board (2x4 SPF #1/#2) (*)

4 Diagonals in each Set = 4 x $3.00 = **$12.00 / Diagonal Brace Set**

Labor Cost

1. Framer Rate: **$50/hour** (*)
2. Time to cut and install one Diagonal Brace Set: 12 minutes (or 1/5 of an hour)

$50/hr. /5 = **$10.00 / Diagonal Brace Set**

Total Installed Cost per Diagonal Brace Set

Material Cost + Labor Cost = $12.00 + $10.00 = **$22.00/ Diagonal Brace Set**

Change in Cost per Square Foot

Current:

$22.00 x 0.00250 = $0.055/ sq ft.

Proposed:

$22.00 x 0.00420 = $0.092/ sq ft.

Difference:

\$0.092 – \$0.055 = **\$0.037** (**About 4 cents /sq ft**. increase in the worst conditions)

** The cost estimates for material and labor were confirmed as reasonable values by a large truss manufacturing company located in Illinois.*

S155-25

S156-25

IBC: 2303.4.1.2.2 (New)

Proponents: Greg Greenlee, SBCA, representing SBCA, Technical Director (ggreenlee@sbcacomponents.com); Jay Jones, Truss Plate Institute, representing Truss Plate Institute, Executive Director (jpjones@tpinst.org)

2024 International Building Code

Add new text as follows:

2303.4.1.2.2 Truss Bracing Inspections. Permanent *truss member lateral restraint* and *truss diagonal bracing* to be inspected during the framing inspection per section 110.3.4.

Reason: The proposal clarifies that permanent truss member lateral restraint and truss diagonal bracing inspections should be included as part of the framing inspection.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Section 110.3.4 already provides for framing inspections.

S156-25

S157-25

IBC: 2303.4.1.4.1

Proponents: Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com); Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org)

2024 International Building Code

Revise as follows:

2303.4.1.4.1 Truss design drawings. Where required by ~~the *registered design professional*, the *building official* or~~ the statutes of the *jurisdiction* in which the project is to be constructed, each individual truss design drawing shall bear the seal and signature of the registered design professional serving as the the truss designer.

Exceptions:

1. Where a cover sheet and truss index sheet are combined into a single sheet and attached to the set of truss design drawings, the single cover/truss index sheet is the only document required to be signed and sealed by the truss designer.
2. Where a cover sheet and a truss index sheet are separately provided and attached to the set of truss design drawings, the cover sheet and the truss index sheet are the only documents required to be signed and sealed by the truss designer.

Reason: The revised wording reflects the single legally controlling element regarding professional practice requirements: the laws applicable in the jurisdiction. When laws of the jurisdiction permit someone other than a registered design professional to prepare the truss design drawings, then a requirement for signed and sealed drawings is not only inappropriate but is contrary to state law. Registered design professionals and building officials are not authorized to modify the provisions of state law.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed modification expresses the controlling nature of state professional regulations and thereby serves to clarify the intent of the subsection.

S157-25

S158-25

IBC: 2303.4.6, 2303.4.7, 2308.11.12

Proponents: Greg Greenlee, SBCA, representing SBCA, Technical Director (ggreenlee@sbcacomponents.com); Jay Jones, representing Truss Plate Institute, Executive Director (jpjones@tpinst.org)

2024 International Building Code

Revise as follows:

2303.4.6 TPI 1 specifications. In addition to Sections 2303.4.1 through 2303.4.5, the design, manufacture and quality criteria ~~assurance~~ of metal-plate-connected wood trusses shall be in accordance with TPI 1 with quality assurance audits performed by an *approved* third-party agency. Job-site inspections shall be in compliance with Section 110.4, as applicable.

2303.4.7 Truss quality assurance. Trusses not part of a manufacturing process in accordance with either Section 2303.4.6 or a referenced standard, which provides requirements for quality control inspections and for quality assurance audits done under the supervision of ~~a~~ an approved third-party quality assurance ~~control~~ agency, shall be manufactured in compliance with Sections 1704.2.5 and 1705.5, as applicable.

2308.11.12 Wood trusses. The design, manufacturer and quality requirements of w~~W~~ood trusses shall be ~~designed~~ in accordance with Section 2303.4. Connection to *braced wall lines* shall be in accordance with Section 2308.10.7.2.

Reason: The modifications clarify the quality requirements for trusses manufactured that are not part of a process in accordance with TPI 1 or another referenced standard should include both quality control inspections and quality assurance audits not just quality control. The revised language also coordinates the quality requirements with the language in with TPI 1 and used in the industry.

There is confusion in the industry about the quality requirements, the difference between quality control and quality assurance, and if third-party quality assurance audits are required. This language will clarify these items and make consistent requirements.

Additionally, the modifications clarify that quality assurance audits performed must be done by an approved third-party agency.

As written the section 2308.11.12 only references the design requirements of Section 2303.4. The modification clarifies that it shall include the design, manufacturer and quality requirements. This revised language is consistent with the proposed modifications to Section 2303.4.6 and 2303.4.7, and is consistent with TPI 1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The modifications clarify the current code requirements. No new requirements are added.

S158-25

S159-25

IBC: 1402.11 (New), 2304.3.3, 2304.3.3.1 (New), 2510.8 (New)

Proponents: Mellisa Mooren, representing Self (mmooren@skyeenv.com); Emily Lorenz, representing International Institute of Building Enclosure Consultants (IIBEC) (emilyblorenz@gmail.com)

2024 International Building Code

Add new text as follows:

1402.11 Accommodation of Framing Shrinkage. Exterior cladding systems shall be designed and constructed to accommodate vertical movements associated with shrinkage and compression.

Revise as follows:

2304.3.3 Shrinkage. Wood walls and bearing partitions shall not support more than two floors and a roof unless an analysis satisfactory to the *building official* shows that shrinkage of the wood framing will not have adverse effects on the *structure* or any plumbing, electrical or mechanical systems, exterior cladding systems, or other equipment installed therein due to excessive shrinkage or differential movements caused by shrinkage. The analysis shall show that the roof drainage system and the foregoing systems or equipment will not be adversely affected or, as an alternate, such systems shall be designed to accommodate the differential shrinkage or movements.

Add new text as follows:

2304.3.3.1 Exterior cladding. The exterior cladding system shall be designed and installed to prevent adverse effects to cladding materials. Provisions shall be made to protect cladding systems from damage resulting from vertical movements associated with shrinkage and compression of the wood framing.

2510.8 Accommodation of Framing Shrinkage. Exterior cladding systems shall be designed and constructed to accommodate vertical movements associated with shrinkage and compression**.**

Attached Files

- **Case study_5.pdf**
  https://www.cdpaccess.com/proposal/11244/35109/files/download/8845/
- **Case study_4.pdf**
  https://www.cdpaccess.com/proposal/11244/35109/files/download/8844/
- **Case study_3.pdf**
  https://www.cdpaccess.com/proposal/11244/35109/files/download/8843/
- **Case study_2.pdf**
  https://www.cdpaccess.com/proposal/11244/35109/files/download/8842/
- **Case study_1.pdf**
  https://www.cdpaccess.com/proposal/11244/35109/files/download/8841/

Reason: The intention of this code change proposal is to ensure that the cladding and structure designs are coordinated. The building enclosure is an important part of ensuring design loads are resisted, occupants are comfortable, and energy performance is achieved. Building enclosure consultants have been involved in numerous cases where differential wood shrinkage is not adequately considered in the design of the building enclosure system, which has been documented to cause significant damages to building envelope components, resulting in premature failure of the building enclosure.

Wood shrinkage is the dimensional change in wood associated with a change in moisture content, and it can be well over 1 in. on buildings that are four to six stories tall. Wood changes dimension in three directions: longitudinal, radial, and tangential. The tangential direction is the most significant, and the framing at floor lines often includes wood bands that are oriented such that the tangential shrinkage is vertical.

The *International Building Code* requires a shrinkage analysis for wood buildings greater than two stories tall, but the relationship between this analysis and the effect on exterior cladding systems is often ignored or misunderstood by design professionals. This code change highlights that exterior cladding systems need to be evaluated for shrinkage-related damage, similar to existing code requirements for plumbing, electrical, or mechanical systems. It also adds a pointer in Chapter 14 to ensure that the connection between wood shrinkage and exterior cladding systems is made.

Bibliography: McClain, Richard, and Steimle, Doug. 2017. “Accommodating Shrinkage in Multi-Story Wood-Frame Structures,” WW-WSP-10, Washington, D.C: Woodworks. https://www.woodworks.org/wp-content/uploads/wood_solution_paper-Accomodating-Shrinkage.pdf

French, Warren R. 2020. “Detailing Specific Cladding Requirements for Mid-Rise Wood-Framed Buildings,” Proceedings of the IIBEC 2020 Virtual International Convention and Trade Show, June 12-14, 2020, pp. 110-119, Raleigh, N.C.: International Institute of Building Enclosure Consultants (IIBEC). Wetherholt, Ray, and Hodgin, Derek. 2021. “Got Shrinkage? Why Wood Shrinkage Analysis is Required by the Code.” IIBEC Interface, January. Raleigh, NC: IIBEC.

Martin, Zeno, and Anderson, Eric. 2012. “A Case Study: Multistory Wood Frame Shrinkage Effects on Exterior Deck Drainage.” Structure. Chicago, IL: National Council of Structural Engineer Associations (NCSEA).

Siliznoff, Tammy. 2023. “Building Enclosure Design to Accommodate Wood Shrinkage.” Structure. Chicago, IL: NCSEA.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost implication associated with this proposed code revision. Specifically, the existing code already includes a requirement to consider the vertical movements associated with wood frame shrinkage. The proposed revision simply alerts the design professionals (structural engineer and architect) to include building envelope components when considering potential damages associated with vertical movements.

S159-25

S160-25

IBC: TABLE 1404.5.2.2, TABLE 1404.5.3.1, TABLE 1404.5.3.2, TABLE 2304.6.1, TABLE 2304.10.2

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org); Jason Smart, representing American Wood Council (jsmart@awc.org)

2024 International Building Code

Revise as follows:

[BS] TABLE 1404.5.2.2 FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = Design Required, o.c. = on center.

a. Wood furring shall be Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir ~~spruce-pine-fir~~ or ~~any softwood~~ other species with a specific gravity of 0.42 or greater in accordance with AWC NDS. Steel furring shall be minimum 33 ksi steel. Cold-formed steel studs shall be minimum 33 ksi steel for 33 mil and 43 mil thickness and 50 ksi steel for 54 mil steel or thicker.

b. Screws shall comply with the requirements of AISI S240.

c. Where the required cladding fastener penetration into wood material exceeds $^3/_4$ inch and is not more than $1^1/_2$ inches, a minimum 2-inch nominal wood furring or an approved design shall be used.

d. Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

e. Furring shall be spaced not more than 24 inches on center, in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

[BS] TABLE 1404.5.3.1 CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per square foot (psf) = 0.0479 kPa.

DR = Design Required, o.c. = on center.

a. Wood framing shall be Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, ~~spruce-pine-fir~~ or ~~any wood~~ other species with a specific gravity of 0.42 or greater in accordance with ANSI/AWC NDS.

b. The thickness of *wood structural panels* complying with the specific gravity requirement of Note a shall be permitted to be included in satisfying the minimum penetration into framing.

c. Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

d. Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C578 or ASTM C1289.

[BS] TABLE 1404.5.3.2 FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a, b]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = Design Required, o.c. = on center.

a. Wood framing and furring shall be Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, ~~spruce-pine-fir~~ or ~~any wood~~ other species with a specific gravity of 0.42 or greater in accordance with ANSI/AWC NDS.

b. Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

c. The thickness of *wood structural panels* complying with the specific gravity requirements of Note a shall be permitted to be included in satisfying the minimum required penetration into framing.

d. Where the required cladding fastener penetration into wood material exceeds $^3/_4$ inch and is not more than $1^1/_2$ inches, a minimum 2-inch nominal wood furring or an *approved* design shall be used.

e. Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C578 or ASTM C1289.

f. Furring shall be spaced not greater than 24 inches on center in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

TABLE 2304.6.1 MAXIMUM BASIC WIND SPEED, V , PERMITTED FOR WOOD STRUCTURAL PANEL WALL SHEATHING USED TO RESIST WIND PRESSURES[a, b, c]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

a. Panel strength axis shall be parallel or perpendicular to supports. Three-ply plywood sheathing with studs spaced more than 16 inches on center shall be applied with panel strength axis perpendicular to supports.

b. The table is based on wind pressures acting toward and away from building surfaces in accordance with Section 30.4 of ASCE 7. Lateral requirements shall be in accordance with Section 2305 or 2308.

c. Wood structural panels with span ratings of wall-16 or wall-24 shall be permitted as an alternative to panels with a 24/0 span rating. Plywood siding rated 16 on center or 24 on center shall be permitted as an alternative to panels with a 24/16 span rating. Wall-16 and plywood siding 16 on center shall be used with studs spaced not more than 16 inches on center.

d. Fastener spacing applies where the framing is Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir or other species with a specific gravity greater than or equal to 0.42 in accordance with AWC NDS. Where the specific gravity of the wood species used for wall framing is greater than or equal to 0.35 but less than 0.42 ~~in accordance with AWC NDS~~, nail spacing in the field of the panel shall be multiplied by 0.67. Where the specific gravity of the wood species used for wall framing is less than 0.35, fastening of the wall sheathing shall be designed in accordance with AWC NDS.

TABLE 2304.10.2 FASTENING SCHEDULE

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm.

a. Nails spaced at 6 inches at intermediate supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305. Nails for wall sheathing are permitted to be common, box or casing.

b. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).

c. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule and the ceiling joist is fastened to the top plate in accordance with this schedule, the number of toenails in the rafter shall be permitted to be reduced by one nail.

d. RSRS is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

e. Tabulated fastener requirements apply where the basic wind speed, *V*, is less than 140 mph and the wood species used for roof framing is Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir or other species with a specific gravity greater than or equal to 0.42 in accordance with AWC NDS. Where the specific gravity of the wood species used for roof framing is greater than or equal to 0.35 but less than 0.42, fastening of roof sheathing shall be with RSRS-03 ($2\frac{1}{2}$″ × 0.131″ × 0.281″ head) nails unless alternative fastening is designed in accordance with AWC NDS. Where the specific gravity of the wood species used for roof framing is less than 0.35, fastening of the roof sheathing shall be designed in accordance with AWC NDS. For wood structural panel roof sheathing attached to gable-end roof framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 4 inches on center where the basic wind speed, *V*, is greater than 130 mph in Exposure B or greater than 110 mph in Exposure C. Spacing exceeding 6 inches on center at intermediate supports shall be permitted where the fastening is designed per the AWC NDS. ~~Where the specific gravity of the wood species used for roof framing is greater than or equal to 0.35 but less than 0.42 in accordance with AWC NDS, fastening of roof sheathing shall be with RSRS-03 ($2\frac{1}{2}$″ × 0.131″ × 0.281″ head) nails unless alternative fastening is designed in accordance with AWC NDS. Where the specific gravity of the wood species used for roof framing is less than 0.35, fastening of the roof sheathing shall be designed in accordance with AWC NDS.~~

f. Fastening is only permitted where the basic wind speed, *V*, is less than or equal to 110 mph and where fastening is to wood framing of a species with specific gravity greater than or equal to 0.42 in accordance with AWC NDS.

g. Nails and staples are carbon steel meeting the specifications of ASTM F1667. Connections using nails and staples of other materials, such as stainless steel, shall be designed by acceptable engineering practice or approved under Section 104.2.3.

Reason: There are several sections of the IBC which direct the user to the ANSI/AWC *National Design Specification (NDS) for Wood Construction* to determine the specific gravity of the wood. This code change proposes to add names of common wood species that have a specific gravity of 0.42 or greater to reduce the need to lookup wood specific gravity in the NDS. The common wood species names listed (i.e., Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir) all have specific gravity of 0.42 or greater and are used elsewhere in the code such as in span tables for joist, rafters, and headers. This revision will make the code easier to use without changing the technical requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no technical change proposed in this code change. The footnote clarifications improve the ease-of-use of the code.

S160-25

S161-25

IBC: 2304.10.1

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org)

2024 International Building Code

Revise as follows:

2304.10.1 Fire protection of connections. Connections used with *fire-resistance-rated* members and in *fire-resistance-rated* assemblies ~~of Type IV-A, IV-B, or IV-C construction~~ shall be <u>in accordance with Section 704.5.2.</u> ~~protected for the time associated with the fire-resistance rating. Protection time shall be determined by one of the following:~~

1. ~~Testing in accordance with Section 703.2 where the connection is part of the *fire resistance* test.~~
2. ~~Engineering analysis that demonstrates that the temperature rise at any portion of the connection is limited to an average temperature rise of 250°F (139°C), and a maximum temperature rise of 325°F (181°C), for a time corresponding to the required *fire-resistance* rating of the structural element being connected. For the purposes of this analysis, the connection includes connectors, fasteners, and portions of wood members included in the structural design of the connection.~~

Reason: This proposal coordinates Section 2304.10.1 with FS9-24 which was approved in Group A to move this language into Section 704.5.2. This was done to ensure that these requirements are applied to all connections of fire-resistance-rated wood members and assemblies regardless of construction type.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a change to coordinate with action taken on FS9-24 in Group A.

Staff Analysis: FS9-24 was AMC2 (by Comment #1 at CAH #2) and is public comment (PC) eligible.

S161-25

S162-25

IBC: 2304.10.6.2

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org)

2024 International Building Code

Revise as follows:

2304.10.6.2 ~~Fastenings~~ Fasteners and connectors for wood foundations. ~~Fastenings, including nuts and washers,~~ Fasteners and connectors for wood foundations shall be as required in AWC PWF.

Reason: “Fastenings” is an outdated term and is proposed to be replaced by "fasteners and connectors" which is consistent with terminology used in ANSI/AWC Permanent Wood Foundation (PWF) Design Specification in Section 2.4.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. This proposal editorially coordinates with terminology used in the PWF.

S162-25

S163-25

IBC: 2304.11, 2304.11.1, TABLE 2304.11, 2304.11.1.1, 2304.11.1.2, 2304.11.1.3, AWC Chapter 35 (New)

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org)

2024 International Building Code

Revise as follows:

2304.11 Heavy timber construction. Where a *structure*, portion thereof or individual structural elements are required by provisions of this code to be of heavy timber, the *building elements* therein shall comply with the applicable provisions of either Sections 2304.11.1 through 2304.11.4 or ANSI/AWC FDS requirements for heavy timber. ~~Minimum dimensions of heavy timber shall comply with the applicable requirements in Table 2304.11 based on roofs or floors supported and the configuration of each structural element, or in Sections 2304.11.2 through 2304.11.4. Lumber decking shall be in accordance with Section 2304.9.~~

2304.11.1 Details of heavy timber structural members. Heavy timber structural members shall be detailed and constructed in accordance with Sections 2304.11.1 through 2304.11.1.3. Minimum dimensions of heavy timber shall comply with the applicable requirements in Table 2304.11.1 based on roofs or floors supported and the configuration of each structural element, or in Sections 2304.11.2 through 2304.11.4. Lumber decking shall be in accordance with Section 2304.9.

TABLE ~~2304.11~~ 2304.11.1 MINIMUM DIMENSIONS OF HEAVY TIMBER STRUCTURAL MEMBERS

SUPPORTING	HEAVY TIMBER STRUCTURAL ELEMENTS	MINIMUM NOMINAL SOLID SAWN SIZE		MINIMUM GLUED-LAMINATED NET SIZE		MINIMUM STRUCTURAL COMPOSITE LUMBER NET SIZE	
		Width, inch	Depth, inch	Width, inch	Depth, inch	Width, inch	Depth, inch
Floor loads only or combined floor and roof loads	Columns; Framed sawn or glued-laminated timber arches that spring from the floor line; Framed timber trusses	8	8	$6^3/_4$	$8^1/_4$	7	$7^1/_2$
	Wood beams and girders	6	10	5	$10^1/_2$	$5^1/_4$	$9^1/_2$
Roof loads only	Columns (roof and ceiling loads); Lower half of: wood-frame or glued-laminated arches that spring from the floor line or from grade	6	8	5	$8^1/_4$	$5^1/_4$	$7^1/_2$
	Upper half of: wood-frame or glued-laminated arches that spring from the floor line or from grade	6	6	5	6	$5^1/_4$	$5^1/_2$
	Framed timber trusses and other roof framing;[a] Framed or glued-laminated arches that spring from the top of walls or wall abutments	4[b]	6	3[b]	$6^7/_8$	$3^1/_2$[b]	$5^1/_2$

For SI: 1 inch = 25.4 mm.

a. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches nominal in thickness.

b. Where protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches nominal in width.

2304.11.1.1 Columns. Minimum dimensions of columns shall be in accordance with Table 2304.11.1. Columns shall be connected in an *approved* manner. Columns shall be continuous or aligned vertically from floor to floor in all stories of Type IV-HT construction. Girders and beams at column connections shall be closely fitted around columns and adjoining ends shall be cross tied to each other, or intertied by caps or ties, to transfer horizontal *loads* across joints. Wood bolsters shall not be placed on tops of columns unless the columns support roof *loads* only. Where traditional heavy timber detailing is used, connections shall be by means of reinforced concrete or metal caps with brackets, by properly designed steel or iron caps, with pintles and base plates, by timber splice plates affixed to the columns by metal connectors housed within the contact faces, or by other *approved* methods.

2304.11.1.2 Floor framing. Minimum dimensions of floor framing shall be in accordance with Table 2304.11.1. *Approved* wall plate boxes or hangers shall be provided where wood beams, girders or trusses rest on *masonry* or concrete walls. Where intermediate beams are used to support a floor, they shall rest on top of girders, or shall be supported by an *approved* metal hanger into which the ends of the beams shall be closely fitted. Where traditional heavy timber detailing is used, these connections shall be permitted to be supported by ledgers or blocks securely fastened to the sides of the girders.

2304.11.1.3 Roof framing. Minimum dimensions of roof framing shall be in accordance with Table 2304.11.1. Every roof girder and not less than every alternate roof beam shall be anchored to its supporting member to resist forces as required in Chapter 16.

Add new standard(s) as follows:

AWC

American Wood Council
222 Catoctin Circle SE, Suite 201
Leesburg, VA 20175

ANSI/AWC FDS-2024 Fire Design Specification for Wood Construction

Reason:
This proposal adds a reference to the ANSI/AWC *Fire Design Specification for Wood Construction* (FDS) heavy timber provisions to allow for an additional compliance path independent from the existing IBC heavy timber provisions. Section 2304.11 has been restructured to be charging language only, with the technical provisions relocated to 2304.11.1 to avoid conflict with the FDS. The FDS brings forth requirements consistent with the IBC, but with consistent product terminology and revised organization for heavy timber used in construction.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal adds an additional option in the code for heavy timber requirements. Therefore, it does not result in an increase in the cost of construction, because the existing compliance option is still available. This proposal could potentially decrease construction costs if this option is used, but will have no effect on construction costs if it is not used. Therefore, the decrease in cost is conservatively estimated as $0.

Staff Analysis: A review of the standard proposed for inclusion in the code, ANSI/AWC FDS-2024 Fire Design Specification for Wood Construction, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S163-25

S164-25

IBC: 2304.11.2.2

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org); Jason Smart, representing American Wood Council (jsmart@awc.org)

2024 International Building Code

Revise as follows:

2304.11.2.2 Interior walls and partitions. Interior walls and partitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards or laminated construction 4 inches (102 mm) thick, *cross-laminated timber* not less than 3" in thickness, or of 1-hour fire-resistance-rated construction.

Reason: The ANSI/AWC *Fire Design Specification for Wood Construction* (FDS) provides the most up-to-date provisions for heavy timber members. This proposal aligns the provisions in the code for heavy timber interior walls and partitions with the FDS by adding the minimum thickness of cross-laminated timber (CLT) for that application. As stated in the FDS and IBC 2301.2, the minimum thicknesses specified for CLT are actual dimensions.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal only adds an equivalent option in the code for heavy timber walls and partitions. It does not increase the cost of construction, because the existing compliance option is still available. This proposal could potentially decrease construction costs if this option is used, but will have no effect on construction costs if it is not used. Therefore, the decrease in cost is conservatively estimated as $0.

S164-25

S165-25

IBC: 2304.11.3, 2304.11.3.1, 2304.11.3.2

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org)

2024 International Building Code

2304.11.3 Floors. Floors shall be without concealed spaces or with concealed spaces complying with Section 602.4.4.3. Wood floors shall be constructed in accordance with Section 2304.11.3.1 or 2304.11.3.2.

Revise as follows:

2304.11.3.1 Cross-laminated timber floors. *Cross-laminated timber* shall be not less than 4 inches (102 mm) in thickness. *Cross-laminated timber* shall be continuous from support to support and mechanically fastened to one another. *Cross-laminated timber* shall be permitted to be connected to walls without a shrinkage gap ~~providing~~ provided swelling or shrinking is considered in the design. Corbelling of *masonry* walls under the floor shall be permitted to be used.

2304.11.3.2 Sawn or glued-laminated plank floors. Sawn or glued-laminated plank floors shall be one of the following:

1. Sawn or glued-laminated planks, splined or tongue-and-groove, of not less than 3 inches (76 mm) nominal in thickness covered with 1-inch (25 mm) nominal dimension tongue-and-groove flooring, laid crosswise or diagonally, $^{15}/_{32}$-inch (12 mm) *wood structural panel*, ~~or~~ $^{1}/_{2}$-inch (12.7 mm) *particleboard*, or ¾ - inch (19 mm) thickness concrete or gypsum concrete topping.
2. Planks not less than 4 inches (102 mm) nominal in width set on edge close together and well spiked and covered with 1-inch (25 mm) nominal dimension flooring or $^{15}/_{32}$-inch (12 mm) *wood structural panel*, ~~or~~ $^{1}/_{2}$-inch (12.7 mm) *particleboard*, or ¾ - inch (19 mm) thickness concrete or gypsum concrete topping.

The lumber shall be laid so that continuous lines of joints will occur only at points of support. Floors shall not extend closer than $^{1}/_{2}$ inch (12.7 mm) to walls. Such $^{1}/_{2}$-inch (12.7 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbelling of masonry walls under the floor shall be permitted to be used in place of molding.

Reason: This proposal adds an option of ¾" concrete or gypsum concrete topping above sawn or glued-laminated plank floors to protect against passage of flames and gasses to match ANSI/AWC Fire Design Specification for Wood Construction (FDS). Concrete or gypsum concrete topping is not currently recognized under the heavy timber provisions of the IBC. Recognized materials for this purpose are currently limited to flooring or panels of prescribed thicknesses. This requirement does not replace the requirement for 1" noncombustible material used above mass timber flooring in Type IV-A and IV-B construction. There is also an editorial grammatical change in 2304.11.3.1.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal adds an additional option in the code for toppings on sawn or glued-laminated plank floors. Therefore, it does not result in an increase in the cost of construction, because the existing compliance options are still available. This proposal could potentially decrease construction costs if this option is used, but will have no effect on construction costs if it is not used. Therefore, the decrease in cost is conservatively estimated as $0.

S165-25

S166-25

IBC: 2308.8.1.1, TABLE 2308.8.1.1(1), TABLE 2308.8.1.1(2) (New), TABLE 2308.8.1.1(2), TABLE 2308.8.1.1(4) (New)

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org)

2024 International Building Code

Revise as follows:

2308.8.1.1 Allowable girder spans. The allowable spans of girders that are fabricated of dimension lumber shall not exceed the values set forth in Table 2308.8.1.1(1), 2308.8.1.1(2), 2308.8.1.1(3) or 2308.8.1.1(~~2~~4).

TABLE 2308.8.1.1(1) LATERALLY SUPPORTED HEADER AND GIRDER SPANS[a, b] FOR EXTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, Southern pine and spruce-pine-fir and required number of jack studs)

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas fir-larch, hem-fir, Southern pine and spruce-pine fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

e. Use 30 psf allowable stress design ground snow load for cases in which allowable stress design ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

f. Spans are calculated assuming a single span header or girder under uniform load where the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (for example, cripple studs bearing on the header), refer to Table 2308.8.1.1(2). ~~tabulated spans for headers consisting of 2 × 8, 2 × 10, or 2 × 12 sizes shall be multiplied by 0.70 or the header or girder shall be designed.~~

Add new text as follows:

TABLE 2308.8.1.1(2)
LATERALLY UNSUPPORTED (DROPPED) HEADER AND GIRDER SPANS[a,b] FOR EXTERIOR BEARING WALLS (Maximum spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir and required number of jack studs)

		ALLOWABLE STRESS DESIGN GROUND SNOW LOAD, $p_{g(asd)}$, (psf)[e]																	
		30						50						70					
HEADERS AND GIRDERS SUPPORTING	SIZE	Building width[c] (feet)																	
		12		24		36		12		24		36		12		24		36	
		Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]
	1-2 × 6	3-11	1	3-0	2	2-6	2	3-4	1	2-7	2	2-2	2	3-0	2	2-3	2	1-11	2
	1-2 × 8	4-10	2	3-9	2	3-2	2	4-2	2	3-3	2	2-8	2	3-9	2	2-10	2	2-5	3
	1-2 × 10	5-7	2	4-4	2	3-8	2	4-10	2	3-9	2	3-2	3	4-4	2	3-4	3	2-10	3
	1-2 × 12	6-2	2	4-11	2	4-3	3	5-5	2	4-4	3	3-8	3	4-11	2	3-10	3	3-3	3

	2-2 × 4	3-11	1	3-0	1	2-6	1	3-4	1	2-6	1	2-2	1	3-0	1	2-3	1	1-11	1
	2-2 × 6	5-8	1	4-4	1	3-8	1	4-11	1	3-9	1	3-2	2	4-5	1	3-4	2	2-10	2
	2-2 × 8	6-9	1	5-4	1	4-6	2	5-11	1	4-7	2	3-11	2	5-4	1	4-2	2	3-6	2
Roof and ceiling	2-2 × 10	7-6	1	6-0	2	5-2	2	6-7	2	5-3	2	4-6	2	6-0	2	4-9	2	4-1	2
	2-2 × 12	8-0	2	6-6	2	5-9	2	7-2	2	5-10	2	5-1	2	6-6	2	5-4	2	4-7	3
	3-2 × 8	8-0	1	6-5	1	5-6	1	7-1	1	5-7	1	4-10	2	6-5	1	5-1	2	4-4	2
	3-2 × 10	8-9	1	7-1	1	6-2	2	7-9	1	6-3	2	5-5	2	7-1	1	5-8	2	4-11	2
	3-2 × 12	9-4	1	7-7	2	6-8	2	8-4	2	6-9	2	5-11	2	7-7	2	6-2	2	5-5	2
	4-2 × 8	8-10	1	7-2	1	6-3	1	7-11	1	6-4	1	5-5	1	7-2	1	5-9	1	4-11	2
	4-2 × 10	9-8	1	7-11	1	6-11	1	8-8	1	7-0	1	6-1	2	7-11	1	6-5	2	5-6	2
	4-2 × 12	10-4	1	8-5	1	7-5	2	9-3	1	7-6	2	6-7	2	8-6	1	6-11	2	6-0	2
	1-2 × 6	3-2	1	2-6	2	2-2	2	2-11	2	2-4	2	1-11	2	2-8	2	2-2	2	1-10	2
	1-2 × 8	4-0	2	3-2	2	2-8	2	3-8	2	2-11	2	2-5	3	3-5	2	2-8	2	2-3	3
	1-2 × 10	4-7	2	3-8	2	3-2	3	4-3	2	3-5	3	2-11	3	3-11	2	3-2	3	2-8	3
	1-2 × 12	5-3	2	4-3	3	3-8	3	4-10	2	3-11	3	3-4	3	4-6	3	3-8	3	3-1	4
	2-2 × 4	3-2	1	2-6	1	2-1	1	2-11	1	2-3	1	1-11	1	2-8	1	2-1	1	1-9	1
	2-2 × 6	4-8	1	3-8	1	3-2	2	4-4	1	3-4	2	2-10	2	3-11	1	3-2	2	2-8	2
	2-2 × 8	5-8	1	4-6	2	3-11	2	5-3	2	4-2	2	3-7	2	4-10	2	3-11	2	3-4	2
Roof, ceiling and one center-bearing floor	2-2 × 10	6-4	2	5-2	2	4-6	2	5-11	2	4-10	2	4-2	2	5-6	2	4-6	2	3-10	2
	2-2 × 12	6-10	2	5-9	2	5-0	2	6-5	2	5-4	2	4-8	3	6-1	2	5-0	2	4-5	3
	3-2 × 8	6-9	1	5-6	1	4-9	2	6-4	1	5-1	2	4-5	2	5-11	1	4-9	2	4-1	2
	3-2 × 10	7-5	1	6-2	2	5-5	2	7-0	1	5-9	2	5-0	2	6-6	2	5-5	2	4-8	2
	3-2 × 12	8-0	2	6-8	2	5-11	2	7-6	2	6-3	2	5-6	2	7-0	2	5-11	2	5-2	2
	4-2 × 8	7-7	1	6-3	1	5-5	1	7-1	1	5-9	1	5-0	2	6-7	1	5-5	1	4-8	2
	4-2 × 10	8-4	1	6-11	2	6-1	2	7-9	1	6-5	2	5-7	2	7-4	1	6-1	2	5-3	2
	4-2 × 12	8-11	1	7-5	2	6-7	2	8-4	2	6-11	2	6-2	2	7-10	2	6-7	2	5-10	2
	1-2 × 6	2-11	2	2-3	2	1-10	2	2-8	2	2-1	2	1-9	2	2-7	2	1-11	2	1-8	2
	1-2 × 8	3-8	2	2-10	2	2-4	3	3-5	2	2-7	2	2-2	3	3-2	2	2-6	3	2-1	3
	1-2 × 10	4-3	2	3-4	3	2-9	3	4-0	2	3-1	3	2-7	3	3-9	2	2-11	3	2-5	3
	1-2 × 12	4-10	2	3-10	3	3-3	3	4-6	3	3-7	3	3-0	4	4-4	3	3-4	3	2-10	4
	2-2 × 4	2-11	1	2-3	1	1-10	1	2-8	1	2-1	1	1-9	1	2-6	1	1-11	1	1-7	1
	2-2 × 6	4-3	1	3-3	2	2-9	2	4-0	1	3-1	2	2-7	2	3-9	1	2-10	2	2-5	2
	2-2 × 8	5-2	2	4-1	2	3-6	2	4-10	2	3-10	2	3-3	2	4-7	2	3-7	2	3-0	2
Roof, ceiling and one clear-span floor	2-2 × 10	5-10	2	4-8	2	4-0	2	5-6	2	4-5	2	3-9	2	5-3	2	4-2	2	3-7	3
	2-2 × 12	6-4	2	5-3	2	4-7	3	6-1	2	4-11	2	4-3	3	5-9	2	4-8	3	4-1	3
	3-2 × 8	6-3	1	5-0	2	4-3	2	5-11	1	4-8	2	4-0	2	5-7	1	4-5	2	3-9	2
	3-2 × 10	6-11	2	5-7	2	4-10	2	6-7	2	5-3	2	4-7	2	6-3	2	5-0	2	4-4	2
	3-2 × 12	7-5	2	6-1	2	5-5	2	7-1	2	5-10	2	5-1	2	6-9	2	5-6	2	4-10	3
	4-2 × 8	7-0	1	5-8	1	4-10	2	6-8	1	5-4	2	4-6	2	6-4	1	5-0	2	4-3	2
	4-2 × 10	7-8	1	6-3	2	5-6	2	7-4	1	5-11	2	5-2	2	7-0	1	5-8	2	4-11	2
	4-2 × 12	8-3	2	6-9	2	6-0	2	7-10	2	6-5	2	5-8	2	7-6	2	6-2	2	5-5	2
	1-2 × 6	2-8	2	2-1	2	1-10	2	2-6	2	2-0	2	1-8	2	2-5	2	1-11	2	1-7	2
	1-2 × 8	3-4	2	2-8	2	2-3	3	3-2	2	2-6	2	2-2	3	3-0	2	2-4	3	2-0	3
	1-2 × 10	3-11	2	3-2	3	2-8	3	3-8	2	2-11	3	2-6	3	3-6	2	2-9	3	2-5	3
	1-2 × 12	4-6	3	3-8	3	3-2	4	4-3	3	3-5	3	2-11	4	4-1	3	3-3	3	2-9	4
	2-2 × 4	2-8	1	2-1	1	1-9	1	2-6	1	2-0	1	1-8	1	2-4	1	1-10	1	1-7	1
	2-2 × 6	3-11	1	3-1	2	2-8	2	3-8	1	2-11	2	2-6	2	3-6	1	2-9	2	2-4	2
	2-2 × 8	4-10	2	3-11	2	3-4	2	4-7	2	3-8	2	3-2	2	4-4	2	3-5	2	2-11	2
Roof, ceiling and two center-bearing floors	2-2 × 10	5-6	2	4-6	2	3-11	2	5-2	2	4-3	2	3-8	3	5-0	2	4-0	2	3-6	3

	2-2 × 12	6-0	2	5-0	2	4-5	3	5-9	2	4-9	3	4-2	3	5-6	2	4-7	3	4-0	3
	3-2 × 8	5-10	1	4-9	2	4-1	2	5-6	1	4-6	2	3-10	2	5-3	2	4-3	2	3-8	2
	3-2 × 10	6-6	2	5-4	2	4-9	2	6-2	2	5-1	2	4-5	2	5-11	2	4-10	2	4-3	2
	3-2 × 12	7-0	2	5-11	2	5-3	2	6-8	2	5-7	2	5-0	3	6-5	2	5-5	2	4-9	3
	4-2 × 8	6-7	1	5-5	1	4-8	2	6-3	1	5-1	2	4-5	2	6-0	1	4-10	2	4-2	2
	4-2 × 10	7-3	1	6-0	2	5-4	2	6-11	2	5-9	2	5-0	2	6-8	2	5-6	2	4-9	2
	4-2 × 12	7-9	2	6-6	2	5-10	2	7-5	2	6-3	2	5-6	2	7-2	2	6-0	2	5-4	2
	1-2 × 6	2-3	2	1-8	2	1-5	2	2-3	2	1-8	2	1-5	3	2-2	2	1-8	2	1-5	3
	1-2 × 8	2-10	2	2-2	3	1-10	3	2-10	2	2-2	3	1-10	3	2-8	2	2-1	3	1-9	3
	1-2 × 10	3-4	2	2-6	3	2-2	3	3-4	3	2-6	3	2-2	4	3-2	3	2-6	3	2-1	4
	1-2 × 12	3-10	3	3-0	3	2-6	4	3-10	3	3-0	4	2-6	4	3-8	3	2-10	4	2-5	4
	2-2 × 4	2-3	1	1-8	1	1-4	1	2-3	1	1-8	1	1-4	1	2-2	1	1-7	1	1-4	2
	2-2 × 6	3-3	1	2-6	2	2-1	2	3-3	2	2-6	2	2-1	2	3-2	2	2-5	2	2-1	2
	2-2 × 8	4-1	2	3-2	2	2-8	2	4-1	2	3-2	2	2-8	2	3-11	2	3-1	2	2-7	3
Roof, ceiling, and two clear-span floors	2-2 × 10	4-9	2	3-8	2	3-2	3	4-8	2	3-8	2	3-2	3	4-6	2	3-7	3	3-0	3
	2-2 × 12	5-4	2	4-3	3	3-8	3	5-3	2	4-3	3	3-8	3	5-1	2	4-1	3	3-6	3
	3-2 × 8	5-0	1	3-11	2	3-4	2	5-0	2	3-11	2	3-4	2	4-10	2	3-9	2	3-2	2
	3-2 × 10	5-9	2	4-7	2	3-10	2	5-7	2	4-6	2	3-10	2	5-5	2	4-4	2	3-9	3
	3-2 × 12	6-4	2	5-2	2	4-5	3	6-2	2	5-0	2	4-5	3	5-11	2	4-10	3	4-3	3
	4-2 × 8	5-9	1	4-6	2	3-10	2	5-8	1	4-6	2	3-10	2	5-5	1	4-4	2	3-8	2
	4-2 × 10	6-6	2	5-2	2	4-5	2	6-4	2	5-1	2	4-5	2	6-1	2	4-11	2	4-3	2
	4-2 × 12	7-1	2	5-9	2	5-0	2	6-10	2	5-7	2	4-11	2	6-7	2	5-5	2	4-9	3

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas Fir-Larch, Hem-Fir, Southern Pine, and Spruce-Pine-Fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

e. Use 30 psf allowable stress design ground snow load for cases in which allowable stress design ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

f. Spans are assuming a single span header or girder under uniform load where the top of the header or girder is not laterally braced by perpendicular framing.

Revise as follows:

TABLE 2308.8.1.1(~~2~~3) LATERALLY SUPPORTED HEADER AND GIRDER SPANS[a, b] FOR INTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, Southern pine and spruce-pine-fir and required number of jack studs)

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas fir-larch, hem-fir, Southern pine and spruce-pine fir.

c. *Building* width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an *approved* framing anchor attached to the full-height wall stud and to the header.

e. Spans are calculated assuming a single span header or girder under uniform load where the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (for example, cripple studs bearing on the header), refer to Table 2308.8.1.1(4). ~~tabulated spans for headers consisting of 2 × 8, 2 × 10, or 2 × 12 sizes shall be multiplied by 0.70 or the header or girder shall be designed.~~

Add new text as follows:

TABLE 2308.8.1.1(4) LATERALLY UNSUPPORTED (DROPPED) HEADER AND GIRDER SPANS[a, b] FOR INTERIOR BEARING WALLS (Maximum spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir and required number of jack studs)

		BUILDING Width[c] (feet)					
HEADERS AND GIRDERS SUPPORTING	SIZE	12		24		36	
		Span[e]	NJ[d]	Span[e]	NJ[d]	Span[e]	NJ[d]
	2-2 × 4	4-0	1	2-10	1	2-4	1
	2-2 × 6	5-11	1	4-3	1	3-5	1
	2-2 × 8	7-1	1	5-2	1	4-4	2
	2-2 × 10	7-11	1	5-11	2	5-0	2
	2-2 × 12	8-6	1	6-7	2	5-7	2
One floor only	3-2 × 8	8-5	1	6-4	1	5-3	1
	3-2 × 10	9-3	1	7-1	1	6-0	2
	3-2 × 12	9-11	1	7-8	2	6-7	2
	4-2 × 8	9-5	1	7-2	1	6-0	1
	4-2 × 10	10-3	1	7-11	1	6-9	1
	4-2 × 12	11-0	1	8-7	1	7-4	2
	2-2 × 4	2-7	1	1-11	1	1-7	1
	2-2 × 6	3-10	1	2-10	2	2-5	2
	2-2 × 8	4-9	1	3-7	2	3-0	2
	2-2 × 10	5-6	2	4-2	2	3-6	2
	2-2 × 12	6-1	2	4-9	2	4-1	3
Two floors	3-2 × 8	5-10	1	4-5	2	3-9	2
	3-2 × 10	6-7	1	5-1	2	4-4	2
	3-2 × 12	7-2	2	5-8	2	4-11	2
	4-2 × 8	6-7	1	5-1	1	4-3	2
	4-2 × 10	7-5	1	5-9	2	4-11	2
	4-2 × 12	8-0	1	6-4	2	5-6	2

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas Fir-Larch, Hem-Fir, Southern Pine, and Spruce-Pine-Fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an *approved* framing anchor attached to the full-height wall stud and to the header.

e. Spans are assuming a single span header or girder under uniform load where the top of the header or girder is not laterally braced by perpendicular framing.

Reason: Laterally unsupported header and girder spans are currently addressed by a conservative adjustment in footnote f of the existing header/girder span tables. Spans for laterally unsupported headers and girders are added consistent with ANSI/AWC 2024 Wood Frame Construction Manual to show appropriate spans, avoiding the unnecessary conservatism. With this proposal, the laterally unsupported header and girder condition is now addressed by stand-alone tables and no longer needs to be addressed through an adjustment factor footnote. Existing tables have been renumbered and titles have been revised to reflect that they are applicable to laterally supported headers and girders.

Additionally, language has been added to the footnotes to clarify that all header and girder calculations are based on the assumption that they are single-span headers or girders. This clarification is necessary as multi-span headers are not addressed by the tables.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal revises the code for laterally unsupported (dropped) header and girder spans. The new tables remove unnecessary conservatism, therefore this proposal could potentially decrease construction costs where the tables are used. The decrease in cost is conservatively estimated as $0.

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S167-25

IBC: 2308.6.1, FIGURE 2308.6.1 (New), 2308.6.2, FIGURE 2308.6.2 (New), 2308.6.3, 2308.6.4

Proponents: John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

2308.6.1 Floor joists, roof rafters and ceiling joists. Notches on framing ends shall not exceed one-fourth the member depth. Notches in the top or bottom of the member shall not exceed one-sixth the depth and shall not be located in the middle third of the span. A notch not more than one-third of the depth is permitted in the top of a rafter or ceiling joist not further from the face of the support than the depth of the member. Holes bored in members shall not be within 2 inches (51 mm) of the top or bottom of the member and the diameter of any such hole shall not exceed one-third the depth of the member. *Holes bored in the middle third of the span shall be located in the center third of the joist depth and shall not exceed one third of the joist depth.* Where the member is notched, the hole shall not be closer than 2 inches (51 mm) to the notch. (*See Figure 2308.6.1)*

Add new text as follows:

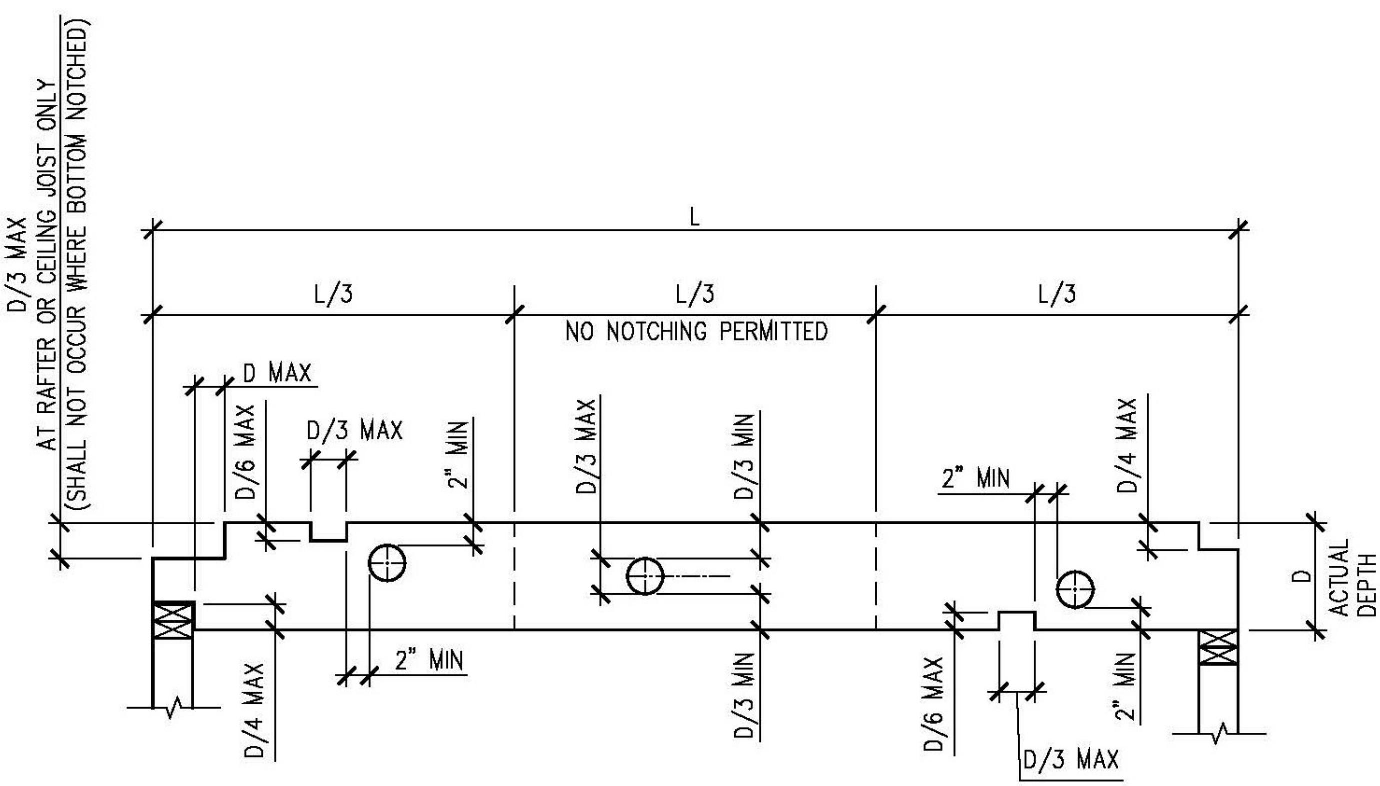

FIGURE 2308.6.1 JOIST BORING AND NOTCHING LIMITS

Revise as follows:

2308.6.2 Wall studs. In exterior walls and bearing partitions, a wood stud shall not be cut or notched in the middle one-third of the stud length and the cut or notch shall not exceed ~~in excess of~~ 25 percent of its depth. In nonbearing partitions that do not support loads other than the weight of the partition, a stud shall not be cut or notched in excess of 40 percent of its depth. *(See Figure 2308.6.2)*

Add new text as follows:

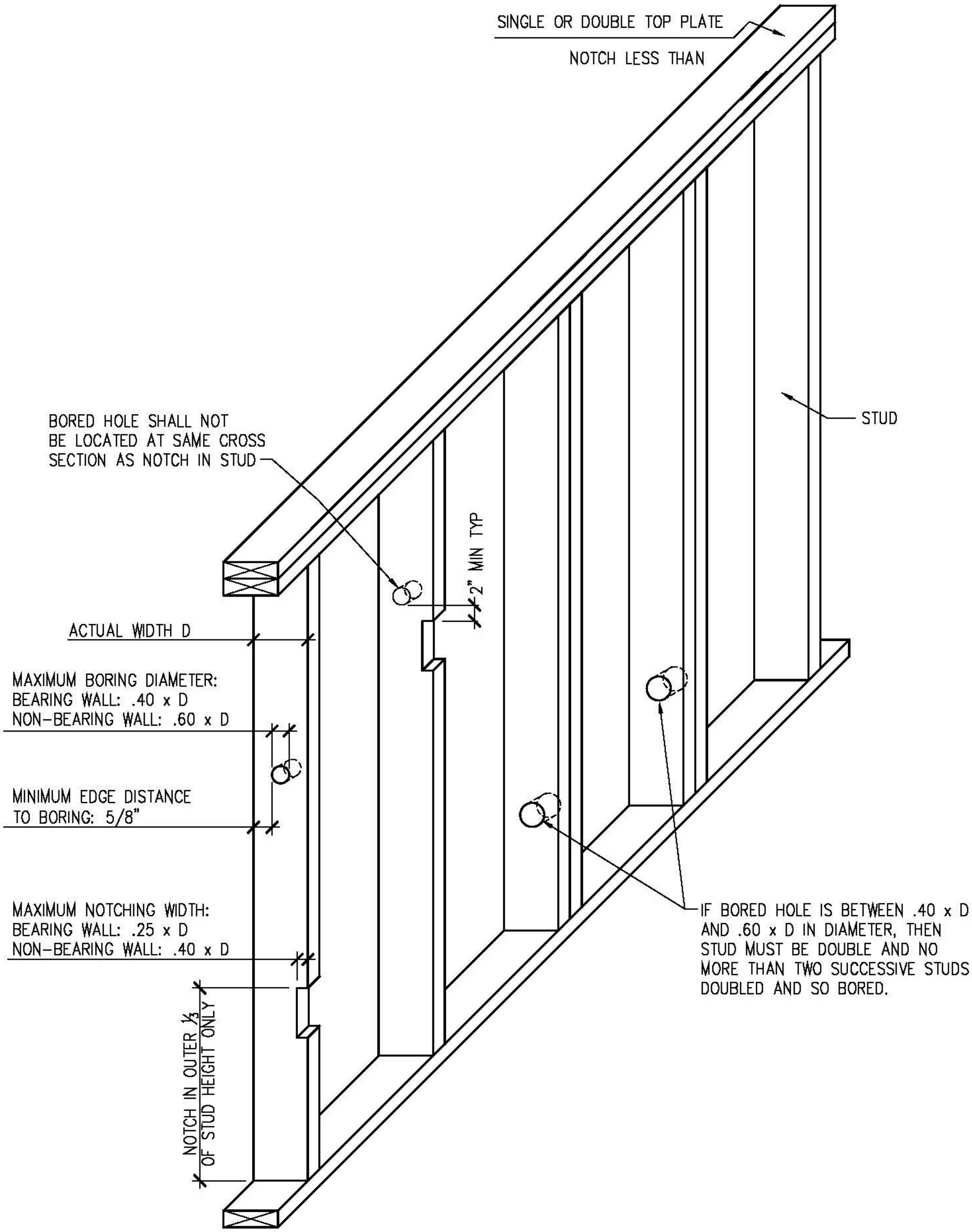

FIGURE 2308.6.2 WALL BORING AND NOTCHING LIMITS

Revise as follows:

2308.6.3 Bored holes. The diameter of bored holes in exterior walls and bearing partitions, wood studs shall not exceed 40 percent of the stud depth. The diameter of bored holes in in interior nonbearing partitions , wood studs shall not exceed 60 percent of the stud depth ~~in nonbearing partitions~~. ~~The diameter of bored holes in wood studs shall not exceed 60 percent of the stud depth in any wall where each stud is doubled, provided that not more than two such successive doubled studs are so bored.~~ The edge of the bored hole shall not be closer than $^{5}/_{8}$ inch (15.9 mm) to the edge of the stud. Bored holes shall not be located within 2 inches of ~~at~~ the same section of stud as a cut or notch.

Exception: The diameter of bored holes in exterior walls and bearing partitions wood studs shall not exceed 60 percent of the stud depth when studs are doubled, provided that not more than two such successive doubled studs are so bored.

2308.6.4 Limitations. In designated lateral force-resisting system assemblies designed in accordance with this code ~~and greater than three *stories* in height or~~ in *Seismic Design Categories* C, D, E and F, the cutting, notching and boring of wall studs shall be as prescribed by the *registered design professional*.

~~In *structures* designed in accordance with the International Residential Code, modification of wall studs shall comply with the *International Residential Code*.~~

Reason: This proposal seeks to remove redundant language contained within the code section.

Section 2308 is limited to conventional light-frame construction. Section 2308.2.1 and Table 2308.2.1 limits the height of buildings, with a maximum of 3 stories in Seismic Design Category A and B, and fewer stories in higher SDC C, D and E. So the requirement for omitting the prescriptive limits to buildings of greater height is redundant.

Reference to IRC is not needed.

Proposal seeks to clarify language for notching and boring.

Wall stud notching is limited to the outer 1/3rd of studs this is consistent with limitations on joists and the location limits contained in the NDS WFCM.

Bored hole language was restructured to provide more clarity on which studs have 40% or 60% limits.

Bored hole language was clarified so that bore holes will not occur within the influence of a notch portion of a stud.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal may slightly increase the cost of construction, however the cost is increase is estimated to be close to negligible - estimated cost increase $0. Notching limitations on stud walls will limit where notches can occur thus potentially increasing the cost of construction

Estimated Immediate Cost Impact Justification (methodology and variables):

By clarifying the limitations on cutting, notching or boring of wood studs, the contractor will need to more carefully plan for the installation of electrical wiring and the in wall plumbing for a project, resulting in potentially more time needed during the construction process.

Estimated Life Cycle Cost Impact:

Decrease

Estimated Life Cycle Cost Impact Justification (methodology and variables):

This proposal has the potential of reducing life cycle costs by eliminating distressed or damaged wall framing that would require replacement or strengthening.

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S168-25

IBC: 2308.6, 2308.6.1 (New), 2308.6.2 (New), 2308.6.1, 2308.6.1.1, 2308.6.2, 2308.6.3, 2308.6.4, 2308.8.3, 2308.11.8

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2024 International Building Code

Revise as follows:

2308.6 Cutting, notching and boring of ~~dimensional~~ structural wood framing. Structural wood framing members shall not be cut, bored or notched in excess of the limitations specified in this section. ~~The provisions of this section shall only apply to dimensional wood framing and shall not include engineered wood products, heavy timber or prefabricated/manufactured wood assemblies.~~

Add new text as follows:

2308.6.1 Engineered wood products. Cuts, notches and holes bored in trusses, *structural composite lumber*, structural glued-laminated timber, cross-laminated timber or prefabricated wood I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such *alterations* are specifically considered in the design of the member by a *registered design professional.*

2308.6.2 Sawn lumber. This section shall apply to sawn lumber with nominal thickness of 2 inches to 4 inches.

Revise as follows:

~~2308.6.1~~ **2308.6.2.1 Floor joists, roof rafters and ceiling joists.** Notches on framing ends shall not exceed one-fourth the member depth. Notches in the top or bottom of the member shall not exceed one-sixth the depth and shall not be located in the middle third of the span. A notch not more than one-third of the depth is permitted in the top of a rafter or ceiling joist not further from the face of the support than the depth of the member. Holes bored in members shall not be within 2 inches (51 mm) of the top or bottom of the member and the diameter of any such hole shall not exceed one-third the depth of the member. Where the member is notched, the hole shall not be closer than 2 inches (51 mm) to the notch.

~~2308.6.1.1~~ **2308.6.2.1.1 Ceiling joists.** Where ceiling joists also serve as floor joists, they shall be considered floor joists within this section.

~~2308.6.2~~ **2308.6.2.2 Wall studs.** In exterior walls and bearing partitions, a wood stud shall not be cut or notched in excess of 25 percent of its depth. In nonbearing partitions that do not support loads other than the weight of the partition, a stud shall not be cut or notched in excess of 40 percent of its depth.

~~2308.6.3~~ **2308.6.2.3 Bored holes.** The diameter of bored holes in wood studs shall not exceed 40 percent of the stud depth. The diameter of bored holes in wood studs shall not exceed 60 percent of the stud depth in nonbearing partitions. The diameter of bored holes in wood studs shall not exceed 60 percent of the stud depth in any wall where each stud is doubled, provided that not more than two such successive doubled studs are so bored. The edge of the bored hole shall not be closer than $^{5}/_{8}$ inch (15.9 mm) to the edge of the stud. Bored holes shall not be located at the same section of stud as a cut or notch.

~~2308.6.4~~ **2308.6.2.4 Limitations.** In designated lateral force-resisting system assemblies designed in accordance with this code and greater than three *stories* in height or in *Seismic Design Categories* C, D, E and F, the cutting, notching and boring of wall studs shall be as prescribed by the *registered design professional*.

In *structures* designed in accordance with the International Residential Code, modification of wall studs shall comply with the *International Residential Code*.

2308.8.3 Engineered wood products. Engineered wood products shall be installed in accordance with manufacturer's recommendations. ~~Cuts, notches and holes bored in trusses, *structural composite lumber*, structural glued-laminated members or I-joists are not permitted except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.~~

2308.11.8 Engineered wood products. Engineered wood products shall be installed in accordance with manufacturer's recommendations. ~~*Prefabricated wood I-joists*, *structural glued-laminated timber* and *structural composite lumber* shall not be notched or drilled except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.~~

Reason: Changes adopted in 2024 IBC Section 2308.6 can be misinterpreted to prohibit the use of the provisions for cuts, notches, and bored holes in engineered wood products used in light-frame conventional construction, even when the engineered wood products have been evaluated for the effects of such cuts, notches, and bored holes with guidance provided by manufacturer's recommendations. This proposal adds language to make it clear that notching and boring of engineered wood products must be in accordance with manufacturer's recommendations or as specifically accounted for by the design.

The title of the section is revised to replace the term "dimensional" with "structural" to clarify its application to structural wood framing. A new section has been added which becomes Section 2308.6.1 and addresses limitations for engineered wood products, and Section 2308.6.2, and the subsections therein, addresses limitations for sawn lumber.

Additionally, Sections 2308.8.3 for floor framing and 2308.11.8 for roof framing have been revised to limit their provisions to specify that engineered wood products must be installed in accordance with the manufacturer's instructions and to remove any duplicated notching and boring provisions in Section 2308.6.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. The proposal reorganizes existing provisions and clarifies their intent.

S168-25

S169-25

IBC: 2308.6, 2308.6.1, 2308.6.1.1, 2308.6.2, 2308.6.3, 2308.6.4

Proponents: Julius Carreon, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (jcarreon@bellevuewa.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov)

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2308.6 Cutting, notching and boring of dimensional wood framing. The provisions of this section shall only apply to dimensional wood framing and shall not include engineered wood products, heavy timber or prefabricated/manufactured wood assemblies.

Revise as follows:

2308.6.1 Floor joists, roof rafters and ceiling joists. Notches on framing ends shall not exceed one-fourth the member depth. Notches in the top or bottom of the member shall not exceed one-sixth the depth and shall not be located in the middle third of the span. A notch not more than one-third of the depth is permitted in the top of a rafter or ceiling joist not further from the face of the support than the depth of the member. Holes bored in members shall not be within 2 inches (51 mm) of the top or bottom of the member and the diameter of any such hole shall not exceed one-third the depth of the member. Where the member is notched or bored, the notch or hole shall not be closer than 2 inches (51 mm) to ~~the~~ another notch or bore.

2308.6.1.1 Ceiling joists. Where ceiling joists also serve as floor joists, they shall be considered floor joists within this section.

2308.6.2 Wall studs. In exterior walls and bearing partitions, a wood stud shall not be cut or notched in excess of 25 percent of its depth. In nonbearing partitions that do not support loads other than the weight of the partition, a stud shall not be cut or notched in excess of 40 percent of its depth.

2308.6.3 Bored holes. The diameter of bored holes in wood studs shall not exceed 40 percent of the stud depth. The diameter of bored holes in wood studs shall not exceed 60 percent of the stud depth in nonbearing partitions. The diameter of bored holes in wood studs shall not exceed 60 percent of the stud depth in any wall where each stud is doubled, provided that not more than two such successive doubled studs are so bored. The edge of the bored hole shall not be closer than $^{5}/_{8}$ inch (15.9 mm) to the edge of the stud. Bored holes shall not be located ~~at~~ within two inches (51mm) of the same section of stud as a cut or notch.

2308.6.4 Limitations. In designated lateral force-resisting system assemblies designed in accordance with this code and greater than three *stories* in height or in *Seismic Design Categories* C, D, E and F, the cutting, notching and boring of wall studs shall be as prescribed by the *registered design professional*.

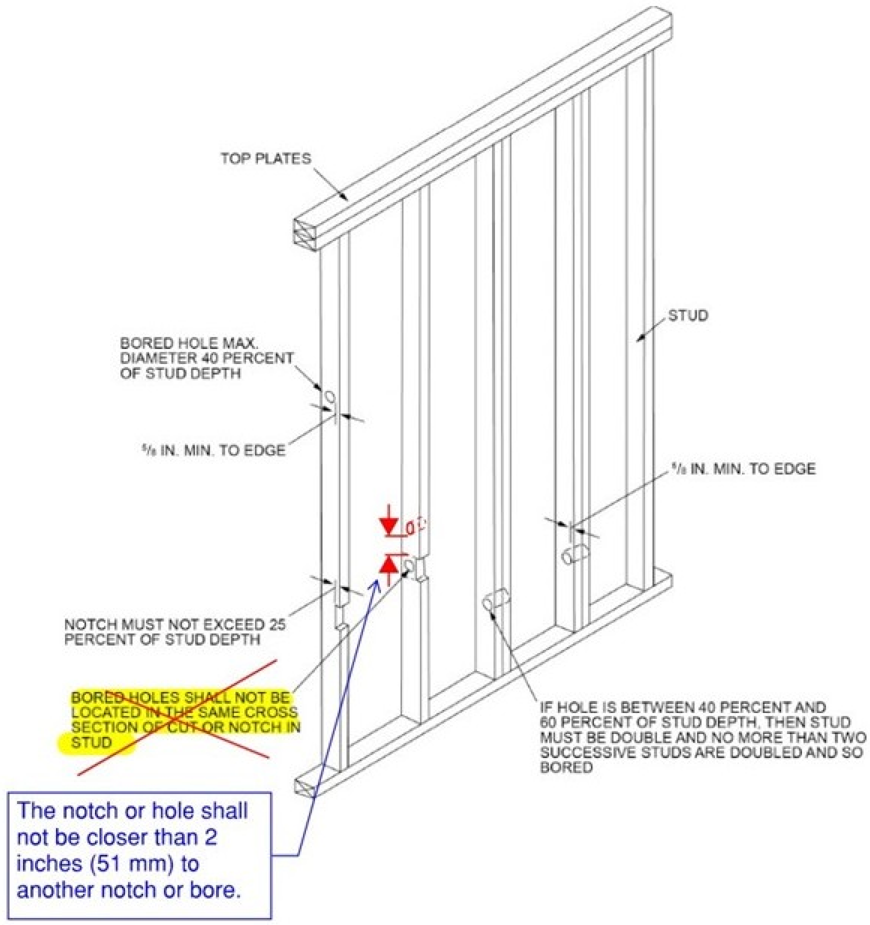
In *structures* designed in accordance with the International Residential Code, modification of wall studs shall comply with the *International Residential Code*.

Reason: This code change proposal is intended to correct the editorial inconsistencies in the reorganized code provisions for cutting, notching and boring of dimensional wood framing in the 2024 edition of the International Building Code.

The code provisions for cutting, notching and boring of dimensional wood framing have been re-organized and consolidated into a single location, Section 2308.6 (Conventional Construction), through code change proposal S224-22. The original proponent, Building Code Action Committee (BCAC) (bcac@iccsafe.org) submitted a Public Comment that included the above editorial changes and proposed relocating the provisions to Section 2304 (General Construction Requirements) during the Public Comment Hearing (PCH) process. However, this was disapproved primarily because the voters preferred to retain these provisions within the conventional construction section (Section 2308). We believe the following proposed revisions will clarify the intent of the code requirements:

- **2308.6.1 Floor joists, roof rafters, and ceiling joists:** The proposed amendment to the last sentence clarifies that the 2-inch minimum spacing allowance applies to wood members that are either notched or bored.
- **2308.6.3 Bored holes**: The proposed amendment to the last sentence makes the boring and notching requirements for wall studs consistent with the permitted 2-inch spacing requirements for joists, rafters, and beams (IBC 2308.6.1).

WABO TCD has also submitted a separate and almost identical code change proposal to the IRC Section R502.8 and Section R602.6, that address the same items above. Please see the attached mark-up IRC Figure R602-6 illustrating the proposed change in the spacing and boring requirements for wall studs.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the intent of the code and does not result in any economic impact.

S169-25

S170-25

IBC: 2308.6.2, 2308.6.2.1 (New), 2308.9.8

Proponents: Stephen Kerr, representing NCSEA (skerr@jwa-se.com)

2024 International Building Code

2308.6.2 Wall studs. In exterior walls and bearing partitions, a wood stud shall not be cut or notched in excess of 25 percent of its depth. In nonbearing partitions that do not support loads other than the weight of the partition, a stud shall not be cut or notched in excess of 40 percent of its depth.

Add new text as follows:

<u>**2308.6.2.1 Drilling and notching of wall plates.** In stud partitions where the cutting, drilling or notching of the sole plates or top plates exceeds 50 percent of its width, a galvanized metal tie not less than 0.054 inch thick (1.37 mm) (16 gage) and 1 1/2 inches (38 mm) in width shall be fastened to each plate across and to each side of the opening with not less than eight 10d (0.148 inch diameter) nails having a minimum length of 1 1/2 inches (38 mm) at each side or equivalent. The metal tie must extend not less than 6 inches past the opening.</u>

Revise as follows:

2308.9.8 Pipes in walls. Stud partitions containing plumbing, heating or other pipes shall be framed and the joists underneath spaced to provide proper clearance for the piping. Where a partition containing piping runs parallel to the floor joists, the joists underneath such partitions shall be doubled and spaced to permit the passage of pipes and shall be bridged. Where plumbing, heating or other pipes are placed in, or partly in, a partition, necessitating the cutting of the soles or plates <u>see section 2308.6.2.1.</u>~~, a metal tie not less than 0.058 inch (1.47 mm) (16 galvanized gage) and 1 1/2 inches (38 mm) in width shall be fastened to each plate across and to each side of the opening with not less than six 16d nails.~~

Reason: Currently the conventional construction provisions of the IBC 2308.9.8 require metal tie straps for any size pipe within a wall that require cutting of the plate, no matter how minor the notching or cutting may be. The notching requirement modifications proposed are to make the IBC conventional construction more consistent with the current provisions within the IRC for top plates. Currently the IBC requires the plate straps to be installed at sole plates and all stud partitions (not just top plates within exterior walls and loadbearing partitions as is the case with IRC). No changes are proposed to where the straps are to be installed. The proposed notching requirements are located in section 2308.6.2.1 and not within 2308.9.8 because the International Mechanical Code (IMC Section 302.3) and International Fuel Gas Code (IFGC Section 302.3) currently refer to section 2308.6 for cutting, notching and boring in wood framing. The International Plumbing Code (IPC Section 307.2) currently references section 2308.10 of the IBC; however, there is a separate proposal to correct the pointer to the correct section. Placing all notching requirements within one section within the IBC makes logical sense and will hopefully simplify the code and reduce confusion by not having repeating provisions in multiple code sections.

The nailing requirements are also updated to be consistent with the IRC nailing requirements as well as standard practice. Updates reflect the nail specification to include the nail diameter and nail length. Note that currently in section 2308.9.8 species a 16d nail but does not specify a nail diameter or length, indicating that this provision is has not been maintained. Taken from Table 2304.10.2 typical 16d nails are 16d common that are 3 ½" long x 0.168" diameter. This provision reduces the required nail from a 16d nail to a 10d (0.148 inch diameter) nail and the nail length limited to only 1 ½" long versus a 3 ½" 16d nail, while increasing the total number of nails. This is consistent with the action taken in RB172-06/07 where the nail size, length and quantity were changed within the IRC. Because the straps will be the same as those within the IRC no new strap configurations will be required by hardware manufacturers, so existing straps will be readily available for construction.

Note that the straps contained in this proposal are separate from the "shield plates" that are required to protect pipes close to the edge of the framing members. IMC section 305.5, IPC section 305.6 and IFGC section 404.7 all contain requirements for protection against physical damage where piping is installed within concealed locations. This proposal does not impact those requirements.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The cost of construction may slightly increase, with a net additional cost of less than $1 per strap.

Estimated Immediate Cost Impact Justification (methodology and variables):

While the number of nails increases the size of the nails is decreasing and more importantly reducing the likelihood of splitting the top plate. Adding four nails per strap should take less than one additional minute per strap. Based on a union carpenter rate of $61/hr (https://unionpayscales.com/trades/ubc-carpenters/) the additional time to install the extra nails is less than $1 per strap. Straps are already available to achieve the nailing because the nail requirements are already contained within the IRC, so no new strap design needs to be produced.

Estimated Life Cycle Cost Impact:

There should be no life cycle cost change.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

The change in strap nailing will not change the life span of the structure, and the amount of materials within the connection is about the same. Strap length is equivalent to current requirements, and while the number of nails increases the length of the nails decreases, so there should be a near net amount of steel within each connection.

S170-25

S171-25

IBC: TABLE 2308.8.1.1(1)

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org)

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Revise as follows:

TABLE 2308.8.1.1(1) HEADER AND GIRDER SPANS[a, b] FOR EXTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, Southern pine and spruce-pine-fir and required number of jack studs)

Portions of table not shown remain unchanged.

GIRDERS AND HEADERS SUPPORTING	SIZE	ALLOWABLE STRESS DESIGN GROUND SNOW LOAD, $p_{g(asd)}$, (psf)[e]																	
		30						50						70					
		Building width[c] (feet)																	
		12		24		36		12		24		36		12		24		36	
		Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]
	1-2 × 6	4-0	1	~~3-1~~ 3-0	2	~~2-7~~ 2-6	2	3-5	1	~~2-8~~ 2-7	2	~~2-3~~ 2-2	2	3-0	2	2-4	2	~~2-0~~ 1-11	2
	1-2 × 8	5-1	2	~~3-11~~ 3-10	2	3-3	2	4-4	2	~~3-4~~ 3-3	2	~~2-10~~ 2-9	2	3-10	2	~~3-0~~ 2-11	2	~~2-6~~ 2-5	3
	1-2 × 10	6-0	2	~~4-8~~ 4-7	2	~~3-11~~ 3-10	2	5-2	2	~~4-0~~ 3-11	2	~~3-4~~ 3-3	3	4-7	2	~~3-6~~ 3-5	3	~~3-0~~ 2-11	3
	1-2 × 12	7-1	2	~~5-5~~ 5-4	2	~~4-7~~ 4-6	3	6-1	2	~~4-8~~ 4-7	3	~~3-11~~ 3-10	3	~~5-5~~ 5-4	2	~~4-2~~ 4-1	3	~~3-6~~ 3-5	3
	2-2 × 4	4-0	1	~~3-1~~ 3-0	1	~~2-7~~ 2-6	1	3-5	1	2-7	1	2-2	1	3-0	1	~~2-4~~ 2-3	1	~~2-0~~ 1-11	1
	2-2 × 6	~~6-0~~ 5-11	1	~~4-7~~ 4-6	1	~~3-10~~ 3-9	1	5-1	1	~~3-11~~ 3-10	1	~~3-3~~ 3-2	2	4-6	1	~~3-6~~ 3-5	2	~~2-11~~ 2-10	2
	2-2 × 8	~~7-7~~ 7-6	1	~~5-9~~ 5-8	1	~~4-10~~ 4-9	2	6-5	1	~~5-0~~ 4-10	2	~~4-2~~ 4-1	2	~~5-9~~ 5-8	1	~~4-5~~ 4-4	2	~~3-9~~ 3-7	2
Roof and ceiling	2-2 × 10	~~9-0~~ 8-11	1	~~6-10~~ 6-9	2	~~5-9~~ 5-8	2	7-8	2	~~5-11~~ 5-9	2	~~4-11~~ 4-10	2	6-9	2	~~5-3~~ 5-1	2	~~4-5~~ 4-3	2
	2-2 × 12	~~10-7~~ 10-6	2	~~8-1~~ 7-11	2	~~6-10~~ 6-8	2	9-0	2	~~6-11~~ 6-9	2	~~5-10~~ 5-8	2	8-0	2	~~6-2~~ 6-0	2	~~5-2~~ 5-0	3
	3-2 × 8	9-5	1	~~7-3~~ 7-2	1	~~6-1~~ 6-0	1	8-1	1	~~6-3~~ 6-1	1	~~5-3~~ 5-1	2	7-2	1	~~5-6~~ 5-5	2	~~4-8~~ 4-6	2
	3-2 × 10	~~11-3~~ 11-2	1	~~8-7~~ 8-5	1	~~7-3~~ 7-1	2	9-7	1	~~7-4~~ 7-3	2	~~6-2~~ 6-1	2	8-6	1	~~6-7~~ 6-5	2	~~5-6~~ 5-4	2
	3-2 × 12	13-2	1	~~10-1~~ 10-0	2	~~8-6~~ 8-4	2	11-3	2	~~8-8~~ 8-6	2	~~7-4~~ 7-1	2	10-0	2	~~7-9~~ 7-7	2	~~6-6~~ 6-4	2
	4-2 × 8	10-11	1	~~8-4~~ 8-3	1	~~7-0~~ 6-11	1	9-4	1	~~7-2~~ 7-0	1	~~6-0~~ 5-11	1	8-3	1	~~6-4~~ 6-3	1	~~5-4~~ 5-3	2
	4-2 × 10	12-11	1	~~9-11~~ 9-9	1	~~8-4~~ 8-2	1	~~11-1~~ 11-0	1	~~8-6~~ 8-4	1	~~7-2~~ 7-0	2	~~9-10~~ 9-9	1	~~7-7~~ 7-5	2	~~6-4~~ 6-2	2
	4-2 × 12	15-3	1	~~11-8~~ 11-6	1	~~9-10~~ 9-7	2	13-0	1	~~10-0~~ 9-10	2	~~8-5~~ 8-3	2	~~11-7~~ 11-6	1	~~8-11~~ 8-9	2	~~7-6~~ 7-3	2
	1-2 × 6	3-3	1	~~2-7~~ 2-6	2	2-2	2	3-0	2	2-4	2	2-0	2	2-9	2	2-2	2	1-10	2
	1-2 × 8	4-1	2	~~3-3~~ 3-2	2	2-9	2	3-9	2	~~3-0~~ 2-11	2	2-6	3	3-6	2	2-9	2	2-4	3
	1-2 × 10	~~4-11~~ 4-10	2	3-10	2	3-3	3	4-6	2	3-6	3	~~3-0~~ 2-11	3	4-1	2	3-3	3	2-9	3
	1-2 × 12	5-9	2	4-6	3	3-10	3	5-3	2	~~4-2~~ 4-1	3	3-6	3	4-10	3	3-10	3	3-3	4
	2-2 × 4	~~3-3~~ 3-2	1	2-6	1	~~2-2~~ 2-1	1	~~3-0~~ 2-11	1	~~2-4~~ 2-3	1	~~2-0~~ 1-11	1	2-8	1	~~2-2~~ 2-1	1	1-10	1
	2-2 × 6	4-10	1	3-9	1	~~3-3~~ 3-2	2	4-5	1	~~3-6~~ 3-5	2	~~3-0~~ 2-11	2	4-1	1	~~3-3~~ 3-2	2	~~2-9~~ 2-8	2
	2-2 × 8	6-1	1	~~4-10~~ 4-9	2	~~4-1~~ 4-0	2	5-7	2	~~4-5~~ 4-4	2	~~3-9~~ 3-8	2	5-2	2	~~4-1~~ 4-0	2	~~3-6~~ 3-5	2
Roof, ceiling and one center-bearing floor	2-2 × 10	7-3	2	5-8	2	~~4-10~~ 4-9	2	6-8	2	~~5-3~~ 5-2	2	~~4-5~~ 4-4	2	6-1	2	~~4-10~~ 4-9	2	4-1	2
	2-2 × 12	8-6	2	6-8	2	5-8	2	7-10	2	~~6-2~~ 6-1	2	~~5-3~~ 5-2	3	7-2	2	5-8	2	~~4-10~~ 4-9	3
	3-2 × 8	7-8	1	~~6-0~~ 5-11	1	5-1	2	7-0	1	~~5-6~~ 5-5	2	~~4-8~~ 4-7	2	6-5	1	5-1	2	~~4-4~~ 4-3	2
	3-2 × 10	9-1	1	~~7-2~~ 7-1	2	~~6-1~~ 6-0	2	8-4	1	~~6-7~~ 6-6	2	~~5-7~~ 5-6	2	7-8	2	~~6-1~~ 6-0	2	~~5-2~~ 5-1	2
	3-2 × 12	10-8	2	~~8-5~~ 8-4	2	~~7-2~~ 7-1	2	9-10	2	~~7-8~~ 7-7	2	~~6-7~~ 6-5	2	9-0	2	7-1	2	~~6-1~~ 6-0	2
	4-2 × 8	8-10	1	6-11	1	~~5-11~~ 5-10	1	8-1	1	6-4	1	~~5-5~~ 5-4	2	7-5	1	~~5-11~~ 5-10	1	~~5-0~~ 4-11	2
	4-2 × 10	~~10-6~~ 10-5	1	~~8-3~~ 8-2	2	~~7-0~~ 6-11	2	~~9-8~~ 9-7	1	~~7-7~~ 7-6	2	~~6-5~~ 6-4	2	8-10	1	~~7-0~~ 6-11	2	~~6-0~~ 5-10	2
	4-2 × 12	12-4	1	~~9-8~~ 9-7	2	~~8-3~~ 8-2	2	11-4	2	~~8-11~~ 8-10	2	~~7-7~~ 7-5	2	10-4	2	~~8-3~~ 8-2	2	~~7-0~~ 6-11	2
	1-2 × 6	2-11	2	2-3	2	1-11	2	2-9	2	2-1	2	1-9	2	2-7	2	2-0	2	1-8	2
	1-2 × 8	3-9	2	2-10	2	2-5	3	3-6	2	2-8	2	2-3	3	3-3	2	2-6	3	~~2-2~~ 2-1	3
	1-2 × 10	4-5	2	3-5	3	2-10	3	~~4-2~~ 4-1	2	3-2	3	2-8	3	~~3-11~~ 3-10	2	3-0	3	2-6	3
	1-2 × 12	5-2	2	4-0	3	3-4	3	4-10	3	3-9	3	~~3-2~~ 3-1	4	4-7	3	3-6	3	~~3-0~~ 2-11	4
	2-2 × 4	2-11	1	2-3	1	1-10	1	2-9	1	2-1	1	1-9	1	2-7	1	~~2-0~~ 1-11	1	~~1-8~~ 1-7	1
	2-2 × 6	4-4	1	3-4	2	2-10	2	4-1	1	~~3-2~~ 3-1	2	~~2-8~~ 2-7	2	3-10	1	~~3-0~~ 2-11	2	~~2-6~~ 2-5	2
	2-2 × 8	5-6	2	4-3	2	3-7	2	5-2	2	~~4-0~~ 3-11	2	3-4	2	4-10	2	~~3-9~~ 3-8	2	~~3-2~~ 3-1	2
Roof, ceiling and one clear span floor	2-2 × 10	6-7	2	5-0	2	4-2	2	6-1	2	~~4-9~~ 4-8	2	~~4-0~~ 3-11	2	5-9	2	4-5	2	~~3-9~~ 3-8	3
	2-2 × 12	7-9	2	5-11	2	4-11	3	7-2	2	~~5-7~~ 5-6	2	4-8	3	6-9	2	~~5-3~~ 5-2	3	~~4-5~~ 4-4	3
	3-2 × 8	6-11	1	5-3	2	4-5	2	6-5	1	~~5-0~~ 4-11	2	4-2	2	6-1	1	4-8	2	~~4-0~~ 3-11	2
	3-2 × 10	~~8-3~~ 8-2	2	6-3	2	5-3	2	7-8	2	~~5-11~~ 5-10	2	~~5-0~~ 4-11	2	~~7-3~~ 7-2	2	~~5-7~~ 5-6	2	~~4-8~~ 4-7	2
	3-2 × 12	9-8	2	7-5	2	6-2	2	9-0	2	~~7-0~~ 6-11	2	5-10	2	8-6	2	~~6-7~~ 6-6	2	~~5-6~~ 5-5	3
	4-2 × 8	8-0	1	6-1	1	5-1	2	7-5	1	~~5-9~~ 5-8	2	~~4-10~~ 4-9	2	7-0	1	~~5-5~~ 5-4	2	~~4-7~~ 4-6	2
	4-2 × 10	9-6	1	7-3	2	6-1	2	8-10	1	~~6-10~~ 6-9	2	~~5-9~~ 5-8	2	8-4	1	~~6-5~~ 6-4	2	~~5-5~~ 5-4	2
	4-2 × 12	11-2	2	8-6	2	7-2	2	10-5	2	~~8-0~~ 7-11	2	~~6-9~~ 6-8	2	~~9-10~~ 9-9	2	~~7-7~~ 7-6	2	~~6-5~~ 6-3	2
	1-2 × 6	2-8	2	2-1	2	1-10	2	2-7	2	2-0	2	~~1-9~~ 1-8	2	2-5	2	1-11	2	~~1-8~~ 1-7	2
	1-2 × 8	3-5	2	2-8	2	2-4	3	3-3	2	~~2-7~~ 2-6	2	2-2	3	3-1	2	2-5	3	~~2-1~~ 2-0	3
	1-2 × 10	4-0	2	3-2	3	2-9	3	3-10	2	~~3-1~~ 3-0	3	2-7	3	3-8	2	~~2-11~~ 2-10	3	2-5	3
	1-2 × 12	4-9	3	3-9	3	3-2	4	4-6	3	3-7	3	~~3-1~~ 3-0	4	4-3	3	~~3-5~~ 3-4	3	~~2-11~~ 2-10	4
	2-2 × 4	2-8	1	2-1	1	1-9	1	2-6	1	2-0	1	1-8	1	2-5	1	~~1-11~~ 1-10	1	1-7	1

GIRDERS AND HEADERS SUPPORTING	SIZE	ALLOWABLE STRESS DESIGN GROUND SNOW LOAD, *p* (psf)																	
		30						50						70					
		Building width (feet)																	
		12		24		36		12		24		36		12		24		36	
		Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ
Roof, ceiling and two center-bearing floors																			
	2-2 × 6	4-0	1	3-2	2	2-8	2	3-9	1	3-0	2	~~2-7~~ 2-6	2	3-7	1	2-10	2	2-5	2
	2-2 × 8	5-0	2	4-0	2	3-5	2	~~4-10~~ 4-9	2	~~3-10~~ 3-9	2	~~3-3~~ 3-2	2	~~4-7~~ 4-6	2	3-7	2	~~3-1~~ 3-0	2
	2-2 × 10	6-0	2	4-9	2	4-0	2	5-8	2	4-6	2	3-10	3	5-5	2	4-3	2	~~3-8~~ 3-7	3
	2-2 × 12	7-0	2	5-7	2	4-9	3	6-8	2	~~5-4~~ 5-3	3	4-6	3	6-4	2	5-0	3	4-3	3
	3-2 × 8	6-4	1	5-0	2	4-3	2	6-0	1	4-9	2	~~4-1~~ 4-0	2	5-8	2	~~4-6~~ 4-5	2	~~3-10~~ 3-9	2
	3-2 × 10	7-6	2	5-11	2	5-1	2	7-1	2	~~5-8~~ 5-7	2	~~4-10~~ 4-9	2	6-9	2	~~5-4~~ 5-3	2	~~4-7~~ 4-6	2
	3-2 × 12	8-10	2	7-0	2	5-11	2	8-5	2	~~6-8~~ 6-7	2	~~5-8~~ 5-7	3	~~8-0~~ 7-11	2	~~6-4~~ 6-3	2	~~5-4~~ 5-3	3
	4-2 × 8	7-3	1	5-9	1	4-11	2	6-11	1	~~5-6~~ 5-5	2	4-8	2	6-7	1	5-2	2	~~4-5~~ 4-4	2
	4-2 × 10	8-8	1	6-10	2	5-10	2	8-3	2	6-6	2	~~5-7~~ 5-6	2	~~7-10~~ 7-9	2	~~6-2~~ 6-1	2	~~5-3~~ 5-2	2
	4-2 × 12	10-2	2	8-1	2	6-10	2	9-8	2	~~7-8~~ 7-7	2	~~6-7~~ 6-6	2	9-2	2	~~7-3~~ 7-2	2	~~6-2~~ 6-1	2
	1-2 × 6	2-3	2	1-9	2	1-5	2	2-3	2	1-9	2	1-5	3	2-2	2	1-8	2	1-5	3
	1-2 × 8	2-10	2	2-2	3	1-10	3	2-10	2	2-2	3	1-10	3	2-9	2	2-1	3	~~1-10~~ 1-9	3
	1-2 × 10	3-4	2	2-7	3	2-2	3	3-4	3	2-7	3	2-2	4	3-3	3	2-6	3	~~2-2~~ 2-1	4
	1-2 × 12	4-0	3	3-0	3	2-7	4	4-0	3	3-0	4	2-7	4	3-10	3	~~3-0~~ 2-11	4	2-6	4
	2-2 × 4	2-3	1	1-8	1	1-4	1	2-3	1	1-8	1	1-4	1	2-2	1	~~1-8~~ 1-7	1	1-4	2
	2-2 × 6	3-4	1	2-6	2	2-2	2	3-4	2	2-6	2	2-2	2	3-3	2	2-6	2	2-1	2
	2-2 × 8	4-3	2	3-3	2	2-8	2	4-3	2	3-3	2	2-8	2	4-1	2	~~3-2~~ 3-1	2	2-8	3
Roof, ceiling and two clear span floors	2-2 × 10	5-0	2	3-10	2	3-2	3	5-0	2	3-10	2	3-2	3	4-10	2	~~3-9~~ 3-8	3	~~3-2~~ 3-1	3
	2-2 × 12	5-11	2	4-6	3	3-9	3	5-11	2	4-6	3	3-9	3	5-8	2	~~4-5~~ 4-4	3	~~3-9~~ 3-8	3
	3-2 × 8	5-3	1	4-0	2	3-5	2	5-3	2	4-0	2	3-5	2	5-1	2	3-11	2	3-4	2
	3-2 × 10	6-3	2	4-9	2	4-0	2	6-3	2	4-9	2	4-0	2	6-1	2	4-8	2	~~4-0~~ 3-11	3
	3-2 × 12	7-5	2	5-8	2	4-9	3	7-5	2	5-8	2	4-9	3	7-2	2	5-6	3	~~4-8~~ 4-7	3
	4-2 × 8	6-1	1	4-8	2	3-11	2	6-1	1	4-8	2	3-11	2	5-11	1	~~4-7~~ 4-6	2	3-10	2
	4-2 × 10	7-3	2	5-6	2	4-8	2	7-3	2	5-6	2	4-8	2	7-0	2	~~5-5~~ 5-4	2	~~4-7~~ 4-6	2
	4-2 × 12	8-6	2	6-6	2	5-6	2	8-6	2	6-6	2	5-6	2	8-3	2	6-4	2	5-4	3

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas fir-larch, hem-fir, Southern pine and spruce-pine fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

e. Use 30 psf allowable stress design ground snow load for cases in which allowable stress designground snow load is less than 30 psf and the roof liveload is equal to or less than 20 psf.

f. Spans are calculated assuming a single span header or girder under uniform load where the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (for example, cripple studs bearing on the header), tabulated spans for headers consisting of 2 × 8, 2 × 10, or 2 × 12 sizes shall be multiplied by 0.70 or the header or girder shall be designed.

Reason: This proposal updates the header tables in multiple locations to be aligned with ASCE 7-22. The proposed spans align with those found in the ANSI/AWC *2024 Wood Frame Construction Manual (WFCM).* Additionally, language has been added to footnote f to clarify that all header and girder calculations are based on the assumption that they are single-span headers or girders. This clarification is necessary as multi-span headers are not addressed by the tables.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal updates the header tables in multiple locations to be aligned with ASCE 7-22. Updated spans are typically shorter by either 1 or 2 inches. This minor adjustment in span will likely not impact the lumber lengths needed for construction, as some trimming will still be necessary to accommodate the actual header span end use. As the cost impact cannot be a decrease, and any increase is minimal that may not be realized due to typical waste, the cost impact is estimated at an increase of $0.

S171-25

S172-25

IBC: 2308.8.2.2, TABLE 2304.10.2

Proponents: David Tyree, representing American Wood Council (dtyree@awc.org); Shane Nilles, representing American Wood Council (snilles@awc.org); Jason Smart, representing American Wood Council (jsmart@awc.org)

2024 International Building Code

Revise as follows:

2308.8.2.2 Bearing. The ends of each joist shall have not less than 1 $^1/_2$ inches (38 mm) of bearing on wood or metal, or not less than 3 inches (76 mm) on *masonry*, except where supported on a 1-inch by 4-inch (25 mm by 102 mm) let-in ribbon strip, and the joist and ribbon strip shall be nailed to the adjoining stud in accordance with Table 2304.10.2.

TABLE 2304.10.2 FASTENING SCHEDULE

Portions of table not shown remain unchanged.

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[g]	SPACING AND LOCATION
	Wall	
28. Ribbon strip supporting joists	3-8d box (2$^1/_2$″ x 0.113″); or 2-8d common (2$^1/_2$″ × 0.131″); or 2-10d box (3″ × 0.128″); or 2-1$^3/_4$″ 16 gage staples, 1″ crown	Face nail at each stud
29. Joist to stud where supported by ribbon strip	4-8d box (2$^1/_2$″ × 0.113″); or 3-8d common (2$^1/_2$″ × 0.131″); or floor 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails; or 3-3″ 14 gage staples, $^7/_{16}$″ crown	Face nail

Reason: Section 2308.8.2.2 permits a ribbon strip to provide bearing for joists but does not specify how the ribbon strip is required to be let-in to the stud and fastened. Additionally, the joists are required to be nailed to the adjacent stud, but no fasteners are specified. This code change provides provisions for proper installation of the ribbon strip and associated fastening with two new rows being added to Table 2304.10.2. The nailing for "Ribbon strip to supporting joists" is based on current item #19 and the nailing for "Joist to stud where supported by ribbon strip" is based on current item #21.

NOTE: The existing items in Table 2304.10.2 will be renumbered accordingly but are not shown for brevity.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal provides clarification for installation of ribbon strips which is already a framing option in the code.

S172-25

S173-25

IBC: 2308.9.3.2, 2308.9.3.2.1 (New)

Proponents: John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

2308.9.3.2 Top plates. Bearing and exterior wall studs shall be capped with double top plates installed to provide overlapping at corners and at intersections with other partitions. End joints in double top plates shall be offset not less than 48 inches (1219 mm), and shall be nailed in accordance with Table 2304.10.2. Plates shall be a nominal 2 inches (51 mm) in depth and have a width not less than the width of the studs.

Exception: A single top plate is permitted, provided that the plate is adequately tied at corners and intersecting walls by not less than the equivalent of 3-inch by 6-inch (76 mm by 152 mm) by 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by six 8d [$2^1/_2$-inch by 0.113-inch (64-mm by 2.87 mm)] box nails or equivalent on each side of the joint. For the butt-joint splice between adjacent single top plates, not less than the equivalent of a 3-inch by 12-inch (76 mm by 304 mm) by 0.036-inch-thick (0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by 12 8d [$2^1/_2$-inch by 0.113-inch (64 mm by 2.87 mm)] box nails on each side of the joint shall be required, provided that the rafters, joists or trusses are centered over the studs with a tolerance of not more than 1 inch (25 mm). The top plate shall not be required over headers that are in the same plane and in line with the upper surface of the adjacent top plates and are tied to adjacent wall sections as required for the butt joint splice between adjacent single top plates.

Where bearing studs are spaced at 24-inch (610 mm) intervals, top plates are less than two 2-inch by 6-inch (51 mm by 152 mm) or two 3-inch by 4-inch (76 mm by 102 mm) members and the floor joists, floor trusses or roof trusses that they support are spaced at more than 16-inch (406 mm) intervals, such joists or trusses shall bear within 5 inches (127 mm) of the studs beneath or a third plate shall be installed.

Add new text as follows:

2308.9.3.2.1 Wall top plate support.. Wall top plates shall be supported out of plane by diaphragms, perpendicular framing or blocking spaced no more than 32 inches on center and connected per table 2304.10.2, or by diagonal bracing specified by a registered design professional.

Reason: Bracing of the wall top plate at walls parallel to metal plate connected wood trusses is addressed in BCSI B-3 which is not part of this code. Also, wall bracing at the top plate at the gable end of wood walls is referenced in FEMA FAI 22 Building Performance: Hurricane Andrew In Florida – Observations and FEMA P-55 Recommendations, and Technical Guidance and Coastal Construction Manual - Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas, Fourth Edition, Volume II. Both of these documents note the failure of walls due to unbraced walls at the base of a the gable end wall/top plate of wall. Although these documents reference residential structures, the same principles apply to light framed wood constructed buildings for commercial and other uses. Additionally, see photo examples of construction deficiencies discovered in new construction by the author.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost increase for this code change proposal. This is a clarification of current requirements to brace the wall top plates.

S173-25

S174-25

IBC: 2404.1

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com)

2024 International Building Code

Revise as follows:

2404.1 Vertical glass. Glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind *loads* due to *basic wind speed* , *V*, in Section 1609 for components and cladding. Glass in glazed curtain walls, glazed storefronts and glazed partitions shall meet the seismic requirements of ASCE 7, Section 13.5.9. The load resistance of glass under uniform *load* shall be determined in accordance with ASTM E1300.

The design of vertical glazing shall be based on Equation 24-1.

$$0.6F_{gw} \le F_{ga} \quad \textbf{(Equation 24-1)}$$

where:

F_{gw} = Wind *load* on the glass due to *basic wind speed* , *V*, computed in accordance with Section 1609. F_{ga} = Short duration *load* on the glass as determined in accordance with ASTM E1300.

<u>**Exception:** For buildings and structures assigned to Seismic Design Category B where the component Importance Factor, I_p, is equal to 1.0, and for all buildings and structures assigned to Seismic Design Category A, glass in glazed curtain walls, glazed storefronts, and glazed partitions need not meet the seismic requirements of ASCE 7, Section 13.5.9.</u>

Reason: The portion of IBC Section 2404.1 that points to Section 13.5.9 of ASCE 7-22 creates a significant conflict with that standard. The way IBC Section 2404.1 is worded, the sentence "*Glass in glazed curtain walls, glazed storefronts and glazed partitions shall meet the seismic requirements of ASCE 7, Section 13.5.9*" requires compliance with Section 13.5.9 for all buildings and structures regardless of their Seismic Design Category.

However, buildings and structures in Seismic Design Category A are not designed for seismic loads, so seismic drifts are not calculated and it would consequently be difficult to determine whether or not glass met the fall-out seismic drift requirement of Section 13.5.9.1. Further, Section 11.7 of ASCE 7-22 provides a blanket statement that nonstructural components on buildings and structures assigned to Seismic Design Category A are exempt from seismic design requirements. Finally, Section 13.1.4 of ASCE 7-22 points the user to Table 13-1, which lists nonstructural components that are exempt from the requirements of Chapter 13 of ASCE 7-22; in this table, all nonstructural components are exempted from compliance with the entirety of Chapter 13 for all buildings and structures assigned to Seismic Design Category A.

Similarly for buildings and structures assigned to Seismic Design Category B, Table 13.1-1 of ASCE 7-22 exempts all architectural components except parapets from compliance with the entirety of Chapter 13 provided that the component Importance Factor, I_p, is equal to 1.0. So again, IBC Section 2404.1 points the user to Section 13.5.9 of ASCE 7-22, but that section does not apply, along with the whole chapter, if the component Importance Factor is equal to 1.To address this conflict, an exception is proposed to Section 2404.1 to provide an "out" for glass in all buildings and structures assigned to Seismic Design Category A, and for glass in buildings and structures assigned to Seismic Design Category B as long as the component Importance Factor is equal to 1.

Bibliography: https://unitedfacade.com/curtain-wall-system-cost-and-comparison-with-other-wall-systems

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The removal of this conflict likely reduces head-scratching by engineers, architects, and building officials because they no longer have to figure out whether Section 13.5.9 must be followed, which could easily save several thousand dollars per building, perhaps more. In cases where the provisions of Section 13.5.9 would have mistakenly applied to the design of the glass, there might be significant cost savings if the building is large. Based on my thirty years of experience in the field of structural engineering, I estimate that this could easily save between ten thousand and several tens of thousands of dollars or more per building compared to a design where Section 13.5.9 was mistakenly applied. This cost would depend on the cladding construction, the size of the building, and how much drift could be accommodated by the cladding selected for the building.

Estimated Immediate Cost Impact Justification (methodology and variables):

It makes logical sense that removing a conflict from the code will reduce design time and construction costs. Given that structural and facade consultants charge out at several hundred dollars per hour, it wouldn't take many hours to save several thousand dollars by not having them re-engineer a cladding design to meet requirements that make little to no sense. Similarly, for the cladding itself, avoiding having a cladding to allow greater drifts than normal would preclude the need for larger joints, more sealant, and more attention to detail during construction. Given that claddings can easily cost $100 per square foot (https://unitedfacade.com/curtain-wall-system-cost-and-comparison-with-other-wall-systems/), saving even a small percentage of this cost can quickly add up to tens of thousands of dollars for a large building.

S174-25

S175-25

IBC: 2407.1

Proponents: Kevin Brinkman, NEI, representing NEII (klbrinkman@neii.org)

2024 International Building Code

Revise as follows:

2407.1 Materials. Glass used in a *handrail* or a *guard* shall be laminated glass constructed of fully tempered or heat-strengthened glass and shall comply with Category II of CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1. Glazing in a *handrail* or a *guard* shall be of an *approved* safety glazing material that conforms to the provisions of Section 2406.1.1. For all glazing types, the minimum nominal thickness shall be $^1/_4$ inch (6.4 mm).

~~Exception~~ Exceptions:

1. Single fully tempered glass complying with Category II of CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1 shall be permitted to be used in *handrails* and *guards* where there is no walking surface beneath them or the walking surface is permanently protected from the risk of falling glass.
2. Glazing used in escalators and moving walks shall comply with the requirements for glazing in ASME A17.1/CSA B44.

Reason: Specific glazing requirements for escalators and moving walks are already addressed in ASME A17.1/CSA B44 Safety Code for Elevators and Escalators, requirements 6.1.3.3.3 and 6.2.3.3.3. These requirements are more appropriately defined in the elevator/escalator code. The proposed exception removes potential conflict between codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact because this proposal is a clarification of where to find the existing requirements for glazing used on escalators and moving walks.

S175-25

S176-25

IBC: TABLE 2506.2, TABLE 2507.2, ASTM Chapter 35 (New)

Proponents: Tim Earl, GBH International, representing the Gypsum Association (tearl@gbhint.com)

2024 International Building Code

Revise as follows:

TABLE 2506.2 GYPSUM PANEL PRODUCTS MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
Accessories for gypsum board	ASTM C1047
Adhesives for fastening gypsum board to wood framing	ASTM C557
Cold-formed steel studs and track, structural	AISI S240 or ASTM C955
Cold-formed steel studs and track, nonstructural	AISI S220 or ASTM C645
Elastomeric joint sealants	ASTM C920
Expandable foam adhesives for fastening gypsum wallboard to wood framing	ASTM D6464
Factory-laminated gypsum panel product	ASTM C1766
Fiber-reinforced gypsum panels	ASTM C1278
Glass mat gypsum backing panel	ASTM C1178
Glass mat gypsum panels	ASTM C1658
Glass mat gypsum substrate used as sheathing	ASTM C1177
Joint reinforcing tape and compound	ASTM C474; C475
Nails for gypsum boards	ASTM C514, F547, F1667
Steel screws	ASTM C954; C1002
Standard specification for gypsum board	ASTM C1396
Testing gypsum and gypsum products	ASTM C22; C472; C473

TABLE 2507.2 LATH, PLASTERING MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
Accessories for gypsum veneer base	ASTM C1047
Blended cement	ASTM C595
Cold-formed steel studs and track, structural	AISI S240 or ASTM C955
Cold-formed steel studs and track, nonstructural	AISI S220 or ASTM C645
Exterior plaster bonding compounds	ASTM C932
Hydraulic cement	ASTM C1157; C1600
Gypsum casting and molding plaster	ASTM C59
Gypsum Keene's cement	ASTM C61
Gypsum plaster	ASTM C28
Gypsum veneer plaster	ASTM C587
Interior bonding compounds, gypsum	ASTM C631
Lime plasters	ASTM C5; C206
Masonry cement	ASTM C91
Metal lath	ASTM C847
Plaster aggregatesSand Perlite Vermiculite	ASTM C35; C897 ASTM C35 ASTM C35
Plastic cement	ASTM C1328
Portland cement	ASTM C150
Steel screws	ASTM C1002; C954
Welded wire lath	ASTM C933
Woven wire plaster base	ASTM C1032

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

ASTM C645-24: Standard Specification for Nonstructural Steel Framing Members

ASTM C955-24: Standard Specification for Cold-Formed Steel Structural Framing Members

Reason: This change adds the equivalent ASTM standards, which were removed from this section in the 2018 codes. Some users prefer to use ASTM standards.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This simply adds ASTM standards as alternatives to the AISI standards.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

ASTM C645-24 Standard Specification for Nonstructural Steel Framing Members

ASTM C955-24 Standard Specification for Cold-Formed Steel Structural Framing Members

S176-25

S177-25

IBC: 2512.1.2, 2507.2, TABLE 2507.2, ASTM Chapter 35 (New)

Proponents: Jeff Bowlsby, representing Self

2024 International Building Code

Revise as follows:

2512.1.2 Weep screeds. A minimum 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage), corrosion-resistant weep screed with a minimum vertical attachment flange of $3^{1}/_{2}$ inches (89 mm) shall be provided at or below the foundation plate line on exterior stud walls in accordance with ASTM C926 <u>and ASTM C1861</u>. The weep screed shall be placed not less than 4 inches (102 mm) above the earth or 2 inches (51 mm) above paved areas and be of a type that will allow trapped water to drain to the exterior of the *building*. The *water-resistive barrier* shall lap the attachment flange. The exterior lath shall cover and terminate on the attachment flange of the weep screed.

2507.2 Standards. Lathing and plastering materials shall conform to the standards listed in Table 2507.2 and Chapter 35 and, where required for fire protection, shall conform to the provisions of Chapter 7.

TABLE 2507.2 LATH, PLASTERING MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
Accessories for gypsum veneer base	ASTM C1047
Blended cement	ASTM C595
Cold-formed steel studs and track, structural	AISI S240
Cold-formed steel studs and track, nonstructural	AISI S220
Exterior plaster bonding compounds	ASTM C932
Hydraulic cement	ASTM C1157; C1600
Gypsum casting and molding plaster	ASTM C59
Gypsum Keene's cement	ASTM C61
Gypsum plaster	ASTM C28
Gypsum veneer plaster	ASTM C587
Interior bonding compounds, gypsum	ASTM C631
<u>Lathing Accessories, Furring Accessories and Fasteners</u>	<u>ASTM C1861</u>
Lime plasters	ASTM C5; C206
Masonry cement	ASTM C91
Metal lath	ASTM C847
Plaster aggregatesSand Perlite Vermiculite	ASTM C35; C897 ASTM C35 ASTM C35
Plastic cement	ASTM C1328
Portland cement	ASTM C150
Steel screws	ASTM C1002; C954
Welded wire lath	ASTM C933
Woven wire plaster base	ASTM C1032

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

<u>ASTM C1861-23a</u>	<u>Standard Specification for Lathing and Furring Accessories, and Fasteners, for Interior and Exterior Portland Cement-Based Plaster</u>

Reason: ASTM C1861 has been a reference standard in ASTM C1063, the metal lathing installation standard, since 2017.

ASTM C1861 is a product standard for lathing accessories, furring accessories and fasteners where their installation is specified in ASTM C1063.

Lathing accessory product manufacturers and project architectural specifications have been referencing ASTM C1861 for several years.

ASTM C1861 meets CP-28-05, Sections 4.4 and 4.6 requirements.

ASTM C1861 meets the requirements in the ICC References Standards Guide as a second tier reference standard and as such is currently enforceable by building code officials.

The ASTM C1861 task group members have expressed full support of an application to ICC for IBC for considering ASTM C1861 as a reference standard.

ASTM C1861 has been balloted for inclusion as a reference standard into ASTM E2128 Standard Guide for Evaluating Water Leakage of Buildings

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed referenced standard is already being used in industry for many years.

Staff Analysis: A review of the standard proposed for inclusion in the code, ASTM C1861-23a Standard Specification for Lathing and Furring Accessories, and Fasteners, for Interior and Exterior Portland Cement-Based Plaster, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

S177-25

S178-25

IBC: TABLE 2507.2

Proponents: Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); James Farny, Portland Cement Association, representing US cement manufacturers (jfarny@cement.org); Dr. Julian Mills-Beale, representing National Ready Mixed Concrete Association (jmills-beale@nrmca.org)

2024 International Building Code

Revise as follows:

TABLE 2507.2 LATH, PLASTERING MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
Accessories for gypsum veneer base	ASTM C1047
Blended cement	ASTM C595
Cold-formed steel studs and track, structural	AISI S240
Cold-formed steel studs and track, nonstructural	AISI S220
Exterior plaster bonding compounds	ASTM C932
Performance ~~Hydraulic~~ hydraulic cement	ASTM C1157~~; C1600~~
Rapid-hardening hydraulic cement	ASTM C1600
Gypsum casting and molding plaster	ASTM C59
Gypsum Keene's cement	ASTM C61
Gypsum plaster	ASTM C28
Gypsum veneer plaster	ASTM C587
Interior bonding compounds, gypsum	ASTM C631
Lime plasters	ASTM C5; C206
Masonry cement	ASTM C91
Metal lath	ASTM C847
Plaster aggregatesSand Perlite Vermiculite	ASTM C35; C897 ASTM C35 ASTM C35
Plastic cement	ASTM C1328
Portland cement	ASTM C150
Steel screws	ASTM C1002; C954
Welded wire lath	ASTM C933
Woven wire plaster base	ASTM C1032

Reason: This proposal is part of a series of proposals to the IBC and IRC to update cement terminology in the building codes.

The proposed revisions reflect current cement technology and market conditions, which can vary across regions. Nationally, the market is no longer dominated by portland cement. More than sixty percent of the current cement market consists of blended cements, including portland-limestone cement (PLC) and other blended cements that meet the requirements of ASTM C595/C595M, Specification for Blended Hydraulic Cements (Portland Cement Association, 2025). ASTM C595/C595M is referenced in the International Building Code/ International Residential Code.

This specific proposal provides clarification and differentiation between ASTM C1157 for performance hydraulic cement and ASTM C1600 for rapid-hardening hydraulic cement.

Bibliography: Portland Cement Association, 2025. Reducing Carbon at the Cement Plant. https://cementprogress.com/reducing-carbon-at-the-cement-plant/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This editorial code change will not impact the cost of construction. See reason statement.

S178-25

S179-25

IBC: 1612.2, 3103.6.1.3, G113.1, G113.3

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Building Code

Revise as follows:

1612.2 Design and construction. The design and construction of *buildings* and *structures* located in *flood hazard areas*, including *coastal high hazard areas* and *coastal A zones*, shall be in accordance with Chapter 5 of ASCE 7 and ASCE 24. Elevators, escalators, conveying systems and their components shall conform to ASCE 24 and ASME A17.1/CSA B44 as applicable.

~~**Exception:** *Temporary structures* complying with Section 3103.6.1.3.~~

Delete and substitute as follows:

~~**3103.6.1.3 Flood loads.** *Public-occupancy temporary structures* need not be designed for flood loads specified in Section 1612. Controlled occupancy procedures in accordance with Section 3103.8 shall be implemented.~~

<u>**3103.6.1.3 Flood loads.** Temporary structures shall not be located in floodways and coastal high hazard areas. Temporary structures located in flood hazard areas other than floodways and coastal high hazard areas shall comply with Section 1612.</u>

SECTION G113
TEMPORARY STRUCTURES AND TEMPORARY STORAGE

Revise as follows:

G113.1 Temporary structures. <u>Temporary structures shall not be located in floodways and coastal high hazard areas.</u> *Temporary structures* shall be erected for a period of less than 180 days. *Temporary structures* shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic *loads*, including the effects of buoyancy, during conditions of the *design flood*. Fully enclosed *temporary structures* shall have flood openings that are in accordance with ASCE 24 to allow for the automatic entry and exit of floodwaters.

G113.2 Temporary storage. Temporary storage includes storage of goods and materials for a period of less than 180 days. Stored materials shall not include *hazardous materials*.

G113.3 Floodway encroachment. *Temporary* ~~*structures* and temporary~~ storage in *floodways* shall meet the requirements of G104.5.

Reason: The proposal rectifies a disconnect that was created in the 2024 code cycle. The disconnect is between the IBC provisions for temporary structures in flood hazard areas and the minimum requirements of the National Flood Insurance Program. IBC Sec. 102.2 states that “the provisions of this code shall not be deemed to nullify any provisions of local, state or federal law. FEMA states that the most recent editions of the I-Codes meet or exceed the minimum requirements of the NFIP for buildings and structures. That is no longer the case, given the exemption of “public occupancy temporary structures” from the requirements of Section 1612 Flood Loads.

The exception to Sec. 1612.3 and Sec. 3103.6.1.3 completely circumvents all flood requirements for “public occupancy temporary structures.” We understand that those structures must have “controlled occupancy procedures” in place, but those procedures are about public safety, not about reducing flood damage. One of the objectives of the NFIP is to minimize flood damage to structures and collateral damage caused by structures that are not designed and constructed to resist damage.

Anyone watching reports of flooding will see dislodged structures. Not only do they contribute to debris, but they can also batter other buildings and can block bridge and culvert openings. Many communities attempt to impose requirements on owners/operators to have temporary structures removed from flood hazard areas before the onset of flooding, but often that just doesn't happen.

The proposal does not require temporary structures to fully comply with the elevation or dry floodproofing requirements of ASCE 24. ASCE 24 categorizes temporary structures in place for fewer than 180 days as Flood Design Class 1. It allows them below the flood elevation, with specific "wet floodproofing" measures to reduce damage.

The proposal limits placement of temporary structures in two parts of flood hazard areas:

1. Floodways, which are typically relatively narrow areas along riverine waterways where floodwater is deeper and flows faster. Floodways are delineated by FEMA to preclude encroachments that restrict flows – unless engineering analyses are performed. The NFIP requirements related to encroachments do not distinguish between whether the encroaching activities are permanent or temporary.
2. Coastal high hazard areas (flood Zone V), delineated along coastal shorelines and some very large lakes, are where waves during base flood conditions are expected to be 3 feet or higher. Those waves impose significant impact loads. This is why foundations for buildings in these areas must be columns or piles. We have observed for decades that non-elevated buildings in these areas sustain significant damage or are destroyed. Satisfying the ASCE 24 requirements for temporary structures, including anchoring to resist flood loads, would be impractical.

The proposed change to Sec. 3103.6.1.3 points to Sec. 1612, which relies on the referenced standard, ASCE 24. ASCE 24 has provisions for temporary structures that are in place for fewer than 180 days, which are Flood Design Class 1. Those temporary structures are specifically identified for be wet floodproofed. What that means is those structures must:

1. Be anchored to resist flotation and movement during conditions of the base flood.
2. Have flood damage-resistant materials below the base flood elevation.
3. Have flood openings in accordance with ASCE 24, when the structures are enclosed by walls.
4. Have mechanical systems, plumbing fixtures and electrical systems located at or above the base flood elevation, except that electrical wiring systems are permitted to be located below the base flood elevation provided they conform to the provisions of NFPA 70.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal requires all temporary structures to meet flood-resistant provisions, eliminating the exception for public occupancy temporary structures. However, there is no impact on the cost of construction of those structures because communities must still comply with NFIP regulations, which have similar requirements as IBC 1612/ASCE 24 described in the reason statement.

We acknowledge that there may be some cost associated with prohibiting temporary structures in floodways and coastal high hazard areas (e.g., finding alternate locations, lost opportunity cost, etc.). However, those costs may be offset by avoiding the cost of anchoring temporary structures in those high-risk flood hazard areas which typically have higher velocity flows or breaking waves. Anchoring to resist those loads could be costly and impractical for temporary structures. In addition, locating temporary structures outside of floodways eliminates the need and cost of preparing the engineering analyses required by Sec. 1612.3.2 to evaluate the impact of such structures on the floodway.

S179-25

S180-25 Part I

IBC: G109.4, G114.6; IEBC: [BS] 401.3; IFGC: [BS] 301.11; IMC®: [BS] 301.16

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Building Code

SECTION G109
MANUFACTURED HOMES

Revise as follows:

G109.4 Protection of mechanical equipment and outside appliances.
The following shall be elevated to or above the *design flood elevation:*

1. Mechanical equipment and ~~outside~~ exterior appliances ~~shall be elevated to or above the *design flood elevation*~~.
2. Replacement of exterior equipment and exterior appliances damaged by *flood*

Exception: Where such equipment and appliances are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic *loads* and stresses, including the effects of buoyancy, during the occurrence of *flooding* up to the elevation required by Section R306 of the *International Residential Code*, the systems and equipment shall be permitted to be located below the elevation required by Section R306 of the *International Residential Code*. Electrical wiring systems shall be permitted below the design *flood* elevation provided that they conform to the provisions of NFPA 70.

SECTION G114
UTILITY AND MISCELLANEOUS GROUP U

G114.6 Protection of mechanical, plumbing and electrical systems. The following shall be elevated to or above the *design flood elevation:*

1. Mechanical, plumbing and electrical systems, including plumbing fixtures~~, shall be elevated to or above the *design flood elevation*~~.
2. Replacement of exterior equipment and exterior appliances damaged by *flood.*

Exception: Electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances; plumbing fixtures, duct systems and other service equipment shall be permitted to be located below the *design flood elevation* provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic *loads* and stresses, including the effects of buoyancy, during the occurrence of flooding to the *design flood elevation* in compliance with the flood-resistant construction requirements of this code. Electrical wiring systems shall be permitted to be located below the *design flood elevation* provided that they conform to the provisions of NFPA 70.

2024 International Existing Building Code

Revise as follows:

[BS] 401.3 Flood hazard areas. In *flood hazard areas,* the following ~~*repairs* that constitute *substantial improvement*~~ shall require that the building comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable~~.~~:

1. Repairs that constitute *substantial improvement.*
2. Replacement of exterior equipment and exterior appliances damaged by *flood* .

2024 International Fuel Gas Code

Revise as follows:

[BS] 301.11 Flood hazard. For structures located in *flood hazard areas*, the following ~~the *appliance*, *equipment* and system installations regulated by this code~~ shall be located at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment~~.~~:

1. *Appliance*, *equipment* and system installations regulated by this code.
2. Replacement of exterior equipment and exterior appliances damaged by *flood.*

Exception: The *appliance*, *equipment* and system installations regulated by this code are permitted to be located below the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to such elevation.

2024 International Mechanical Code

Revise as follows:

[BS] 301.16 Flood hazard. For structures located in flood hazard areas, the following ~~mechanical systems, *equipment* and *appliances*~~ shall be located at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant *equipment*~~.~~ :

1. Mechanical systems, *equipment* and *appliances*
2. Replacement of exterior equipment and exterior appliances damaged by *flood*

Exception: Mechanical systems, *equipment* and *appliances* are permitted to be located below the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

S180-25 Part I

S180-25 Part II

IRC: R306.1.6

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Revise as follows:

R306.1.6 Protection of mechanical, plumbing and electrical systems. <u>The following</u> ~~Electrical systems, *equipment* and components; heating, ventilating, air-conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment*~~ shall be located at or above the elevation required in Section R306.2 or R306.3~~.~~<u>:</u>

1. <u>Electrical systems, *equipment* and components; heating, ventilating, air-conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment.*</u>
2. <u>Replacement of exterior equipment and exterior appliances damaged by *flood*</u>
3. If replaced as part of a *substantial improvement*, electrical systems, *equipment* and components; heating, ventilating, air-conditioning and plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* ~~shall meet the requirements of this section.~~

Systems, fixtures, and *equipment* and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

Exception: Locating electrical systems, *equipment* and components; heating, ventilating, air-conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* is permitted below the elevation required in Section R306.2 or R306.3 provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the required elevation in accordance with ASCE 24. Electrical wiring systems are permitted to be located below the required elevation provided that they conform to the provisions of the electrical part of this code for wet locations.

Reason:

Many buildings in floodplains were built before communities started regulating and requiring buildings to be elevated and constructed to minimize exposure to flooding. During a flood, exterior equipment that serves those non-elevated buildings gets damaged, even when the building itself is not substantially damaged. Having replacement equipment installed fully elevated minimizes future damage, saving owners time and money. In addition, when homes are flooded and elevated exterior equipment remains functional, clean-up and drying out are easier and faster. This means better management of mold conditions and businesses and families can more quickly move back into safer buildings.The State of Florida adopted similar provisions for the 8th Edition of the Florida Building Code.

The code change for Sec. 401.3, for repairs, requires replacement exterior equipment damaged by flood to be raised to or above the elevation required by the IRC, based on flood zone, unless the replacement equipment meets the limitations of the exception to be located below those elevations. The definition of “repair” includes “reconstruction, replacement or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.”

Methods used to raise replacement exterior equipment are the same as the methods used when equipment is installed to serve new construction (wall-mounted, pedestal, platforms, or platforms that are cantilevered from or knee braced to the structure). Photographs below show typical methods of elevating equipment that serves dwellings.In some areas where the base flood elevation is very high, equipment can be installed on roofs rather than very tall platforms.

FEMA’s Mitigation Assessment Team reports prepared after some significant flood events document widespread damage to non-elevated exterior equipment. Elevating equipment at the time of replacement also saves homeowners from having to pay for replacement equipment after any subsequent flood event.

Equipment on wall-mounted bracket (https://www.energy.gov/energysaver/heat-pump-systems)

Equipment on wall mounted platform

Equipment on concrete platform

Equipment on platform


Photographs are provided courtesy of FEMA P-348 and Rebecca Quinn

Cost Impact: Increase

Estimated Immediate Cost Impact:

When nonconforming dwellings in flood hazard areas have non-elevated exterior equipment, this code change proposal requires compliance when the exterior equipment is replaced after being damaged by flooding. For new construction, exterior equipment is elevated as high as the dwelling because typical exterior equipment used for dwellings is not designed to satisfy the requirements and limitations of the exception that allows for inherently watertight equipment below the design flood elevation. Increased costs incurred would depend on the type of equipment. The cost to raise a compressor on a pedestal or platform includes the cost of the pedestal/platform and minor costs to extend wiring and piping, if necessary. Unlike elevating on a platform, the cost to wall-mount a mini-split heat pump does not vary based on height above grade, other than the additional length of wiring and refrigerant line. The actual cost increase of this proposal depends on the method of elevation (pedestal, platform, cantilevered/knee braced platform, wall-mounted), how high above grade is necessary to meet the elevation requirements of R306.2 or R306.3, as applicable, and other factors such as soil type. The cost of a professionally-built 6 foot tall wooden platform is approximately $500. For areas of shallower flooding, prefabricated metal stands are available for under $200. Wall mount brackets are in the range of $50 and that cost does not vary based on height above grade. The cost of additional refrigerant line to account for additional height will vary based on height above grade, but costs approximately $100 for 10 feet of copper refrigerant line. In areas where a very tall platform would be required, roof-mounting may be more cost-effective.

At least two long-term benefits off-set the upfront additional installation costs: damage avoided and cost of complete replacement if flooded, and faster drying, clean-up, and re-occupancy after subsequent flood events.

Estimated Immediate Cost Impact Justification (methodology and variables):

The dollar values included in the cost impact statement were obtained using publicly available data on home advisor websites and supplier websites

Staff Analysis: CC # S97-25 Part III and CC # S180-25 Part I addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals..

S180-25 Part II

S181-25

IBC: G109.1, G109.4

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Building Code

APPENDIX G
FLOOD-RESISTANT CONSTRUCTION

SECTION G109
MANUFACTURED HOMES

Revise as follows:

G109.1 Required elevation~~Elevation.~~ All new and replacement *manufactured homes* to be placed or substantially improved in a *flood hazard area* shall be elevated such that the top of the foundation for the *manufactured home* is at or above the ~~*design flood elevation*~~ elevations specified in Section R306.2 or R306.3 of the *International Residential Code*, as applicable to the flood hazard area.

G109.4 Protection of mechanical equipment and outside appliances. Mechanical equipment and outside appliances shall be elevated to or above the ~~*design flood elevation*~~ required elevations.

> **Exception:** Where such equipment and appliances are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic *loads* and stresses, including the effects of buoyancy, during the occurrence of *flooding* up to the required elevation ~~required by Section R306 of the *International Residential Code*~~, the systems and equipment shall be permitted to be located below the required elevation ~~required by Section R306 of the *International Residential Code*~~. Electrical wiring systems shall be permitted below the required elevations ~~design *flood* elevation~~ provided that they conform to the provisions of NFPA 70.

Reason:
Many states do not apply building codes to installation of manufactured homes. Those that do have requirements in IRC Sec. R306.1.9, which requires the homes to be elevated the same as site-built homes. Some communities elect to adopt IBC Appendix G, which includes requirements for manufactured homes.

This proposal modifies the IBC Appendix G provisions for elevation of manufactured homes to achieve the same elevation as the IRC for dwellings and manufactured homes by referring to elevation requirements in R306. IRC R306.1.9 requires the bottom of the frame of manufactured homes (equivalent to the top of the foundation) to be at or above the same elevations specified for dwellings in R306.2 or R306.3, as applicable to the flood hazard areas. There is no reasonable justification to have manufactured homes used as dwellings less protected than site-built dwellings, which is the current situation when IBC Appendix G109 is used to regulate installation of manufactured homes.

Bibliography: Kodavatiganti Y, Rahim MA, Friedland CJ, Mostafiz RB, Taghinezhad A and Heil S (2023), Material quantities and estimated construction costs for new elevated IRC 2015-compliant single-family home foundations. Front. Built Environ. 9:1111563. doi: 10.3389/fbuil.2023.1111563

Cost Impact: Increase

Estimated Immediate Cost Impact:

Most communities use FEMA Flood Insurance Studies and Flood Insurance Rate Maps for regulatory purposes. Those products delineate Special Flood Hazard Areas and, where detailed studies have been performed, they establish the base flood elevation (BFE). Unless communities adopt different maps, the design flood elevation equals the BFE for the purposes of enforcing the code. The current text requires the top of foundations for manufactured homes to be elevated to the BFE. Pointing to Sec. R306 will require one additional foot of elevation. Most manufactured homes in flood Zone A/AE are installed on piers or perimeter walls. In Coastal A Zones and coastal high hazard areas, (Zone V), foundations must be piles or columns.

The cost impact for this proposal is for an additional foot of foundation. Table 5 of the paper "Material quantities and estimated construction costs for new elevated IRC 2015-compliant single-family home foundations" (Kodavatiganti et al, 2023) estimates costs of foundations for site-built foundations at height increments of 0.3 m (approximately 1 ft) above grade. Using data from this table, the cost of an additional 1 foot of elevation for a 139 square meter (1496 square feet) home with a linear 1:5 aspect ratio (similar to a manufactured home) on a foundation of regularly spaced CMU piers on isolated concrete pads (CS-4 in the table) is $1,493 which translates to $1 per square foot. For a stem wall foundation on internal CMU piers (CS-3 in the table), with the same building footprint and aspect ratio, the cost of freeboard ranges from $2,223 for 0.2 m CMU to $3,379 for 0.3 m CMU. which translates to $1.49 to $2.26 per square foot.

This incremental per-foot cost is in-line with estimates for foundation and installation of double-wide manufactured homes (28' x 70') reported in 2018 to Pinellas County, Florida, by a licensed installer who indicated the cost difference between 3' and 4' tall foundations was $2,500 and the cost difference between 4' and 5' tall foundations was $5,000, with most of the additional cost associated with installation of the unit on the site-built foundation. Installation on foundations that are taller than about 6 to 7 ft above grade typically requires different equipment, which is more costly.

Estimated Immediate Cost Impact Justification (methodology and variables):

The paper by Kodavatiganti et al. determined costs of new construction of slab-on-fill and a variety of crawlspace foundations for varying building size, footprint aspect ratio, and elevation above grade. The cost difference between elevations was based on additional material costs using RSMeans. The methodology is more fully described in the paper.

Staff Analysis: CC # S97-25 Part III and CC #S181-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

S181-25

S182-25

IBC: G114.3, G114.4, G114.5, G114.6

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Building Code

APPENDIX G
FLOOD-RESISTANT CONSTRUCTION

SECTION G114
UTILITY AND MISCELLANEOUS GROUP U

G114.1 Utility and miscellaneous Group U. Utility and miscellaneous Group U includes *buildings* that are accessory in character and miscellaneous *structures* not classified in any specific occupancy in this code, including, but not limited to, *agricultural buildings*, aircraft hangars (accessory to a one- or two-family residence), barns, carports, fences more than 6 feet (1829 mm) high, grain silos (accessory to a residential occupancy), *greenhouses*, livestock shelters, *private garages*, retaining walls, sheds, stables and towers.

G114.2 Flood loads. Utility and miscellaneous Group U *buildings* and *structures*, including *substantial improvement* of such *buildings* and *structures*, shall be anchored to prevent flotation, collapse or lateral movement resulting from *flood loads*, including the effects of buoyancy, during conditions of the *design flood*.

Revise as follows:

G114.3 Required elevation ~~Elevation~~. Unless dry floodproofed in accordance with ASCE 24, utility ~~Utility~~ and miscellaneous Group U *buildings* and *structures* that have floors, including *substantial improvement* of such *buildings* and *structures*, shall be elevated such that the *lowest floor*, including *basement*, is elevated to or above the elevation specified in ASCE 24. ~~*design flood elevation* in accordance with Section 1612 of this code.~~

G114.4 Enclosures ~~below design flood elevation~~. Fully enclosed areas below the required elevation ~~*design flood elevation*~~ shall be constructed in accordance with ASCE 24.

G114.5 Flood-damage-resistant materials. *Flood-damage-resistant materials* shall be used below the required elevation ~~*design flood elevation*~~.

G114.6 Protection of mechanical, plumbing and electrical systems. Mechanical, plumbing and electrical systems, including plumbing fixtures, shall be elevated to or above the required elevation ~~*design flood elevation*~~.

> **Exception:** Electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances; plumbing fixtures, duct systems and other service equipment shall be permitted to be located below the required elevation ~~*design flood elevation*~~ provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic *loads* and stresses, including the effects of buoyancy, during the occurrence of flooding to the required elevation ~~*design flood elevation*~~ in compliance with the flood-resistant construction requirements of this code. Electrical wiring systems shall be permitted to be located below the required elevation ~~*design flood elevation*~~ provided that they conform to the provisions of NFPA 70.

Reason:
Group U includes buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy. When proposed in flood hazard areas, IBC Sec. 1612 requires design in accordance with ASCE 24 Flood Resistant Design and Construction. Group U buildings are nonresidential in nature, which means in floodplains they can be elevated or dry floodproofed, and some can be wet floodproofed. Wet floodproofing refers to a range of measures that allow areas to flood, while minimizing damage.

The proposed phrase “unless otherwise provided in ASCE 24” is added for clarity so that users know that Group U buildings that have floors and that qualify for dry floodproofing or wet floodproofing can be constructed with those measures. And then for Group U buildings with floors that are elevated, rather than send users to IBC Sec 1612 which refers users to ASCE 24 to determine the appropriate height of lowest floors, the change directs users to ASCE 24. The proposal puts the elevation requirement in G114.3, and changes other references to point to that section, thus ensuring consistency. The requirements for enclosures, materials, and mechanical, plumbing, and electrical systems are unchanged.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds more direct pointers to existing requirements in the code. There is no change to the technical content of the provisions. By reminding users of existing applicable requirements there will be no cost impact when approving this proposal.

S182-25

S183-25

IBC: N104.1.2, N106.2.1

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Building Code

APPENDIX N
REPLICABLE BUILDINGS

Revise as follows:

N104.1.2 Structural plans, specifications and engineering details. Where approval of the structural requirements of the *replicable design* is sought, the submittal documents shall include details for each wind region, *seismic design category*, flood hazard area and *climate zone* for which approval is sought; and shall include the following:

1. Signed and sealed structural design calculations that support the member sizes on the drawings.
2. Design *load* criteria, including: frost depth, *live loads*, snow *loads*, wind *loads*, earthquake design date, flood loads, and other special *loads*
3. Details of foundations and superstructure.
4. Details of compliance with Section 1612 for replicable buildings proposed to be located in *flood hazard areas*.
5. ~~4.~~ Provisions for *special inspections*.

N106.2.1 Architectural plans and specifications. Architectural plans and specifications shall include the following:

1. *Construction documents* for variations from the *replicable design*.
2. Construction for portions that are not part of the *replicable design*.
3. Documents for local requirements as identified by the *building official*.
4. *Construction documents* detailing the foundation system.
5. *Construction documents* detailing compliance with Section 1612 for replicable buildings proposed to be located in *flood hazard areas*.

Reason: The objectives of Appendix N Replicable Buildings stated in Section N101.2 are to “allow a jurisdiction to recover from a natural disaster faster and allow for consistent application of codes for replicable building projects.” However, the most common natural disaster is missing from the list in N103.1 which specifies construction document requirements. This proposal rectifies that omission. In addition, compliance with flood requirements is site-specific and should be included in structural plans and documents specific to locations.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal explicitly specifies documentation of compliance with existing requirements in the code. Buildings in flood hazard areas must already comply with the cited code requirements. There is no change to the technical content of the provisions. By being more explicit about existing documentation requirements there will be no cost impact when approving this proposal.

S183-25

S184-25

IBC: APPENDIX H, SECTION H101, H101.2

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Building Code

APPENDIX H
SIGNS

SECTION H101
GENERAL

H101.1 General. A *sign* shall not be erected in a manner that would confuse or obstruct the view of or interfere with exit signs required by Chapter 10 or with official traffic signs, signals or devices. *Signs* and *sign* support *structures*, together with their supports, braces, guys and anchors, shall be kept in repair and in proper state of preservation. The display surfaces of *signs* shall be kept neatly painted or posted at all times.

Revise as follows:

H101.2 Signs exempt from permits. Exemptions from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Permits shall not be required for the following *signs*: ~~The following *signs* are exempt from the requirements to obtain a *permit* before erection~~:

1. Painted nonilluminated *signs*.
2. Temporary *signs* announcing the sale or rent of property.
3. *Signs* erected by transportation authorities.
4. *Projecting signs* not exceeding 2.5 square feet (0.23 m^2).
5. The changing of moveable parts of an *approved sign* that is designed for such changes, or the repainting or repositioning of display matter shall not be deemed an alteration.

Reason: This code change clarifies the extent of exemptions from compliance with other provisions of code and the other laws and ordinances of the jurisdiction. The langage mirrors language found in 105.2.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change reaffirms the codes intent to provide exemptions from permitting requirements only within this body of code.

S184-25

S185-25

IBC: APPENDIX N, SECTION N101, N101.1, N101.2, SECTION N104, N104.1, SECTION N105, N105.1, N105.3, N105.4, SECTION N106, N106.1, N106.2, SECTION N107, N107.1, N107.2

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Building Code

APPENDIX N
REPLICABLE BUILDINGS

SECTION N101
ADMINISTRATION

N101.1 Purpose. The purpose of this appendix is to provide a format and direction regarding the implementation of a *replicable building* program.

Revise as follows:

N101.2 Objectives. Such programs allow a *jurisdiction* to ~~recover from a natural disaster faster and~~ allow for consistent application of the codes for *replicable building* projects. It will result in faster turnaround for the end user, and a quicker turnaround through the plan review process.

SECTION N104
REPLICABLE DESIGN SUBMITTAL REQUIREMENTS

N104.1 General. A summary description of the *replicable design* and related *construction documents* shall be submitted to an *approved agency* or the *building official*. Where approval is requested for elements of the *replicable design* that is not within the scope of the *International Building Code*, the *construction documents* shall specifically designate the codes for which review is sought. *Construction documents* shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed ~~be signed, sealed and dated by a *registered design professional*~~.

SECTION N105
REVIEW AND APPROVAL OF REPLICABLE DESIGN

N105.1 General. Proposed *replicable designs* shall be reviewed by an *approved agency* or the *building official*. The review shall be applicable only to the *replicable design* features submitted in accordance with Section N104. The review shall determine compliance with this code and additional codes specified in Section N104.1.

N105.3 Deficiencies. Where the review of the submitted *construction documents* identifies elements where the design is deficient and will not comply with the applicable code requirements, the *approved agency* or *building official* shall notify the proponent of the *replicable design*, in writing, of the specific areas of noncompliance and request correction.

N105.4 Approval. Where the review of the submitted *construction documents* determines that the design is in compliance with the codes designated in Section N104.1, and where deficiencies identified in Section N105.3 have been corrected, the *approved agency* or *building official* shall issue a summary report of *Approved* Replicable Design. The summary report shall include any limitations on the *approved replicable design* including, but not limited to, climate zones, wind regions and *seismic design categories*.

SECTION N106
SITE-SPECIFIC APPLICATION OF APPROVED REPLICABLE DESIGN

N106.1 General. Where site-specific application of a *replicable design* that has been *approved* under the provisions of Section N105 is sought, the *construction documents* submitted to the *building official* shall comply with this section.

N106.2 Submittal documents. A summary description of the *replicable design* and related construction document shall be submitted to the *building official*. *Construction documents* shall be signed, sealed and dated by the *registered design professional*. A statement~~, signed, sealed and dated by the *registered design professional*,~~ that the *replicable design* submitted for local review is the same as the *replicable design* reviewed by the *approved* agency or *building official* shall be submitted. The statement shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

SECTION N107
SITE-SPECIFIC REVIEW AND APPROVAL OF REPLICABLE DESIGN

N107.1 General. Proposed site-specific application of *replicable design* shall be submitted to the *building official* in accordance with the provisions of Chapter 1 and Appendix N.

N107.2 Site-specific review and approval of replicable design. The *building official* shall verify that the *replicable design* submitted for site-specific application is the same as the *approved replicable design* reviewed by the *approved agency* or the *building official*. In addition, the *building official* shall review the following for code compliance.

1. *Construction documents* for variations from the *replicable design*.
2. Construction for portions of the building that are not part of the *replicable design*.
3. Documents for local requirements as identified by the *building official*.

Reason: This code change does the following:

- Revises the intent of the replicable building projects program to allow for non-disaster related projects.
- Clarifies that the building official is able to review prototypical construction drawings.
- Clarifies that a registered design professional's seal is only required where required by the jurisdictions existing laws.

First, the intent of the replicable building program is artificially limited to disaster recovery. While the use may be most beneficial there, the program could be effective for rapid development and address building and housing shortages. The proposed language expands the program.

Second, the proposed language clarifies that the building official is able to review these plans. While inherent, because the building official could approve their agency as the approved agency, the proposed language makes it clear that the building official can receive the plans.

Third, as in other provisions of the code, the I-Codes historically stay out of asserting sealing requirements. The proposed language reaffirms the deference to jurisdictions to set their own rules about seal requirements.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Where adopted, the expansion of the program to non-recovery objectives and removal of seal requirements (where not required by other laws). Minimum $0 decrease

Estimated Immediate Cost Impact Justification (methodology and variables):

The assertion of first statements is founded in the initial assertions for the program; faster turnaround for the end user and a quicker turnaround through the plan review process.

Removal of seal requirements, where not required by other laws, the proposed language would have an appreciable decrease in cost.

S185-25

S186-25

IBC: 1705.5.2

Proponents: Emily Dunham, representing NCSEA Code Advisory Committee Special Inspections/Quality Assurance Subcommittee (emily.dunham@greshamsmith.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Building Code

Revise as follows:

1705.5.2 ~~Metal-plate-connected~~ Wood trusses spanning 60 feet or greater. Where a truss clear span is 60 feet (18 288 mm) or greater, the *special inspector* shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the *approved* truss submittal package.

Reason: Removal of "Metal plate connected" from the title correlates the title of the section with the enforceable language that only applies to trusses with a clear span of 60' or greater. All wood trusses with spans 60 feet or greater are required to have a special plan developed per section 2303.4.1.3. Consequently, special inspections should be performed for these same trusses and not limited to metal-plate-connected wood trusses.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Title changes are editorial and will have no cost impact, refer to reason statement.

S186-25

2025 GROUP B – PROPOSED CHANGES TO THE INTERNATIONAL EXTINSTING BUILDING CODE

EXISTING BUILDING CODE COMMITTEE

Allison Cook, CBO, *Chair*
Plans Examiner
City of Arlington, VA
Arlington, VA

Wendy Wan, RA, *Vice Chair*
Borough Commissioner, Central Development Programs
New York City Department of Buildings
New York, NY

Christopher (Chris) Bainbridge
Rep: National Association of State Fire Marshals
Director of Codes Enforcement
Department of Commerce and Insurance
Fire Prevention Division – TN State Fire Marshal's Office
Codes Enforcement and Plans Review Section

Kevin Duerr
Assistant Director for Code Development
New York State – Department of State-Division of Building Standards and Codes
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Mark Graham
Vice President, Technical Services
National Roofing Contractors Association (NRCA)
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Senior Fellow, Codes and Standards
Energy Solutions
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George Hein
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National Park Service Glen Canyon
Page, AZ

Ardel Jala, PE
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Seattle Department of Construction & Inspections
Seattle, WA

Tyler (Ty) Jennings, CBO, CFM, MCP
Chief Building Official
City of Casa Grande
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Marilyn Kaplan, Architect, Fellow, APTI Intl.
Rep: Association for Preservation Technology, Intl.
Architect, Principal
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Albany, NY

Marty Moseley
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Francois Moufarrej, CBO, MBA
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City of Livermore
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TENTATIVE ORDER OF DISCUSSION
2025 PROPOSED CHANGES TO THE
INTERNATIONAL EXISTING BUILDING CODE

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some EB code change proposals may not be included on this list, as they are being heard by another committee.

Number Not Used:
EB28-25

EB5-25
EB6-25 Part I
    EB48-25
    EB63-25 Part I
    EB3-25
EB12-25
EB13-35
EB14-25
EB21-25
EB23-25
    EB30-25
    EB29-25
    EB27-25 Part I
    EB7-25
    EB9-25
EB24-25
    EB22-25
EB25-25
EB26-25
    EB15-25
EB33-25
EB35-25
EB37-25
    EB11-25
    EB36-25
    EB31-25
    G183-25 Part III
    EB34-25
EB38-25
EB39-25
EB44-25
EB45-25
EB46-25
EB47-25
EB49-25
EB51-25
EB55-25
EB72-25
EB73-25
    EB56-25
    EB4-25
EB78-25
EB79-25
EB81-25
    EB80-25
EB87-25
EB90-25
EB91-25
EB92-25
    EB88-25
    EB89-25
    EB83-25
    EB84-25
    EB85-25
EB93-25
    EB86-25
EB95-25
EB96-25
EB98-25
    EB97-25
    EB94-25
EB107-25
EB108-25
EB109-25
EB110-25
    EB105-25
    EB106-25
EB111-25
    EB104-25
    EB103-25
    EB101-25
    EB100-25
    EB102-25
    EB99-25
    G94-25 Part II
EB116-25
EB117-25
    G23-25 Part II
    EB128-25 Part I
    EB132-25
    EB8-25
    EB2-25
EB119-25
    EB112-25
    EB114-25
    EB115-25
EB120-25
EB121-25
EB122-25
EB123-25
EB124-25
EB125-24
EB126-24
EB127-25
EB129-25
EB130-25
EB135-25
    EB10-25 Part I

EB1-25

IEBC: SECTION 202

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] SUBSTANTIAL STRUCTURAL DAMAGE. A condition where any of the following apply:

1. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 33 percent from its predamage condition.
2. The capacity of any vertical component carrying gravity load, or any group of such components, that has a tributary area more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its predamage condition, and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location.
3. The capacity of any structural component carrying snow load, or any group of such components, that supports more than 30 percent of the roof area of similar construction has been reduced more than 20 percent from its predamage condition, and the remaining capacity with respect to dead, live and snow loads is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location.

For purposes of this definition, work done to implement repairs <u>and work done to repair damage resulting from fire suppression efforts </u>shall not be considered damage that reduces structural capacity.

Reason: After a fire, sheathing, including gypsum board and other architectural finishes, may be removed to address water staining and to reduce or eliminate the potential for mold growth. Oftentimes, wall sheathing and finishes are removed wholesale due to the concern that the potential for mold growth is a significant liability. It may also be easier for a restoration contractor to simply remove all of the finishes during the emergency cleanup rather than removing just the water-damaged portions. In many older structures, however, gypsum board sheathing and similar finishes are used to resist lateral loads. During the time between removal and replacement of these finishes, the temporary decrease in lateral load-carrying capacity can appear to be total in the affected areas. Since these finishes are being removed to water staining and/or to mitigate the potential for mold, it makes sense to exclude the transitory removal and replacement of these elements in any calculation of loss of lateral load-carrying capacity. This proposal adds this commonsense interpretation into the definition of *substantial structural damage*.

Note that this proposal does not exclude seismic damage to gypsum board and other sheathing from being considered in a loss-of-lateral-load-carrying-capacity calculation; it only addresses elements that are removed and replaced due to damage from fire-suppression efforts. Similarly, this proposal does not impact the substantial damage trigger that covers flood upgrades.

Bibliography: "Evaluation of the Effects of the Oakland's Earthquake Damage Repair Ordinance" by G.R. Searer, T.F. Paret, S.A. Freeman, and U.M., Gilmartin, pubished in the Proceedings of the 8th US Conference on Earthquake Engineering in San Francisco, California in April 2006.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

It will clearly cost less, and in some cases a lot less, to repair water damage from fire-fighting efforts in like kind and quality rather than triggering wholesale upgrade of the lateral force resisting system and foundation. Although there have not been many studies that quantify the costs of upgrades of existing buildings, the proponent conducted a study of the Oakland Earthquake Damage Repair Ordinance that was implemented after the 1989 Loma Prieta Earthquake and found that repair+upgrade cost anywhere from 53 percent more to 3370 percent more, with several projects costing about 400 percent more, than if repair-only had been permitted. So for a project that would only address the damaged elements and cost, say $100,000, the repair+upgrade might cost $500,000. Thus if the trigger could be softened in the case of water damage to gypsum board finishes that may also serve as lateral force resisting elements, that could potentially save $400,000. Although these savings seem high, one can imagine a moderately-sized fire on the top story of a large two- or three-story wood-framed apartment building that was built in the 1960s or 1970s. The water would make its way down through the structure, wetting gypsum board finishes that may serve as the lateral force resisting system. Rather than coring holes in the gypsum board at the top and bottom of each stud bay and forcing air through the cavity to dry it out, a contractor might decide to just demolish and replace the bottom two feet of all gypsum board walls on the ground floor (where the water tends to accumulate) or even just remove all of the gypsum board because gypsum board is inexpensive. But in doing so, someone might consider the structure to have incurred substantial structural damage due to the demolition that was performed, thus triggering upgrade of the lateral force resisting system.

Such a triggered upgrade might include removal of undamaged finishes in many areas; might include addition of plywood wall sheathing in areas that never had plywood, might include addition of holddowns, anchor bolts, and steel hardware; and might include upgrade of the undamaged foundation. Suddenly it doesn't seem so unlikely that one might save a substantial amount of money if allowed to do repair-only.

Estimated Immediate Cost Impact Justification (methodology and variables):

The study that quantified the cost differential of repair+upgrade compared to repair-only is this paper: "Evaluation of the Effects of the Oakland's Earthquake Damage Repair Ordinance" by G.R. Searer, T.F. Paret, S.A. Freeman, and U.M., Gilmartin, pubished in the Proceedings of the 8th US Conference on Earthquake Engineering in San Francisco, California in April 2006.

EB1-25

EB2-25

IEBC: SECTION 202 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Add new definition as follows:

CHARACTER DEFINING FEATURE. Visual aspects and physical features that comprise the appearance and historic significance of the historic building, such as the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment.

Reason: Current text uses a variety of unspecific terms to establish when special consideration will be given to historic materials.

The proposed term is used by the professionals working in the historic preservation field (local, state, national), and has been reviewed by the federal National Park Service, involved in all projects using historic tax incentives, and responsible for the National Register of Historic Places (NRHP): the ICC codes reference the NRHP to define what buildings are considered historic.

By adding the proposed definition, the code official is relieved of the responsibility of identifying historic materials and a single definition is used in lieu of current language that is vague and inconsistent:

1203.5 "…where it is demonstrated that they are historic finishes."

1203.8 "Historic glazing materials…"

1203.10.12 "…replaced in a manner that will preserve the historic appearance…"

1203.11 "… would damage the historic character…"

1203.14. "…lead to a loss of historic character…"

The proposed code change for Section 1201.2 Report, uses this definition in determining how historic materials would be identified and documented by the registered design professional or, in the case of buildings covered in the scope of the *International Residential Code*, by the owner.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a definition. It does not change construction requirements.

EB3-25

IEBC: SECTION 202 (New)

Proponents: Tim Earl, GBH International, representing the Gypsum Association (tearl@gbhint.com)

2024 International Existing Building Code

Add new definition as follows:

GYPSUM BOARD. A type of gypsum panel product consisting of a noncombustible core primarily of gypsum with paper surfacing.
GYPSUM PANEL PRODUCT. The general name for a family of sheet products consisting essentially of gypsum complying with the standards listed in Tables 2506.2, 2507.2 and Chapter 35 of the International Building Code. Gypsum board and glass mat gypsum panels are all gypsum panel products.
GYPSUM SHEATING. Gypsum panel products specifically manufactured with enhanced water resistance for use as a substrate for exterior surface materials.
GYPSUM WALLBOARD. A gypsum board used primarily as an interior surfacing for building structures.

Reason: These definitions for terms used in the IEBC are identical to the definitions in the other codes. They are being added here for consistency across the codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is simply editorial with no cost impact.

Staff Analysis: This proposal is simply duplicating definitions from the IBC, IFC, and IMC. The definitions cannot be revised in this proposal as they are scoped to another committee.

EB3-25

EB4-25

IEBC: SECTION 202 (New)

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov)

2024 International Existing Building Code

Add new definition as follows:

RECONFIGURATION OF SPACE. A reconfiguration of space includes a change of a space from nonhabitable to *habitable*, the installation or removal of walls, partitions, or any other division of space, or the *change of use* of a space in which the new use could be considered an increase in hazard as determined by the *code official*.

Reason: The term "reconfiguration of space" is used in Chapter 9, but is not defined within any of the codes. This definition provides clarity as to what the term means.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply adds a definition for a term, it does not add code requirements.

EB4-25

EB5-25

IEBC: SECTION 301, 301.1, 301.2, 301.3, 301.4, 401.1, 401.1.1 (New), 401.1.1, [BS] 401.3, 501.1, 501.1.1, 601.1, 601.1.1, 601.2, 602.1, 603.1, 604.1, 605.1, 606.1, 607.1, 701.1, [BS] 701.3, 801.1, 801.2, 801.3, 801.4, 901.1, 901.2, 1001.1, 1101.1, 1101.4, 1201.1, 1301.1, 1301.1.1, 1401.1

Proponents: Steven Orlowski, Sundowne Building Code Consultants, LLC, representing Self (sorlowski@sbcc.codes); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

CHAPTER 3
PROVISIONS FOR ALL COMPLIANCE METHODS

Revise as follows:

SECTION 301
~~ADMINISTRATION~~ GENERAL

301.1 ~~Applicability~~ Scope. ~~The *repair*~~ *Repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with Section 301.2, 301.3 or 301.4. The provisions of Sections 302 through 309 shall apply to ~~all~~ *alterations*, *repairs*, *additions*, relocation of structures and *changes of occupancy* regardless of compliance method.

301.1.1 Bleachers, folding and telescopic seating and grandstands. Existing bleachers, folding and telescopic seating and grandstands shall comply with ICC 300.

301.2 Repairs. *Repairs* shall comply with ~~the requirements of~~ Chapter 4.

301.3 Alteration, addition or change of occupancy. ~~The *alteration*~~ *Alteration*, *addition* or *change of occupancy* of all *existing buildings* shall comply with one of the methods listed in Section 301.3.1, 301.3.2 or 301.3.3 as selected by the applicant. Sections 301.3.1 through 301.3.3 shall not be applied in combination with each other.

Exception: Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code. New structural members added as part of the *alteration* shall comply with the *International Building Code.* This exception shall not apply to the following:

1. *Alterations* for accessibility required by Section 306.
2. *Alterations* that constitute *substantial improvement* in *flood hazard areas*, which shall comply with Sections 503.2, 701.3 or 1303.1.3.
3. Structural provisions of Section 304, Chapter 5 or to the structural provisions of Sections 706, 805 and 906.

301.3.1 Prescriptive compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 5 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.3.2 Work area compliance method. *Alterations*, *additions* and *changes of occupancy* complying with the applicable requirements of Chapters 6 through 12 of this code shall be considered in compliance with the provisions of this code.

301.3.3 Performance compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 13 of this code shall be considered in compliance with the provisions of this code.

301.4 Relocated buildings. Relocated buildings shall comply with ~~the requirements of~~ Chapter 14.

CHAPTER 4
REPAIRS

SECTION 401
GENERAL

401.1 Scope. *Repairs* shall comply with ~~the requirements of~~ this chapter. *Repairs* to *historic buildings* need only comply with Chapter 12.

Add new text as follows:

401.1.1 Nonapplicability. This chapter shall not apply to conditions listed in section 401.1.1.1 and 401.1.1.2.

Revise as follows:

~~401.1.1~~401.1.1.1 Bleachers, folding and telescopic seating and grandstands. *Repairs* to existing bleachers, folding and telescopic seating and grandstandsshall comply with ICC 300.

[BS] ~~401.3~~ 401.1.1.2 Flood hazard areas. In *flood hazard areas*, *repairs* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

401.2 Compliance. The work shall not make the building less complying than it was before the *repair* was undertaken. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to requirements for alterations.

CHAPTER 5
PRESCRIPTIVE COMPLIANCE METHOD

SECTION 501
GENERAL

501.1 Scope. ~~The provisions of this chapter shall control the *alteration*~~ *Alteration*, *addition* and *change of occupancy* of *existing buildings* and structures, including *historic buildings* and structures ~~as referenced in Section 301.3.1~~ using the prescriptive compliance method shall comply with this chapter.

Delete without substitution:

~~**501.1.1 Compliance with other methods.** *Alterations*, *additions* and *changes of occupancy* to *existing buildings* and structures shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.~~

CHAPTER 6
CLASSIFICATION OF WORK

SECTION 601
GENERAL

Revise as follows:

601.1 Scope. ~~The provisions of this chapter shall be used in conjunction with Chapters 7 through 12 and shall apply to the *alteration*, *addition* and *change of occupancy* of *existing structures*, including historic structures, as referenced in Section 301.3.2. The work performed on an *existing building* shall be classified in accordance~~Classification of work area compliance method level shall comply with this chapter.

Delete without substitution:

~~**601.1.1 Compliance with other alternatives.** *Alterations*, *additions* and *changes of occupancy* to *existing structures* shall comply with the provisions of Chapters 7 through 12 or with one of the alternatives provided in Section 301.3.~~

Revise as follows:

601.2 Work area. The *work area*~~, as defined in Chapter 2,~~ shall be identified on the construction documents.

SECTION 602
ALTERATION—LEVEL 1

602.1 ~~Scope~~ General. Level 1 alterations include the removal and replacement or the covering of existing materials, elements, *equipment or fixtures*using new materials, elements, *equipment or fixtures* that serve the same purpose.

SECTION 603
ALTERATION—LEVEL 2

603.1 ~~Scope~~ General. Level 2 *alterations* include the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment, and shall apply where the w*ork area* is equal to or less than 50 percent of the building area.

> **Exception:** The movement or addition of nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height shall not be considered a Level 2 *alteration*.

SECTION 604
ALTERATION—LEVEL 3

604.1 ~~Scope~~ General. Level 3 *alterations* apply where the *work area* exceeds 50 percent of the *building area*.

SECTION 605
CHANGE OF OCCUPANCY

605.1 ~~Scope~~ General. *Change of occupancy* provisions apply where the activity is classified as a *change of occupancy* as defined in Chapter 2.

SECTION 606
ADDITIONS

606.1 ~~Scope~~ General. Provisions for *additions* shall apply where work is classified as an *addition* as defined in Chapter 2.

SECTION 607
HISTORIC BUILDINGS

607.1 ~~Scope~~ General. *Historic building* provisions shall apply to buildings classified as historic as defined in Chapter 2.

CHAPTER 7
ALTERATIONS—LEVEL 1

SECTION 701
GENERAL

701.1 Scope. Level 1 *alterations* ~~as described in Section 602~~ shall comply with ~~the requirements of~~ this chapter. Level 1 *alterations* to *historic buildings* shall comply with this chapter, except as modified in Chapter 12.

Add new text as follows:

701.1.1 Nonapplicability. This chapter shall not apply to conditions listed in section 701.1.1.1.

Revise as follows:

[BS] ~~701.3~~ 701.1.1.1 Flood hazard areas. In *flood hazard areas*, *alterations* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

701.2 Conformance. An *existing building* or portion thereof shall not be altered such that the building becomes less safe than its existing condition.

> **Exception:** Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the *International Building Code*.

CHAPTER 8
ALTERATIONS—LEVEL 2

SECTION 801
GENERAL

801.1 Scope. Level 2 *alterations* ~~as described in Section 603~~ shall comply with ~~the requirements of~~ this chapter and Chapter 7.

> ~~**Exception:** Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall be permitted to comply with Chapter 7.~~

Add new text as follows:

801.1.1 Nonapplicability. This chapter shall not apply to conditions listed in Sections 801.1.1.1 through 801.1.1.3.

801.1.1.1.1 Accessibility. Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall be permitted to comply with Chapter 7.

Delete without substitution:

~~**801.2 Alteration Level 1 compliance.** In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 7.~~

Revise as follows:

~~801.3~~ <u>801.1.1.2</u> **System installations.** Requirements related to *work area* are not applicable where the Level 2 *alterations* are limited solely to one or more of the following:

1. Mechanical systems, electrical systems, fire protection systems and abatement of hazardous materials.
2. Windows, hardware, operating controls, electrical outlets and signs.
3. *Alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.

~~801.4~~ <u>801.1.1.3</u> **Compliance.** New construction elements, components, systems and spaces shall comply with the requirements of the *International Building Code*.

Exceptions:

1. Where windows are added they are not required to comply with the light and ventilation requirements of the *International Building Code*.
2. Newly installed electrical equipment shall comply with the requirements of Section 806.
3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 804.8.
4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 7 feet (2134 mm).
5. Where provided in below-grade transportation stations, existing and new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).
6. New structural members and connections shall be permitted to comply with alternative design criteria in accordance with Section 302.

CHAPTER 9
ALTERATIONS—LEVEL 3

SECTION 901
GENERAL

901.1 Scope. Level 3 *alterations* ~~as described in Section 604~~ shall comply with ~~the requirements of~~ this chapter <u>and Chapters 7 and 8. The requirements of Sections 802,803,804, and 805 shall apply within all work areas regardless of the number of tenants.</u>

Add new text as follows:

<u>**901.1.1** **Nonapplicability**.</u> <u>This chapter shall not apply to conditions listed in Section 901.1.1.1.</u>

<u>**901.1.1.1** **Accessibility**.</u> <u>Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall not be required to comply with this chapter.</u>

Delete without substitution:

~~**901.2 Compliance.** In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8. The requirements of Sections 802, 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.~~

~~**Exception:** Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall not be required to comply with this chapter.~~

CHAPTER 10
CHANGE OF OCCUPANCY

SECTION 1001
GENERAL

Revise as follows:

1001.1 Scope. ~~The provisions of this chapter shall apply where a *change*~~ <u>*Change*</u> *of occupancy* <u>shall comply with this chapter.</u> ~~occurs, as defined in Section 202.~~

CHAPTER 11
ADDITIONS

SECTION 1101
GENERAL

1101.1 Scope. ~~An *addition* to a building or structure shall comply with~~<u>Additions shall comply with this chapter and</u> the International Codes as adopted for new construction. ~~without requiring the~~<u>Unless required by this chapter, the</u> *existing building* or structure <u>shall not be required</u> to comply with <u>this chapter or the International codes.</u> ~~any requirements of those codes or of these provisions, except as required by this chapter. Where an *addition* impacts the *existing building* or structure, that portion shall comply with this code.~~

1101.2 Creation or extension of nonconformity. An *addition* shall not create or extend any nonconformity in the *existing building* to which the *addition* is being made with regard to accessibility, structural strength, supports and attachments for nonstructural components, fire safety, means of egress or the capacity of mechanical, plumbing or electrical systems.

> **Exception:** Nonconforming supports and attachments for nonstructural components that serve the *addition* from within the existing building need not be altered to comply with *International Building Code* Section 1613 unless the components are part of the *addition*'s life safety system or are required to serve an *addition* assigned to *Risk Category* IV.

[BS] 1101.3 Risk category assignment. Where the *addition* and the *existing building* have different occupancies, the *risk category* of each existing and added occupancy shall be determined in accordance with Section 1604.5.1 of the *International Building Code*. Where application of that section results in a higher *risk category* for the *existing building* compared wih the *risk category* for the *existing building* before the *addition*, such a change shall be considered a *change of occupancy* and shall comply with Chapter 10 of this code. Where application of that section results in a higher *risk category* for the *addition* compared with the *risk category* for the *addition* by itself, the *addition* and any systems in the *existing building* required to serve the *addition* shall comply with the requirements of the *International Building Code* for new construction for the higher *risk category*.

Delete without substitution:

~~**1101.4 Other work.** Any *repair* or *alteration* work within an *existing building* to which an *addition* is being made shall comply with the applicable requirements for the work as classified in Chapter 6.~~

CHAPTER 12
HISTORIC BUILDINGS

SECTION 1201
GENERAL

Revise as follows:

1201.1 Scope. ~~This chapter is intended to provide means for the preservation of *historic buildings*.~~*Historic buildings* shall comply with ~~the provisions of~~ this chapter. ~~relating to their *repair*, *alteration*, relocation and *change of occupancy*.~~

CHAPTER 13
PERFORMANCE COMPLIANCE METHODS

SECTION 1301
GENERAL

1301.1 Scope. ~~The provisions of this chapter shall apply to the *alteration*~~ Alteration, *addition* and *change of occupancy* of *existing structures*, including historic structures, using the performance compliance method shall comply with this chapter. ~~as referenced in Section 301.3.3. The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings* while permitting, *alteration*, *addition* and *change of occupancy* without requiring full compliance with Chapters 6 through 12, except where compliance with the prescriptive method of Chapter 5 or the work area method of other provisions of this code is specifically required in this chapter.~~

Delete without substitution:

~~**1301.1.1 Compliance with other methods.** *Alterations*, *additions* and *changes of occupancy* to *existing structures* shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.~~

CHAPTER 14
RELOCATED OR MOVED BUILDINGS

SECTION 1401
GENERAL

Revise as follows:

1401.1 Scope. ~~This chapter provides requirements for relocated~~ Relocated or moved structures, including *relocatable buildings* ~~as defined in Chapter 2~~shall comply with this chapter.

Reason: Currently, there is inconsistency among all the I-Codes in how the scoping sections are written at the beginning of each chapter. The Code Correlation Committee requested a task group be formed to review the scoping section in all the I-Codes and determine if there would be a way to harmonize both the language and style across the model codes. The Scoping Task Group was formed and consisted of several members from the various Code Action Committees and interested parties (some with no client interest). The task group reviewed each chapter of the I-codes and after careful consideration, developed a format that could be incorporated and repeated for all the I-Codes.

As you will see in the proposed changes above, most of the chapters began with a style and format that was already consistent and was only slightly changed to give the scoping a more authoritative infliction. Where the chapter contained no scoping provisions, the task group added scoping language based on the content of the chapter. Where the existing scoping sections provided a laundry list of what is contained in the chapter, these list were reformatted into a list form to make it easier for users to see what information was contained.

The Scoping Task group proposes that the recommended changes will improve the code by:
1. Create consistency in language used in the scope for all the I-Codes.
2. Creates a scoping section for chapters that did not have one before to clarify what is covered by the chapter.
3. Clarify the items covered and not covered in the chapter, using consistent format to send the user to different chapter(s) or code(s).
4. Remove redundant administrative language from existing scoping sections.
5. Where there were extensive number of items outlined in the scoping section, the items are now broken out into a list format to make it easier for the reader to indicate what is contained in the chapter.

To the best of the task groups knowledge the proposed changes are editorial in nature and no requirements not already addressed in the existing scoping or in the chapter being referenced were added. As these proposed changes are editorial, there is no cost impact on the cost of construction.

This proposal is submitted with the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

As stated in our reason statement, these proposed changes are editorial and there is no cost impact on the cost of construction.

EB5-25

EB6-25 Part I

IEBC: [A] 101.2, CHAPTER 3, SECTION 301, 301.1, 301.2, 301.3, 301.3.1, 301.3.2, 301.3.3, 301.4, SECTION 302, 302.2, 302.2.1, 302.3, 302.4, [BS] 302.4.1, 302.5, 302.1, CHAPTER 4, SECTION 401, 401.1, CHAPTER 5, SECTION 501, 501.1, 501.1.1, SECTION 506, CHAPTER 6, SECTION 601, 601.1, 601.1.1, SECTION 602, 602.1, 602.2, SECTION 603, 603.1, 603.2, SECTION 604, 604.1, 604.2, SECTION 605, 605.1, 605.2, SECTION 606, 606.1, 606.2, SECTION 607, 607.1, 607.2, CHAPTER 7, SECTION 701, 701.1, CHAPTER 8, SECTION 801, 801.1, 801.2, CHAPTER 9, SECTION 901, 901.1, 901.2, CHAPTER 10, SECTION 1001, 1001.1, CHAPTER 11, SECTION 1101, 1101.1, CHAPTER 12, SECTION 1201, 1201.1, SECTION 1204, SECTION 1206, CHAPTER 13, SECTION 1301, 1301.1, 1301.1.1, CHAPTER 14, SECTION 1401, 1401.1

Proponents: Grant Ullrich, City of Chicago, representing Self (grant.ullrich@cityofchicago.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE EXISTING BUILDING CODE COMMITTEE. PART II WILL BE HEARD BY THE IBC GENERAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

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[A] 101.2 Scope. The provisions of this code shall apply to the *repair*, *alteration*, *change of occupancy*, *addition* to and relocation of *existing buildings*.

Exception: Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plane in height, shall comply with this code or the *International Residential Code.*

CHAPTER 3
PROVISIONS FOR ALL COMPLIANCE METHODS

Revise as follows:

SECTION 301
~~ADMINISTRATION~~ GENERAL

301.1 ~~Applicability~~ Scope. ~~The *repair*,~~ *Repairs,* *alterations*, *changes of occupancy*, *additions* to ~~or~~ and relocations of ~~all~~ *existing buildings* shall comply with Section 301.2, 301.3 or 301.4. ~~The provisions of~~ Sections 302 through 309 shall apply to all work. ~~*alterations*, *repairs*, *additions*, relocation of structures and *changes of occupancy* regardless of compliance method.~~

301.2 Repairs. *Repairs* shall comply with ~~the requirements of~~ Chapter 4.

301.3 Alterations, ~~addition or~~ changes of occupancy and additions. ~~The *alteration*,~~ *Alterations,* ~~*addition* or~~ *changes of occupancy* and *additions* ~~of all *existing buildings*~~ shall comply with one of the methods listed in Section 301.3.1, 301.3.2 or 301.3.3 as selected by the applicant. Sections 301.3.1 through 301.3.3 shall not be applied in combination with each other.

Exception: Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with ~~the provisions of~~ this code. New structural members added as part of the *alteration* shall comply with the *International Building Code.* This exception shall not apply to the following:

1. *Alterations* for accessibility required by Section 306.
2. *Alterations* that constitute *substantial improvement* in *flood hazard areas*, which shall comply with Sections 503.2, 701.3 or 1303.1.3.
3. Structural provisions of Section 304, Chapter 5 or to the structural provisions of Sections 706, 805 and 906.

301.3.1 Prescriptive compliance method. *Alterations*, ~~*additions* and~~ *changes of occupancy* and *additions* complying with Chapter 5 ~~of~~

~~this code~~ in buildings complying with the *International Fire Code* shall be considered in compliance with ~~the provisions of~~ this code.

301.3.2 Work area compliance method. *Alterations*, ~~*additions* and~~ *changes of occupancy* and *additions* complying with the applicable requirements of Chapters 6 through 12 ~~of this code~~ shall be considered in compliance with ~~the provisions of~~ this code.

301.3.3 Performance compliance method. *Alterations*, ~~*additions* and~~ *changes of occupancy* and *additions* complying with Chapter 13 ~~of this code~~ shall be considered in compliance with ~~the provisions of~~ this code.

301.4 ~~Relocated buildings~~ Relocations. ~~Relocated buildings~~ Relocations of *existing buildings*, including *relocatable buildings*, shall comply with ~~the requirements of~~ Chapter 14.

Delete without substitution:

~~SECTION 302~~
~~GENERAL PROVISIONS~~

Revise as follows:

~~302.2~~ 301.5 Additional codes. ~~Alterations,~~ ~~*repairs*,~~ *Repairs, alterations,* ~~*additions* and~~ *changes of occupancy*, *additions* to~~, or~~ and relocations ~~of,~~ of *existing buildings* ~~and structures~~ shall comply with the provisions for *repairs, alterations,* ~~*repairs, additions* and~~ *changes of occupancy, additions* ~~or~~ and relocations, respectively, in this code and the *International Energy Conservation Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code*, *International Private Sewage Disposal Code*, *International Property Maintenance Code*, *International Residential Code* and NFPA 70. Where provisions of the other codes conflict with provisions of this code, the provisions of this code shall take precedence.

~~302.2.1~~ 301.5.1 Additional codes in health care. In existing Group I-2 occupancies, ambulatory health care *facilities*, outpatient clinics and hyperbaric *facilities*, *repairs, alterations*, ~~*repairs, additions* and~~ *changes of occupancy*, ~~to, or~~ *additions* and relocations ~~of, *existing buildings* and structures~~ shall also comply with NFPA 99.

~~302.3~~ 301.6 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the code official to be *unsafe*.

~~302.4~~ 301.7 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided that *unsafe* conditions are not created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

[BS] ~~302.4.1~~ 301.7.1 New structural members and connections. New structural members and connections shall comply with the detailing provisions of the *International Building Code* for new buildings of similar structure, purpose and location.

Exception: Where alternative design criteria are specifically permitted.

~~302.5~~ 301.8 Occupancy and use. Where determining the appropriate application of ~~the referenced sections of~~ this code, the occupancy and use of a building shall be determined in accordance with Chapter 3 of the *International Building Code*.

~~302.1~~ 301.9 Dangerous conditions. The *code official* shall have the authority to require the elimination of conditions deemed *dangerous*.

CHAPTER 4
REPAIRS

SECTION 401

GENERAL

401.1 Scope. *Repairs* shall comply with ~~the requirements of~~ this chapter. *Repairs* to *historic buildings* need only comply with Chapter 12.

CHAPTER 5
PRESCRIPTIVE COMPLIANCE METHOD

SECTION 501
GENERAL

501.1 Scope. ~~The provisions of this chapter shall control the~~ Where the applicant has selected the prescriptive compliance method, *alterations*, *additions* and *changes of occupancy* ~~of~~ to *existing buildings* ~~and structures~~, including *historic buildings*, ~~and structures as referenced in Section 301.3.1~~ shall comply with this chapter.

Delete without substitution:

~~**501.1.1 Compliance with other methods.** *Alterations*, *additions* and *changes of occupancy* to *existing buildings* and structures shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.~~

Revise as follows:

SECTION 506
CHANGES OF OCCUPANCY

CHAPTER 6
~~CLASSIFICATION OF WORK~~ WORK AREA COMPLIANCE METHOD

SECTION 601
GENERAL

601.1 Scope. Where the applicant has selected the work area compliance method, ~~The provisions of this chapter shall be used in conjunction with Chapters 7 through 12 and shall apply to the~~ *alterations*, ~~*addition* and~~ *changes of occupancy* and *additions* ~~of *existing structures*~~ to *existing buildings*, including ~~historic structures~~ *historic buildings*, ~~as referenced in Section 301.3.2~~ shall comply with this chapter. ~~The work performed on an *existing building* shall be classified in accordance with this chapter.~~

Delete without substitution:

~~**601.1.1 Compliance with other alternatives.** *Alterations*, *additions* and *changes of occupancy* to *existing structures* shall comply with the provisions of Chapters 7 through 12 or with one of the alternatives provided in Section 301.3.~~

Revise as follows:

SECTION 602
~~ALTERATION~~ALTERATIONS—LEVEL 1

602.1 ~~Scope~~ General. Level 1 alterations include the removal and replacement or the covering of existing materials, elements, *equipment or fixtures* using new materials, elements, *equipment or fixtures* that serve the same purpose.

602.2 ~~Application~~ Compliance. Level 1 *alterations* shall comply with ~~the provisions of~~ Chapter 7.

SECTION 603
~~ALTERATION~~ ALTERATIONS—LEVEL 2

603.1 ~~Scope~~ General. Level 2 *alterations* include the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment, and shall apply where the w*ork area* is equal to or less than 50 percent of the building area.

Exception: The movement or addition of nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height shall not be considered a Level 2 *alteration*.

603.2 ~~Application~~ Compliance. Level 2 *alterations* shall comply with ~~the provisions of Chapter 7 for Level 1 *alterations* as well as the provisions of Chapter 8~~ Chapters 7 and 8.

SECTION 604
~~ALTERATION~~ALTERATIONS—LEVEL 3

604.1 ~~Scope~~ General. Level 3 *alterations* apply where the *work area* exceeds 50 percent of the *building area*.

604.2 ~~Application~~ Compliance. Level 3 *alterations* shall comply with ~~the provisions of Chapters 7 and 8 for Level 1 and 2 *alterations*, respectively, as well as the provisions of Chapter 9~~ Chapters 7 through 9.

SECTION 605
~~CHANGE~~CHANGES OF OCCUPANCY

Delete without substitution:

~~**605.1 Scope.** *Change of occupancy* provisions apply where the activity is classified as a *change of occupancy* as defined in Chapter 2.~~

Revise as follows:

~~**605.2**~~ **605.1** ~~**Application**~~ **Compliance.** *Changes of occupancy* shall comply with ~~the provisions of~~ Chapter 10.

SECTION 606
ADDITIONS

Delete without substitution:

~~**606.1 Scope.** Provisions for *additions* shall apply where work is classified as an *addition* as defined in Chapter 2.~~

Revise as follows:

~~**606.2**~~ **606.1** ~~**Application**~~ **Compliance.** *Additions* to *existing buildings* shall comply with ~~the provisions of~~ Chapter 11.

SECTION 607
HISTORIC BUILDINGS

Delete without substitution:

~~**607.1 Scope.** *Historic building* provisions shall apply to buildings classified as historic as defined in Chapter 2.~~

Revise as follows:

~~**607.2**~~ **607.1** ~~**Application**~~ **Compliance.** Except as specifically provided ~~for~~ in Chapter 12 where the applicant elects to use Chapter 12 , *historic buildings* shall comply with applicable provisions of ~~this code for the type of work being performed~~ Chapters 7 through 11.

CHAPTER 7
ALTERATIONS—LEVEL 1

SECTION 701
GENERAL

701.1 Scope. Level 1 *alterations* ~~as described in Section 602~~ shall comply with ~~the requirements of~~ this chapter. Level 1 *alterations* to *historic buildings* shall comply with this chapter, except as modified in Chapter 12.

CHAPTER 8
ALTERATIONS—LEVEL 2

SECTION 801
GENERAL

801.1 Scope. Level 2 *alterations* ~~as described in Section 603~~ shall comply with ~~the requirements of~~ this chapter and Chapter 7. Level 2 *alterations* to *historic buildings* shall comply with this chapter and Chapter 7, except as modified in Chapter 12.

Exception: Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall be permitted to comply with Chapter 7.

Delete without substitution:

~~**801.2 Alteration Level 1 compliance.** In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 7.~~

CHAPTER 9
ALTERATIONS—LEVEL 3

SECTION 901
GENERAL

Revise as follows:

901.1 Scope. Level 3 *alterations* ~~as described in Section 604~~ shall comply with ~~the requirements of~~ this chapter and Chapters 7 and 8. Level 3 *alterations* to *historic buildings* shall comply with this chapter and Chapters 7 and 8, except as modified in Chapter 12.

901.2 Compliance. ~~In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8.~~ The requirements of Sections 802, 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

Exception: Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall not be required to comply with this chapter.

CHAPTER 10
~~CHANGE~~CHANGES OF OCCUPANCY

SECTION 1001
GENERAL

Delete and substitute as follows:

~~**1001.1 Scope.** The provisions of this chapter shall apply where a *change of occupancy* occurs, as defined in Section 202.~~

1001.1 Scope. *Changes of occupancy* shall comply with this chapter. *Changes of occupancy* to *historic buildings* shall comply with this chapter, except as modified in Chapter 12.

CHAPTER 11
ADDITIONS

SECTION 1101
GENERAL

Revise as follows:

1101.1 Scope. ~~An *addition* to a building or structure~~ *Additions* to *existing buildings* shall comply with the International Codes as adopted for new construction without requiring the *existing building* ~~or structure~~ to comply with any requirements of those codes or of these provisions, except as required by this chapter and Chapter 3. Where an *addition* impacts the *existing building* ~~or structure~~, that portion of the *existing building* shall comply with this code.

CHAPTER 12
HISTORIC BUILDINGS

SECTION 1201
GENERAL

1201.1 Scope. ~~This chapter is intended to provide means for the preservation of *historic buildings. Historic*~~ Where use of this chapter is elected by the applicant, *historic buildings* shall be permitted to comply with ~~the provisions of~~ this chapter instead of the corresponding provisions in Chapters 3, 4, 7 through 11 and 14. ~~relating to their *repair*, *alteration*, relocation and *change of occupancy*~~.

SECTION 1204
~~CHANGE~~CHANGES OF OCCUPANCY

SECTION 1206
~~RELOCATED BUILDINGS~~ RELOCATIONS

CHAPTER 13

PERFORMANCE COMPLIANCE ~~METHODS~~ METHOD

SECTION 1301
GENERAL

1301.1 Scope. ~~The provisions of this chapter shall apply to the~~ Where the applicant has selected the performance compliance method, *alterations*, ~~*addition* and~~ *changes of occupancy* ~~of~~ and *additions* to *existing* ~~*structures*~~ *buildings*, including ~~historic structures~~ *historic buildings*, ~~as referenced in Section 301.3.3~~ shall comply with this chapter. ~~The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings* while permitting, *alteration*, *addition* and *change of occupancy* without requiring full compliance with Chapters 6 through 12, except where compliance with the prescriptive method of Chapter 5 or the work area method of other provisions of this code is specifically required in this chapter.~~

Delete without substitution:

~~**1301.1.1 Compliance with other methods.** *Alterations*, *additions* and *changes of occupancy* to *existing structures* shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.~~

Revise as follows:

CHAPTER 14
~~RELOCATED OR MOVED BUILDINGS~~ RELOCATIONS

SECTION 1401
GENERAL

1401.1 Scope. ~~This chapter provides requirements for relocated or moved structures~~ Relocations of *existing buildings*, including *relocatable buildings*, ~~as defined in Chapter 2~~ shall comply with this chapter. Relocations of *historic buildings* shall comply with this chapter, except as modified in Chapter 12.

EB6-25 Part I

EB6-25 Part II

IBC: CHAPTER 33, SECTION 3301, 3301.1; IEBC: CHAPTER 15, SECTION 1501, [BG] 1501.1

Proponents: Grant Ullrich, City of Chicago, representing Self (grant.ullrich@cityofchicago.org)

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CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION

SECTION 3301
GENERAL

Revise as follows:

3301.1 Scope. ~~The provisions of this chapter shall govern safety~~ Safety during construction and the protection of adjacent public and private properties shall comply with this chapter. Fire safety during construction shall also comply with ~~the applicable provisions of~~ Chapter 33 of the *International Fire Code*.

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CHAPTER 15
CONSTRUCTION SAFEGUARDS

SECTION 1501
GENERAL

Revise as follows:

[BG] 1501.1 Scope. ~~The provisions of this chapter shall govern safety~~ Safety during construction and the protection of adjacent public and private properties shall comply with this chapter. Fire safety during construction shall also comply with ~~the applicable provisions of~~ Chapter 33 of the *International Fire Code.*

Reason: This proposal is intended to complement and extend the work of the Scoping Task Group and IEBC scoping cleanup proposal submitted by BCAC (Proposal 11184).

The scoping task group aimed to create greater consistency in the scoping language for each chapter in the I-Codes and remove redundant administrative language from scoping sections.

This proposal builds on that work in the context of the IEBC by improving editorial consistency across the IEBC.

- For consistency in chapter and section titles and scoping section language, where types of work are referred to in scoping statements they are referred to in the plural (repairs vs repair and additions vs addition).
- “Relocations” instead of various formulations of “relocated and moved buildings.”
- Where the various types of work are listed, the items have been reordered to match the order in which they appear in the IEBC scoping section (101.2): repair, alteration, change of occupancy, addition [to], and relocation [of].
- Chapter 6, which is the charging chapter for the work area compliance method is retitled from “Classification of Work” to “Work Area Compliance Method” for consistency with the naming of Chapters 5 and 13.
- The title of Chapter 13 is changed from plural to singular to better reflect that the chapter contains a single method.
- The scoping statements for Level 2 and 3 alterations and changes of occupancy (801.1, 901.1, and 1001.1) are revised to indicate

the relationship to Chapter 12, similar to the language in the scoping statement for Level 1 alterations (701.1).

- The scoping statement for Chapter 14 (Relocations) is revised to indicate the relationship to Chapter 12, similar to the language in the scoping statement for Chapter 5 (Repairs).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is editorial.

EB6-25 Part II

EB7-25

IEBC: CHAPTER 3, SECTION 301, 301.1, 302.1, 302.2, 301.2, 301.4, 301.3, 301.3.1, 301.3.2, 301.3.3, SECTION 302, 302.3, 302.4, 302.5, SECTION 302 (New), 301.1.1, 302.2.1, SECTION 303, 303.1, 303.1.1, 303.2, 303.2.1, 303.3, SECTION 303 (New), 303.1 (New), SECTION 309, 309.1, 309.2, 309.2.1, SECTION 305 (New), 305.1 (New), SECTION 307, 307.1, SECTION 308, 308.1, SECTION 307 (New), 306.7.2, 306.6.1, 306.6.1.1, SECTION 306, 306.1, 306.2, 306.2.1, 306.3, 306.4, 306.5, 306.6, 306.7, 306.7.1, 306.7.3, 306.7.4, 306.7.5, 306.7.6, 306.7.7, 306.7.8, 306.7.9, 306.7.10, 306.7.11, 306.7.11.1, 306.7.11.2, 306.7.11.3, 306.7.12, 306.7.13, 306.7.14, 306.7.15, 306.7.16, 306.7.17, 306.7.18, 306.7.18.1, 306.7.18.2, 306.7.18.3, 306.7.18.4, 306.7.18.5, 306.7.18.6, 306.7.18.7 , SECTION 309 (New), 309.1 (New), SECTION 310 (New), 310.1 (New), SECTION 304, [BS] 302.4.1, [BS] 304.1, [BS] 304.2, [BS] 304.3, [BS] 304.3.1, [BS] TABLE 304.3.1, [BS] 304.3.2, [BS] TABLE 304.3.2, SECTION 305, [BS] 305.1, SECTION 312 (New), 312.1 (New), SECTION 313 (New), 313.1 (New), SECTION 314 (New), 314.1 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

CHAPTER 3
PROVISIONS FOR ALL COMPLIANCE METHODS

Revise as follows:

SECTION 301
~~ADMINISTRATION~~ GENERAL

301.1 ~~Applicability~~ Scope. ~~The *repair*~~ *Repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with ~~Section 301.2, 301.3 or 301.4~~ this chapter. ~~The provisions of Sections 302 through 309 shall apply to all *alterations*, *repairs*, *additions*, relocation of structures and *changes of occupancy* regardless of compliance method.~~

Exceptions:

1. Detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate *means of egress*, and their accessory structures not more than three *stories above grade plane* in height, shall comply with this code or the *International Residential Code*.
2. Existing buildings shall comply with this code or the *International Building Code*.

301.1.1 ~~302.1~~ Dangerous conditions. The *code official* shall have the authority to require the elimination of conditions deemed *dangerous*. Like materials shall be permitted for repairs and alterations, provided that unsafe conditions are not created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

301.1.2 ~~302.2~~ Additional codes. *Alterations, repairs, additions* and *changes of occupancy* to~~, or relocation of,~~ *existing buildings* and structures shall comply with the provisions for existing buildings in ~~*alterations, repairs, additions* and *changes of occupancy* or relocation, respectively, in this code and~~ the *International Energy Conservation Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code*, *International Private Sewage Disposal Code*, *International Property Maintenance Code*, *International Residential Code* and NFPA 70. Where provisions of the other codes conflict with provisions of this code, the provisions of this code shall take precedence.

301.2 Repairs. *Repairs* shall comply with ~~the requirements of~~ Chapter 4.

301.3 ~~301.4~~ Relocated buildings. Relocated buildings shall comply with ~~the requirements of~~ Chapter 5 ~~14~~.

301.4 ~~301.3~~ Alteration, addition or change of occupancy. ~~The *alteration*~~ *Alteration*, *addition* or *change of occupancy* of ~~all~~ *existing* *buildings* shall comply with one of the methods listed in Section 301.4.1 ~~301.3.1~~, 301.4.2~~301.3.2~~ or 301.4.3~~301.3.3~~ as selected by the applicant. Sections 301.4.1 ~~301.3.1~~ through 301.4.3~~301.3.3~~ shall not be applied in combination with each other. The provisions of Sections 302 through 314 shall apply to all *alterations*, *additions*, or *changes of occupancy* regardless of compliance method.

> **Exception:** ~~Subject to the approval of the *code official*, *alterations* complying~~ Existing buildings that comply with the building code and laws in ~~existence~~ effect at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code. New structural members added as part of the *alteration* shall comply with the *International Building Code*. This exception shall not apply to the following:
>
> 1. *Alterations* for accessibility required by Section 308 ~~306.~~
> 2. ~~*Alterations* that constitute *substantial*~~ *Substaintial improvement* in *flood hazard areas*, ~~which~~ shall comply with Sections 503.2, 701.3 or 1303.1.3.
> 3. Structural provisions with a change of occupancy shall comply with ~~of~~ Section 311 ~~304~~, Chapter 5 or ~~to the structural provisions of~~ Sections 706, 805 and 906.

301.4.1 ~~301.3.1~~ Prescriptive compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 5 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.4.2~~301.3.2~~ Work area compliance method. *Alterations*, *additions* and *changes of occupancy* complying with the applicable requirements of Chapters 6 through 12 of this code shall be considered in compliance with the provisions of this code.

301.4.3~~301.3.3~~ Performance compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 13 of this code shall be considered in compliance with the provisions of this code.

Delete without substitution:

~~SECTION 302~~
~~GENERAL PROVISIONS~~

~~**302.3 Existing materials.** Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the code official to be *unsafe*.~~

~~**302.4 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided that *unsafe* conditions are not created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.~~

~~**302.5 Occupancy and use.** Where determining the appropriate application of the referenced sections of this code, the occupancy and use of a building shall be determined in accordance with Chapter 3 of the *International Building Code*.~~

Add new text as follows:

SECTION 302
SPECIAL USE AND OCCUPANCY

Revise as follows:

302.1 ~~301.1.1~~ Bleachers, folding and telescopic seating and grandstands. Existing bleachers, folding and telescopic seating and grandstands shall comply with ICC 300.

302.2 ~~302.2.1~~ Additional codes in health care. In existing Group I-2 occupancies, ambulatory health care *facilities*, outpatient clinics and hyperbaric *facilities*, *alterations*, *repairs*, *additions* and *changes of occupancy* to, or relocation of, *existing buildings* and structures shall also comply with NFPA 99.

Delete without substitution:

~~SECTION 303~~
~~STORM SHELTERS~~

Revise as follows:

302.3 ~~303.1 General~~ Storm shelters. This section applies to the design and construction of storm shelters for the purpose of providing protection during tornados, hurricanes and other severe windstorms.

302.3.1 ~~303.1.1~~ Construction. *Storm shelters* shall be constructed in accordance with Section 423 of the *International Building Code* and ICC 500 and shall be designated as hurricane shelters, tornado shelters or combined hurricane and tornado shelters.

Exception: *Storm shelters* added to critical emergency operations facilities or Group E occupancies are not required to comply with the travel distance in Section 423.4.2 or 423.5.2 of the *International Building Code*.

302.3.2 ~~303.2~~ Addition to a Group E occupancy. Where an *addition* is added to an existing Group E occupancy located in an area where the shelter design wind speed for tornados is 250 mph (402.3 km/h) in accordance with Figure 304.2(1) of ICC 500 and the occupant load in the *addition* is 50 or more, the *addition* shall have a *storm shelter* constructed in accordance with ICC 500.

Exceptions:

1. Group E day care *facilities*.
2. Group E occupancies accessory to places of religious worship.
3. *Additions* meeting the requirements for shelter design in ICC 500.

302.3.2.1 ~~303.2.1~~ Design occupant capacity. The required design occupant capacity of the *storm shelter* shall include all buildings on the site, and shall be the total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.

Exceptions:

1. Where an *addition* is being added on an existing Group E site, and where the *addition* is not of sufficient size to accommodate the required occupant capacity of the *storm shelter* for all of the buildings on-site, the *storm shelter* shall at a minimum accommodate the required capacity for the *addition*.
2. Where *approved* by the *code official*, the required design occupant capacity of the shelter shall be permitted to be reduced by the design occupant capacity of any existing *storm shelters* on the site.

302.3.3 ~~303.3~~ Occupancy classification. The occupancy classification for *storm shelters* shall be determined in accordance with Section 423.3 of the *International Building Code*.

Add new text as follows:

SECTION 303
BUILDING HEIGHT AND AREA

303.1 General. Building height and area shall comply with the International Building Code or the International Residential code for new construction or this code.

Revise as follows:

SECTION 304 ~~309~~
FIRE AND SMOKE PROTECTION FEATURES ~~ADDITIONS AND REPLACEMENTS OF EXTERIOR WALL COVERINGS AND EXTERIOR WALL ENVELOPES~~

Delete without substitution:

~~**309.1 General.** The provisions of Section 309 apply to all *alterations*, *repairs*, *additions*, relocations of structures and *changes of occupancy* regardless of compliance method.~~

Revise as follows:

304.1 ~~**309.2**~~ **Additions and replacements.** Where an *exterior wall covering* or *exterior wall envelope* is added or replaced, the materials and methods used shall comply with the requirements for new construction in Chapter 14 and Chapter 26 of the *International Building Code* if the added or replaced *exterior wall covering* or *exterior wall envelope* involves two or more contiguous stories and comprises more than 15 percent of the total wall area on any side of the building.

304.1.1 ~~**309.2.1**~~ **Automatic sprinkler systems.** Combustible *exterior wall covering* or combustible exterior wall envelopes shall not be added to an existing high-rise building that is not protected throughout with an automatic sprinkler system.

Exceptions:

1. Where such material is located on a single story and is less than 15 percent of the wall area on any side of the building.
2. Water-resistive barriers installed in accordance with Section 1402.6 of the *International Building Code*.

Add new text as follows:

SECTION 305
INTERIOR FINISHES

305.1 General. Interior finishes shall comply with the International Building Code or the International Residential code for new construction or this code.

Revise as follows:

SECTION 306 ~~307~~
AUTOMATIC SPRINKLER SYSTEMS AND FIRE ALARM AND DETECTION SYSTEMS ~~SMOKE ALARMS~~

306.1 ~~**307.1**~~ **Smoke alarms.** Where an *alteration*, *addition*, *change of occupancy* or relocation of a building is made to an *existing building* or structure of a Group R and I-1 occupancy, the *existing building* shall be provided with smoke alarms in accordance with the International Fire Code or Section R310 of the *International Residential Code*.

Exception: Work classified as Level 1 *Alterations* in accordance with Chapter 7.

Delete without substitution:

~~SECTION 308~~
~~CARBON MONOXIDE DETECTION~~

Revise as follows:

<u>306.2</u> ~~308.1~~ **Carbon monoxide detection.** Where an *addition*, *alteration*, *change of occupancy* or relocation of a building is made to an *existing building* , the *existing building* shall be provided with carbon monoxide detection in accordance with the International Fire Code or Section R311 of the *International Residential Code*.

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.
2. Installation, *alteration* or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.
3. Work classified as Level 1 *Alterations* in accordance with Chapter 7.
4. In Group I-2 occupancies, carbon monoxide detection is not required in each sleeping unit where carbon monoxide detection, which transmits an alarm signal to an *approved* location, is provided in each space containing a carbon monoxide source.

Add new text as follows:

<u>SECTION 307</u>
<u>MEANS OF EGRESS</u>

Revise as follows:

<u>307.1</u> ~~306.7.2~~ **Accessible means of egress.** Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be added in existing *facilities*. <u>Required accessible means of egress shall be maintained during construction, demolition, remodeling or *alterations* and *additions* to any occupied building.</u>

<u>**Exception:** Existing means of egress need not be maintained where *approved* temporary means of egress and accessible means of egress systems and *facilities* are provided.</u>

<u>307.2</u>~~306.6.1~~ **Accessible means of egress.** <u>In additions, at least</u> ~~Not fewer than~~ one accessible means of egress from the *addition* shall be provided where required by Section 1009.1 of the *International Building Code*. An additional accessible means of egress shall be provided where an additional means of egress is required due to the *addition*. Where an accessible means of egress serving the *addition* is within the *existing building*, the following are required:

1. An accessible route from the *addition* to the *existing building* shall be provided.
2. The accessible means of egress in the *existing building* shall comply with Section <u>308</u> ~~306~~.7.1.

<u>307.2.1</u>~~306.6.1.1~~ **Additions for elevators.** Where an *addition* is being constructed exclusively to accommodate the installation of an elevator or elevators to improve accessibility, an accessible means of egress in accordance with Section 1009.1 of the *International Building Code* is not required where all of the following conditions are provided:

1. Two-way communication is provided at all elevator landings that are part of the *addition* in accordance with Section 1009.8 of the *International Building Code*.
2. Each elevator landing is on floor level with access to a horizontal exit or to a stairway with a width of not less than 36 inches (914 mm).
3. The elevator does not serve a required accessible floor or occupied roof more than four stories above or below the level of exit discharge.

SECTION <u>308</u>~~306~~

ACCESSIBILITY ~~FOR EXISTING BUILDINGS~~

308 ~~306~~.1 ~~Scope~~ Accessibility. The provisions of Sections 308 ~~306~~.1 through 308.7.17~~306.7.16~~ apply to the accessibility for maintenance and *repair*, *change of occupancy*, *additions* and *alterations* to *existing buildings*, including those identified as *historic buildings*.

308 ~~306~~.2 General. A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy. ~~Required accessible means of egress shall be maintained during construction, demolition, remodeling or *alterations* and *additions* to any occupied building.~~

~~**Exception:** Existing means of egress need not be maintained where *approved* temporary means of egress and accessible means of egress systems and *facilities* are provided.~~

308 ~~306~~.2.1 Prohibited reduction in accessibility. An *alteration* or *addition* that decreases or has the effect of decreasing accessibility of a building, *facility* or element thereof, below the requirements for new construction at the time of the *alteration* or *addition* is prohibited. The number of accessible elements need not exceed that required for new construction at the time of *alteration* or *addition.*

308 ~~306~~.3 Design. Buildings and *facilities* shall be designed and constructed to be accessible in accordance with this code and the *alteration* and *existing building* provisions in ICC A117.1, as applicable.

308 ~~306~~.4 Extent of application. An *alteration* of an existing *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction.

308 ~~306~~.5 Change of occupancy. Where an existing building undergoes a *change of occupancy* that includes alterations, such alterations shall comply with Section 308 ~~306~~.7.

308 ~~306~~.6 Additions. Where additions contain dwelling or sleeping units, the accessibility requirements shall apply only to the quantity of the dwelling or sleeping units in the *addition*. Provisions for new construction shall apply to *additions*. An *addition* that affects the accessibility to, or contains an area of, a *primary function* shall comply with the requirements in Section 308 ~~306~~.7.1.

308 ~~306~~.7 Alterations. A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code,* ICC A117.1 and the provisions of Sections 308 ~~306~~.7.1 through 308 ~~306~~.7.18, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.

308 ~~306~~.7.1 Alterations affecting an area containing a primary function. Where an *alteration* affects the accessibility to, or contains an area of, *primary function*, the route to the *primary function* area shall be accessible. Toilet facilities and drinking fountains serving the area of *primary function*, including the route from the area of primary function to these facilities, shall be accessible. Priority shall be given to the improvements affecting the accessible route to the primary function area.

Exceptions:

1. The cumulative costs of providing the accessible route, toilet facilities and drinking fountains are not required to exceed 20 percent of the costs of the *alterations* affecting the area of *primary function*.
2. This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration*of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

308.7.2~~306.7.3~~ Alteration of Type A units. The *alteration* to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.

<u>308.7.3</u>~~306.7.4~~ Type B units. Type B dwelling or sleeping units required by Section 1108 of the *International Building Code* are not required to be provided in *existing buildings* and *facilities* undergoing *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

<u>308.7.4</u>~~306.7.5~~ Entrances. Where an *alteration* includes *alterations* to an entrance that is not accessible, and the *facility* has an accessible entrance, the altered entrance is not required to be accessible unless required by Section <u>308</u> ~~306~~.7.1. Signs complying with Section 1112 of the *International Building Code* shall be provided.

<u>308.7.5</u>~~306.7.6~~ Accessible route. Exterior accessible routes, including curb ramps, shall be not less than 36 inches (914 mm) minimum in width.

<u>308.7.6</u>~~306.7.7~~ Elevators. Altered elements of existing elevators shall comply with ASME A17.1. Where the elevator emergency communication system is altered or replaced, that system shall comply with Section 3001.2 of the *International Building Code*. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

<u>308.7.7</u>~~306.7.8~~ Limited-use/limited-application elevators. Limited-use/limited-application elevators installed in accordance with ASME A17.1 shall be permitted as a component of an accessible route.

<u>308.7.8</u>~~306.7.9~~ Platform lifts. Vertical and inclined platform (wheelchair) lifts installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.

<u>308.7.9</u>~~306.7.10~~ Stairways and escalators in existing buildings. Where an escalator or stairway is added where none existed previously and major structural modifications are necessary for installation, an accessible route complying with Section 1104.4 of the *International Building Code* is required between levels served by such escalator or stairway.

<u>308.7.10</u>~~306.7.11~~ Determination of number of units. Where Chapter 11 of the *International Building Code* requires Accessible, Type A or Type B units and where such units are being altered or added within an *existing building*, the number of Accessible, Type A and Type B units shall be determined in accordance with Sections <u>30.7.10.1</u>306.7.11.1 through <u>308.7.10.3</u>~~306.7.11.3~~.

<u>308.7.10.1</u>~~306.7.11.1~~ Accessible dwelling or sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being altered or added within an *existing building* , the requirements of Section 1108 of the *International Building Code* for Accessible units apply only to the quantity of dwelling or sleeping units being altered or added.

<u>308.7.10.2</u>~~306.7.11.2~~ Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered or added within an *existing building* , the requirements of Section 1108 of the *International Building Code* for Type A units apply only to the quantity of the dwelling or sleeping units being altered or added.

<u>308.7.10.3</u>~~306.7.11.3~~ Type B dwelling or sleeping units. Where Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered or added within an *existing building* and where the *work area* is greater than 50 percent of the aggregate area of the building, the requirements of Section 1108 of the *International Building Code* for Type B units apply only to the quantity of the dwelling or sleeping units being altered or added.

<u>308.7.11</u>~~306.7.12~~ Toilet rooms. Where it is *technically infeasible* to alter existing toilet rooms to be accessible, one accessible single-user toilet room or one accessible family or assisted-use toilet room constructed in accordance with Section 1110.2.1 of the *International Building Code* is permitted. This toilet room shall be located on the same floor and in the same area as the existing toilet rooms. At the inaccessible toilet rooms, directional signs indicating the location of the nearest such toilet room shall be provided. These directional signs shall include the International Symbol of Accessibility, and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

<u>308.7.12</u>~~306.7.13~~ Bathing rooms. Where it is *technically infeasible* to alter existing bathing rooms to be accessible, one accessible single-user bathing room or one accessible family or assisted-use bathing room constructed in accordance with Section 1110.2.1 of the *International Building Code* is permitted. This accessible bathing room shall be located on the same floor and in the same area as the existing bathing rooms. At the inaccessible bathing rooms, directional signs indicating the location of the nearest such bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility, and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

308.7.13~~306.7.14~~ Additional toilet and bathing facilities. In assembly and mercantile occupancies, where additional toilet fixtures are added, not fewer than one accessible family or assisted-use toilet room shall be provided where required by Section 1110.2.1 of the *International Building Code*. In recreational *facilities*, where additional bathing rooms are being added, not fewer than one family or assisted-use bathing room shall be provided where required by Section 1110.2.1 of the *International Building Code*.

308.7.14~~306.7.15~~ Adult changing stations. Where additional toilet facilities are being added, in occupancies where adult changing stations are required by Section 1110.4.1 of the *International Building Code*, not fewer than one accessible family or assisted-use toilet room with an adult changing station shall be provided in accordance with Section 1110.4 of the *International Building Code*. The adult changing station shall be permitted to be located in a family or assisted-use toilet room or bathing room required by Section 308.7.11 ~~306.7.12~~, 308.7.12~~306.7.13~~ or 308.7.13~~306.7.14~~.

308.7.15~~306.7.16~~ Dressing, fitting and locker rooms. Where it is *technically infeasible* to provide accessible dressing, fitting or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be provided. Where separate-sex *facilities* are provided, accessible rooms for each sex shall be provided. Separate-sex *facilities* are not required where only unisex rooms are provided.

308.7.16~~306.7.17~~ Amusement rides. Where the structural or operational characteristics of an amusement ride are altered to the extent that the amusement ride's performance differs from that specified by the manufacturer or the original design, the amusement ride shall comply with requirements for new construction in Section 1111.4.8 of the *International Building Code.*

308.7.17~~306.7.18~~ Historic structures. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the historic structure, as determined by the authority having jurisdiction, the alternative requirements of Sections 308.7.17.1 ~~306.7.18.1~~ through 308.7.17.7 ~~306.7.18.7~~ for that element shall be permitted.

Exceptions:

1. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in historic structures.
2. The altered element or space is not required to be on an accessible route, unless required by Section 308.7.17.1 ~~306.7.18.1~~ or 308.7.17.2 ~~306.7.18.2.~~

308.7.17.1~~306.7.18.1~~ Site arrival points. Not fewer than one exterior accessible route, including curb ramps from a site arrival point to an accessible entrance, shall be provided and shall not be less than 36 inches (914 mm) minimum in width.

308.7.17.2~~306.7.18.2~~ Multiple-level buildings and facilities. An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

308.7.17.3~~306.7.18.3~~ Entrances. Where an entrance cannot be made accessible in accordance with Section 308 ~~306~~.7.5, an accessible entrance that is unlocked while the building is occupied shall be provided; or, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1112 of the *International Building Code* shall be provided at the public entrances and the accessible entrance.

308.17.4~~306.7.18.4~~ Toilet facilities. Where toilet rooms are provided, not fewer than one accessible single-user toilet room or one accessible family or assisted-use toilet room complying with Section 1110.2.1 of the *International Building Code* shall be provided.

308.7.17.5~~306.7.18.5~~ Bathing facilities. Where bathing rooms are provided, not fewer than one accessible single-user bathing room or one accessible family or assisted-use bathing rooms complying with Section 1110.2.1 of the *International Building Code* shall be provided.

308.7.17.6~~306.7.18.6~~ Type A units. The *alteration* to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.

308.7.17.7~~306.7.18.7~~ Type B units. Type B dwelling or sleeping units required by Section 1108 of the *International Building Code* are not required to be provided in *historic buildings*.

Add new text as follows:

SECTION 309
INTERIOR ENVIRONMENTS

309.1 General. Interior environments shall comply with the International Building Code or the International Residential code for new construction or this code.

SECTION 310
ENERGY CONSERVATION

310.1 Energy Conservation. Energy conservation shall comply with Section 301.1.2.

Revise as follows:

SECTION SECTION 311~~304~~
STRUCTURAL ~~DESIGN LOADS AND EVALUATION AND DESIGN PROCEDURES~~

[BS] 311.1 ~~302.4.1~~ New structural members and connections. New structural members and connections shall comply with the detailing provisions of the *International Building Code* for new buildings of similar structure, purpose and location.

Exception: Where alternative design criteria are specifically permitted.

[BS] 311.2 ~~304.1~~ Live loads. Where an *addition* or *alteration* does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads *approved* prior to the *addition* or *alteration*. If the *approved* live load is less than that required by Section 1607 of the *International Building Code*, the area designated for the nonconforming live load shall be posted with placards of *approved* design indicating the *approved* live load. Where the *addition* or *alteration* results in increased design live load, the live load required by Section 1607 of the *International Building Code* shall be used.

[BS] 311.3 ~~304.2~~ Snow loads on adjacent buildings. Where an *alteration* or *addition* changes the potential snow drift effects on an adjacent building, the *code official* is authorized to enforce Section 7.12 of ASCE 7.

[BS] 311.4 ~~304.3~~ Seismic evaluation and design procedures. Where required, seismic evaluation or design shall comply with the procedures and criteria in this section, regardless of which compliance method is used. The scope of the required evaluation or design shall be as indicated in applicable provisions of Chapters 4 through 12.

[BS] 311.4.1~~304.3.1~~ Full seismic criteria. Where required, seismic evaluation or design shall comply with one of the following methodologies, which shall not be applied in combination with each other:

1. Section 1613 of the *International Building Code*. Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," values of R, Ω_0 and C_d used for analysis in accordance with Chapter 16 of the *International Building Code* shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system.
2. ASCE 41, using a Tier 3 procedure and both levels of the two-level performance objective in Table <u>311.4.1</u> ~~304.3.1~~ for the applicable *risk category*.

[BS] TABLE <u>311.4.1</u>~~304.3.1~~ PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH FULL SEISMIC CRITERIA

RISK CATEGORY (Based on IBC Table 1604.5)	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1N EARTHQUAKE HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2N EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3)	Collapse Prevention (S-5)
II	Life Safety (S-3)	Collapse Prevention (S-5)
III	Damage Control (S-2)	Limited Safety (S-4)
IV	Immediate Occupancy (S-1)	Life Safety (S-3)

[BS] <u>311.4.2</u> ~~304.3.2~~ Reduced seismic criteria. Where required, seismic evaluation or design shall comply with one of the following methodologies, which shall not be applied in combination with each other:

1. Section 1613 of the *International Building Code* using 75 percent of the prescribed forces. Values of R, Ω_0 and C_d used for analysis shall be as specified in Section <u>311.4.1</u> ~~304.3.1~~ of this code.
2. Applicable chapters of Appendix A of this code, for structures or portions of structures specified in Items 2.1 through 2.4 subject to the limitations of the respective chapter.
   - 2.1. Chapter A1 for unreinforced masonry bearing wall buildings assigned to *Risk Category* I or II.
   - 2.2. Chapter A2 for the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms assigned to *Risk Category* I or II.
   - 2.3. Chapter A3 for cripple walls and sill plate anchorage in residential buildings of light-frame wood construction assigned to *Risk Category* I or II.
   - 2.4. Chapter A4 for soft, weak or open-front wall conditions in multiple-unit residential buildings of wood construction assigned to *Risk Category* I or II.
3. ASCE 41, using the performance objective in Table <u>311.4.2</u> ~~304.3.2~~ for the applicable *risk category*.

[BS] TABLE <u>311.4.2</u> ~~304.3.2~~ PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH REDUCED CRITERIA FORCES

RISK CATEGORY (Based on IBC Table 1604.5)	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1E EARTHQUAKE HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2E EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3). See Note a	Collapse Prevention (S-5)
II	Life Safety (S-3). See Note a	Collapse Prevention (S-5)
III	Damage Control (S-2). See Note a	Limited Safety (S-4). See Note b
IV	Immediate Occupancy (S-1)	Life Safety (S-3). See Note c

a. For Risk Categories I, II and III, the Tier 1 and Tier 2 procedures need not be considered for the BSE-1E earthquake hazard level.

b. For Risk Category III, the Tier 1 screening checklists shall be based on the Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS*-factors that are the average of the values for Collapse Prevention and Life Safety.

c. For Risk Category IV, the Tier 1 screening checklists shall be based on Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS*-factors for Life Safety.

Delete without substitution:

~~SECTION 305~~
~~IN-SITU LOAD TESTS~~

Revise as follows:

[BS] 311.5 ~~305.1 General~~ In-situ load tests. Where used, in-situ load tests shall be conducted in accordance with Section 1708 of the *International Building Code*.

Add new text as follows:

SECTION 312
ELECTRICAL

312.1 Electrical. Electrical provisions shall comply with Section 301.1.2.

SECTION 313
MECHANICAL

313.1 Mechanical. Mechanical systems shall comply with Section 301.1.2.

SECTION 314
PLUMBING

314.1 Plumbing. Plumbing systems shall comply with Section 301.1.2.

Attached Files

- **BCAC IEBC Chaper 3 clean draft.pdf**
  https://www.cdpaccess.com/proposal/11299/34350/files/download/9915/

Reason: This is a relocation and clarification of requirements explaining the use of the IEBC and the application of Chapter 3 to all methods. It is not intended to have any change to construction requirements.

301.1 Scope - this is a simplification. The exceptions allow for existing buildings to comply with new construction. The deleted sentence is addressed in Section 301.4.

301.1.1 Dangerous conditions - the added sentence was moved from existing Section 302.4

301.2 Repairs and 301.3 Relocation - these are chapter that are separate from the methods for alterations and additions.

301.4 Alterations, addition or change of occupancy - the new last sentence clarifies the application of the common elements.

302.3, 302.4 and 302.5 - these are redundant statements that addressed elsewhere in the chapter.

Over time, provisions have been added to Chapter 3 in a random manner. This organization is the same as what is proposed for IRBC Chapter 10 and follows the basic organization of the IBC.

Section 302 Special use and occupancies - this will bleachers, health care, storm shelters currently in Chapter 3.

Section 303 Building Height and area - for building height and area there are provisions in some of the methods that are different than new construction. At this time, this is a place holder so that general items that would be applicable would have a place to go to.

Section 304 Fire and smoke protection features (fire safety items) - this will include exterior wall coverings, currently in Chapter 3. The current Section 309.1 is addressed in the main paragraphs, so this is deleted as redundant.

Section 305 Interior Finishes - for interior finishes there are provisions in some of the methods that are different than new construction. At this time, this is a place holder so that general items that would be applicable would have a place to go to.

Section 306 Automatic sprinkler systems and fire alarm and detections systems - this includes smoke alarms and carbon monoxide detection already in Chapter 3.

Section 307 Means of egress - the accessible means of egress provisions are in Chapter 10 of the IBC. To make them easier to locate, the have been moved out from within the accessibility requirement. There are means of egress provisions currently found in the other methods. Some suggested to move hear under other changes are emergency escape and rescue openings, window guards, fire escapes.

Section 308 Accessibility - this includes the accessibility requirements currently in Chapter 3.

Section 309 Interior environments - for interior finishes there are provisions in some of the methods that are different than new construction. At this time, this is a place holder so that general items that would be applicable would have a place to go to. Some suggested to move hear under other changes are classroom acoustics.

Section 310 Energy conservation - The IECC is referenced in Section 301.2.2 and includes existing building provisions. This section is here to be consistent with other chapters.

Section 311 - Structural - this include the structural loads and in-situ loads currently in Chapter 3

Section 312 through 314 - there are provisions in the other codes for existing building rather than in the IEBC. This pointer is a reference to the additional codes

This proposal is part of a package of code changes to expand and reorganize Chapter 3 to increase understanding of the options available in the IEBC. Attached is a clean copy of Chapter 3 if all the associated proposals are accepted.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a reorganization. Please see the reason statement.

EB7-25

EB8-25

IEBC: CHAPTER 3, SECTION 301, 301.1, 301.1.1, 301.2, 301.3 (New), 301.4, 301.3, 301.3.1, 301.3.2, 301.3.3, SECTION 306, 306.1, CHAPTER 5, SECTION 501, 501.1, SECTION 507, 507.1, 507.2, [BS] 507.3, [BS] 507.4, CHAPTER 6, SECTION 601, 601.1, SECTION 607, 607.1, 607.2, CHAPTER 7, SECTION 701, 701.1, CHAPTER 8, SECTION 801, 801.1, CHAPTER 9, SECTION 901, 901.1, CHAPTER 13, SECTION 1301, 1301.1, 1301.1.1, CHAPTER 12, SECTION 1201, 1201.1, SECTION 1202, SECTION 1203, SECTION 1304 (New), 1304.1 (New), 306.7.18, 306.7.18.1, 306.7.18.2, 306.7.18.3, 306.7.18.4, 306.7.18.5, 306.7.18.6, 306.7.18.7 , SECTION 1205, SECTION 1204, SECTION 1206

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

CHAPTER 3
PROVISIONS FOR ALL COMPLIANCE METHODS

SECTION 301
ADMINISTRATION

Revise as follows:

301.1 Applicability. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with Section 301.2, 301.3, ~~or~~ 301.4 or 301.5. The provisions of Sections 302 through 309 shall apply to all *alterations*, *repairs*, *additions*, relocation of structures and *changes of occupancy* regardless of compliance method.

301.1.1 Bleachers, folding and telescopic seating and grandstands. Existing bleachers, folding and telescopic seating and grandstands shall comply with ICC 300.

301.2 Repairs. *Repairs* shall comply with the requirements of Chapter 4.

Add new text as follows:

301.3 Historic buildings. *Alterations*, *additions* or *changes of occupancy* of *historic buildings* shall comply with one of the methods described in Section 301.5 except as modified by Chapter 13.

301.4 Relocated buildings. Relocated buildings shall comply with the requirements of Chapter 14.

Revise as follows:

~~301.3~~ 301.5 Alteration, addition or change of occupancy. The *alteration*, *addition* or *change of occupancy* of all *existing buildings* shall comply with one of the methods listed in Section ~~301.3.1~~ 301.5.1, ~~301.3.2~~ 301.5.2 or ~~301.3.3~~ 301.5.3 as selected by the applicant. Sections ~~301.3.1~~ 301.5.1 through ~~301.3.3~~ 301.5.3 shall not be applied in combination with each other.

Exception: Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code. New structural members added as part of the *alteration* shall comply with the *International Building Code*. This exception shall not apply to the following:

1. *Alterations* for accessibility required by Section 306.
2. *Alterations* that constitute *substantial improvement* in *flood hazard areas*, which shall comply with Sections 503.2, 701.3 or 1303.1.3.
3. Structural provisions of Section 304, Chapter 5 or to the structural provisions of Sections 706, 805 and 906.

~~**301.3.1**~~ **301.5.1** **Prescriptive compliance method.** *Alterations*, *additions* and *changes of occupancy* complying with Chapter 5 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

~~**301.3.2**~~ **301.5.2** **Work area compliance method.** *Alterations*, *additions* and *changes of occupancy* complying with the applicable requirements of Chapters 6 through ~~12~~ 11 of this code shall be considered in compliance with the provisions of this code.

~~**301.3.3**~~ **301.5.3** **Performance compliance method.** *Alterations*, *additions* and *changes of occupancy* complying with Chapter 12 ~~13~~ of this code shall be considered in compliance with the provisions of this code.

SECTION 306
ACCESSIBILITY FOR EXISTING BUILDINGS

306.1 Scope. The provisions of Sections 306.1 through ~~306.7.18~~ 306.7.17 apply to maintenance and *repair*, *change of occupancy*, *additions* and *alterations* to *existing buildings*~~, including those identified as *historic buildings*~~.

CHAPTER 5
PRESCRIPTIVE COMPLIANCE METHOD

SECTION 501
GENERAL

501.1 Scope. The provisions of this chapter shall control the *alteration, addition* and *change of occupancy* of *existing buildings* and structures~~, including *historic buildings* and structures~~ as referenced in Section ~~301.3~~ 301.5.1.

Exception: Historic buildings shall comply with this chapter except as modifed in Chapter 13.

Delete without substitution:

~~SECTION 507~~
~~HISTORIC BUILDINGS~~

~~**507.1 Historic buildings.** The provisions of this code that require improvements relative to a building's existing condition or, in the case of *repairs*, that require improvements relative to a building's predamage condition, shall not be mandatory for *historic buildings* unless specifically required by this section.~~

~~**507.2 Life safety hazards.** The provisions of this code shall apply to *historic buildings* judged by the *code official* to constitute a distinct life safety hazard.~~

~~**[BS] 507.3 Flood hazard areas.** Within *flood hazard areas* established in accordance with Section 1612.3 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable, where the work proposed constitutes *substantial improvement,* the building shall be brought into compliance with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.~~

~~**Exception:** *Historic buildings* meeting any of the following criteria need not be brought into compliance:~~

1. ~~Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.~~
2. ~~Determined by the Secretary of the US Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.~~
3. ~~Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.~~

~~**[BS] 507.4 Structural.** *Historic buildings* shall comply with the applicable structural provisions in this chapter.~~

~~**Exceptions:**~~

1. ~~The *code official* shall be authorized to accept existing floors and existing live loads and to approve operational controls that limit the live load on any floor.~~
2. ~~*Repair* of *substantial structural damage* is not required to comply with Sections 405.2.3 and 405.2.4. *Substantial structural damage* shall be repaired in accordance with Section 405.2.1.~~

CHAPTER 6
CLASSIFICATION OF WORK

SECTION 601
GENERAL

Revise as follows:

601.1 Scope. The provisions of this chapter shall be used in conjunction with Chapters 7 through ~~12~~ 11 and shall apply to the *alteration*, *addition* and *change of occupancy* of *existing structures*~~, including historic structures,~~ as referenced in Section ~~301.3.2~~ 301.5.2. The work performed on an *existing building* shall be classified in accordance with this chapter.

Exception: Historic buildings shall comply with this chapter except as modifed in Chapter 13.

Delete without substitution:

~~SECTION 607~~
~~HISTORIC BUILDINGS~~

~~**607.1 Scope.** *Historic building* provisions shall apply to buildings classified as historic as defined in Chapter 2.~~

~~**607.2 Application.** Except as specifically provided for in Chapter 12, *historic buildings* shall comply with applicable provisions of this code for the type of work being performed.~~

CHAPTER 7
ALTERATIONS—LEVEL 1

SECTION 701
GENERAL

Revise as follows:

701.1 Scope. Level 1 *alterations* as described in Section 602 shall comply with the requirements of this chapter. ~~Level 1 *alterations* to *historic buildings* shall comply with this chapter, except as modified in Chapter 12.~~

CHAPTER 8

ALTERATIONS—LEVEL 2

SECTION 801
GENERAL

801.1 Scope. Level 2 *alterations* as described in Section 603 shall comply with the requirements of this chapter.

Exception: Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall be permitted to comply with Chapter 7.

CHAPTER 9
ALTERATIONS—LEVEL 3

SECTION 901
GENERAL

901.1 Scope. Level 3 *alterations* as described in Section 604 shall comply with the requirements of this chapter.

CHAPTER ~~13~~12
PERFORMANCE COMPLIANCE METHODS

SECTION ~~1301~~ 1201
GENERAL

~~1301.1~~ 1201.1 Scope. The provisions of this chapter shall apply to the *alteration*, *addition* and *change of occupancy* of *existing structures* ~~, including historic structures,~~ as referenced in Section ~~301.3.3~~ 301.5.3. The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings* while permitting, *alteration*, *addition* and *change of occupancy* without requiring full compliance with Chapters 6 through 12, except where compliance with the prescriptive method of Chapter 5 or the work area method of other provisions of this code is specifically required in this chapter.

Exception: Historic buildings shall comply with this chapter except as modified in Chapter 13.

~~1301.1.1~~ 1201.1.1 Compliance with other methods. *Alterations*, *additions* and *changes of occupancy* to *existing structures* shall comply with the provisions of this chapter or with one of the methods provided in Section ~~301.3~~ 301.5.

CHAPTER ~~12~~ 13
HISTORIC BUILDINGS

SECTION ~~1201~~ 1301
GENERAL

1301.1 ~~1201.1~~ Scope. This chapter is intended to provide means for the preservation of *historic buildings. Historic buildings* shall comply with the provisions of this chapter relating to their *repair*, *alteration*, relocation and *change of occupancy*.

SECTION ~~1202~~ 1302
REPAIRS

SECTION ~~1203~~ 1303
FIRE SAFETY

Add new text as follows:

SECTION 1304
ACCESSIBILITY

1304.1 General. The provisions of Sections 306.1 through 306.7.17 apply to maintenance and *repair*, change of occupancy, additions and alterations for accessibility to existing buildings identified as historic buildings.

~~306.7.18~~ 1304.2 ~~Historic structures~~ Application. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the historic structure, as determined by the authority having jurisdiction, the alternative requirements of Sections 1304.2.1 ~~306.7.18.1~~ through 1304.2.7 ~~306.7.18.7~~ for that element shall be permitted.

Exceptions:

1. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in historic structures.
2. The altered element or space is not required to be on an accessible route, unless required by Section ~~306.7.18.1~~ 1304.2.1 or ~~306.7.18.2~~ 1304.2.2.

Revise as follows:

~~306.7.18.1~~ 1304.2.1 Site arrival points. Not fewer than one exterior accessible route, including curb ramps from a site arrival point to an accessible entrance, shall be provided and shall not be less than 36 inches (914 mm) minimum in width.

~~306.7.18.2~~ 1304.2.2 Multiple-level buildings and facilities. An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

~~306.7.18.3~~ 1304.2.3 Entrances. Where an entrance cannot be made accessible in accordance with Section 306.7.5, an accessible entrance that is unlocked while the building is occupied shall be provided; or, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1112 of the *International Building Code* shall be provided at the public entrances and the accessible entrance.

~~306.7.18.4~~ 1304.2.4 Toilet facilities. Where toilet rooms are provided, not fewer than one accessible single-user toilet room or one accessible family or assisted-use toilet room complying with Section 1110.2.1 of the *International Building Code* shall be provided.

~~306.7.18.5~~ 1304.2.5 Bathing facilities. Where bathing rooms are provided, not fewer than one accessible single-user bathing room or one accessible family or assisted-use bathing rooms complying with Section 1110.2.1 of the *International Building Code* shall be provided.

~~306.7.18.6~~ 1304.2.6 Type A units. The *alteration* to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.

~~306.7.18.7~~ 1304.2.7 Type B units. Type B dwelling or sleeping units required by Section 1108 of the *International Building Code* are not required to be provided in *historic buildings*.

SECTION ~~1205~~ 1305

STRUCTURAL

SECTION ~~1204~~ 1306
CHANGE OF OCCUPANCY

SECTION ~~1206~~ 1307
RELOCATED BUILDINGS

Reason: The purpose of this proposal is to move the requirements for historic buildings into one location so it can be generally referenced the same as Repairs and Relocated buildings. This will improve consistency across the three methods for the reuse of historic buildings. Some sections without changes are included to better show consistency across methods and chapters.

This is one of a group of changes from BCAC regarding the reuse of historic buildings. See the proposal to reorganize the chapter for a clean copy of the chapter for Historic Buildings if all the proposals are approved, however, they are all stand alone proposals.301.1 and 301.3 - allows for the requirements for historic buildings to be in one chapter, regardless of method.
306 - accessibility in historic building has been relocated to the historic building chapter.
501.1, 601.1, 1301.1 - allows for historic buildings to use the same exceptions for existing building offered for all existing buildings. The exception allows for historic buildings to have additional allowances currently permitted.
507 - deleted
507.1 similar to 1201.1
507.2 similar to 1201.5 and 1205.2
507.3 - same as 1201.4
507.4 - same as 1205.1
607, 701.1 - Deleted reference to Chapter 12 in work area method as redundant. This is addressed in 301.3 and 601.1.
Move chapter for Performance compliance methods to Chapter 12
Move chapter for Historic Buildings to Chapter 13 - this moves historic buildings out of the work area method.
1304(new) - relocate the historic building provisions for accessibility from Chapter 3.
1305 & 1306 - Switch structural and change of occupancy sections so that the order of the sections are related to IBC chapter orders and consistent with BCAC proposals for Chapter 3 and 10.
This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a movement of existing sections with no change in construction requirements.

EB8-25

EB9-25

IEBC: CHAPTER 3, SECTION 301, 301.1, 301.1.1, 301.2, 301.4, 301.3, 301.3.1, 301.3.2, 301.3.3, SECTION 310 (New), 310.1 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

CHAPTER 3
PROVISIONS FOR ALL COMPLIANCE METHODS

SECTION 301
ADMINISTRATION

301.1 Applicability. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with Section 301.2, 301.3 or 301.4. The provisions of Sections 302 through ~~309~~ 310 shall apply to all *alterations*, *repairs*, *additions*, relocation of structures and *changes of occupancy* regardless of compliance method.

Delete without substitution:

~~**301.1.1 Bleachers, folding and telescopic seating and grandstands.** Existing bleachers, folding and telescopic seating and grandstands shall comply with ICC 300.~~

301.2 Repairs. *Repairs* shall comply with the requirements of Chapter 4.

Revise as follows:

301.3 ~~301.4~~ Relocated buildings. Relocated buildings shall comply with the requirements of Chapter 14.

~~301.3~~ 301.4 Alteration, addition or change of occupancy. The *alteration*, *addition* or *change of occupancy* of all *existing buildings* shall comply with one of the methods listed in Section ~~301.3.1~~301.4.1, ~~301.3.2~~301.4.2 or ~~301.3.3~~301.4.3 as selected by the applicant. Sections ~~301.3.1~~301.4.1 through ~~301.3.3~~301.4.3 shall not be applied in combination with each other.

Exception: Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code. New structural members added as part of the *alteration* shall comply with the *International Building Code*. This exception shall not apply to the following:

1. *Alterations* for accessibility required by Section 306.
2. *Alterations* that constitute *substantial improvement* in *flood hazard areas*, which shall comply with Sections 503.2, 701.3 or 1303.1.3.
3. Structural provisions of Section 304, Chapter 5 or to the structural provisions of Sections 706, 805 and 906.

~~301.3.1~~301.4.1 Prescriptive compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 5 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

~~301.3.2~~301.4.2 Work area compliance method. *Alterations*, *additions* and *changes of occupancy* complying with the applicable requirements of Chapters 6 through 12 of this code shall be considered in compliance with the provisions of this code.

~~301.3.3~~301.4.3 Performance compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 13 of this code shall be considered in compliance with the provisions of this code.

Add new text as follows:

SECTION 310 BLEACHERS, FOLDING AND TELESCOPIC SEATING AND GRANDSTANDS

310.1 Bleachers, folding and telescopic seating and grandstands. Existing bleachers, folding and telescopic seating and grandstands shall comply with ICC 300.

Reason: This proposal moves requirements specific to bleachers out of Administration. ICC 300 does include provisions for repairs, alterations and relocated bleachers. This should be applied the same as other special items, such as storm shelters.

This proposal is part of a package of code changes to expand and reorganize Chapter 3 to increase understanding of the options available in the IEBC. Please see the proposal for reorganization for a clean version of what Chapter 3 will look like if all the proposals are successful.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a relocation of requirements. It is not intended to have any change to construction requirements.

EB9-25

EB10-25 Part I

IEBC: 301.1, SECTION 310 (New), 310.1 (New), 310.1.1 (New), 310.1.2 (New), 310.1.3 (New), UL Chapter 16 (New)

Proponents: Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA); John Taecker, representing Taecker Codes & Technical Services (john@taeckercodes.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE EXITING BUILDING CODE COMMITTEE. PART II WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Existing Building Code

Revise as follows:

301.1 Applicability. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with Section 301.2, 301.3 or 301.4. The provisions of Sections 302 through ~~309~~310 shall apply to all *alterations*, *repairs*, *additions*, installation of rooftop-mounted *photovoltaic (PV) panel systems*, relocation of structures and *changes of occupancy* regardless of compliance method.

Add new text as follows:

SECTION 310
INSTALLATION OF ROOFTOP-MOUNTED PHOTOVOLTAIC (PV) PANEL SYSTEMS

310.1 General. Rooftop-mounted *photovoltaic (PV) panel systems* installed on existing buildings shall be designed and installed in accordance with this section, the *International Fire Code*, NFPA 70 and the manufacturer's installation instructions. Roof structures that provide support for PV panel systems shall be evaluated in accordance with this section.

310.1.1 Equipment. *Photovoltaic panels* and modules shall be *listed* and *labeled* in accordance with both UL 61730-1 and UL 61730-2. Inverters shall be *listed* and *labeled* in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

310.1.2 Fire classification. Rooftop-mounted *PV panel systems* shall have a fire classification in accordance with Section 1505.9 of the *International Building Code* or Section R329 of the *International Residential Code.*

310.1.3 Access and pathways. Roof access, pathways and spacing requirements shall be provided in accordance with Section 1205 of the *International Fire Code* or Section R329 of the *International Residential Code.*

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

61730-2—2017	Photovoltaic (PV) Module Safety Qualification — Part 2: Requirements for Testing—with Revisions through April 2020
61730-1—2017	Photovoltaic (PV) Module Safety Qualification — Part 1: Requirements for Construction—with Revisions through April 2020
1741—2010	Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources—with Revisions through June 2021

Staff Analysis: A review of the standard proposed for inclusion in the code, UL 2703A--2002 Outline of Investigation for Flashing Devices and Systems for Rooftop-Mounted Photovoltaics, with regard to some of the key ICC criteria for referenced standards (Section

4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

The proposed referenced standards, listed below, are currently referenced in the IBC:

- UL 61730-1--2017 Photovoltaic (PV) Module Safety Qualification -- Part 1: Requirements for Construction--with Revisions through April 2020
- UL 61730-2--2017 Photovoltaic (PV) Module Safety Qualifcation -- Part 2: Requirements for Testing--with Revisions through April 2020

The proposed referenced standard, UL 1741--2010 Inverters, Converters, Controllers and Interconnectioni System Equipment for Use with Distribued Energey Resoruces--with Revisions through June 2021, is currently referenced in the IMC.

EB10-25 Part I

EB10-25 Part II

IEBC: [BS] 304.1, 310.1.4 (New), 310.2 (New), 310.2.1 (New), 310.2.1.1 (New), 310.2.1.2 (New), 310.2.1.3 (New), 310.2.1.4 (New), 310.2.2 (New), 310.2.2.1 (New), 310.2.2.2 (New), 310.2.3 (New), 310.2.3.1 (New), 310.3 (New), UL Chapter 16 (New)

Proponents: Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA)

2024 International Existing Building Code

Revise as follows:

[BS] 304.1 Live loads. Where an *addition* or *alteration* does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads *approved* prior to the *addition* or *alteration*. If the *approved* live load is less than that required by Section 1607 of the *International Building Code*, the area designated for the nonconforming live load shall be posted with placards of *approved* design indicating the *approved* live load. Where the *addition* or *alteration* results in increased design live load, the live load required by Section 1607 of the *International Building Code* shall be used. *Roof live load* used for evaluation of installation of rooftop-mounted *PV panel systems* shall be in accordance with this section and Section 310.

Add new text as follows:

310.1.4 Flashing of PV panel system attachments. Flashing shall be installed in a manner that prevents water from entering the roof at attachment points for rooftop-mounted *PV panel systems* in accordance with one of the following:

1. The *roof covering* manufacturer's installation instructions, or
2. A metallic or nonmetallic flashing material or system that is *listed* and *labeled* in accordance with UL 2703A and installed in accordance with the flashing manufacturer's installation instructions.

310.2 Structural loads and resistance. Structural loads for rooftop-mounted *PV panel systems* shall be determined in accordance with Chapter 16 of the *International Building Code* and ASCE 7. Roof structures providing support for *PV panel systems* shall be evaluated or designed in accordance with this section.

310.2.1 Gravity loads and resistance. Gravity loads for installation of rooftop-mounted *PV panel systems* shall be determined in accordance with this section.

310.2.1.1 Dead load. The weight of *PV panel systems* including their mounting system and ballast shall be considered as dead load.

310.2.1.2 Roof live load. *Roof live load* shall be determined in accordance with Section 304.1 and either Section 1607.14.3 of the *International Building Code* or Section R329 of the *International Residential Code*, as applicable for the type of building.

Exception: *Roof live load* need not be applied to the area of the roof covered by *PV panel systems* where the clear height between the *PV panels* and the roof surface is 24 inches (610 MM) or less.

310.2.1.3 Snow load. Design snow load shall be determined in accordance with Chapter 7 of ASCE 7, but the design roof load shall be not less than that determined by Section 304.1 and Section 1607.14.3 of the *International Building Code*.

310.2.1.4 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which installation of a rooftop-mounted *PV panel system* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be evaluated, replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building supporting the *PV panel system* complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code.*
2. For Group R3 and R4 occupancies, installation of rooftop-mounted *PV panel systems* weighing 4 psf (0.1915 kN/m^2) or less over an existing single layer of *roof covering.*

310.2.2 Lateral loads and resistance. Lateral loads for installation of rooftop-mounted *PV panel systems* shall be determined in accordance with this section.

310.2.2.1 Wind loads. Rooftop-mounted *PV panel systems* shall be designed in accordance with Section 1609 of the *International Building Code* and ASCE 7.

310.2.2.2 Existing structural elements carrying lateral load. Where the installation of a rooftop-mounted *PV panel system* increases design lateral loads, the lateral force-resisting system of the building shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with installation of a rooftop-mounted *PV panel system* considered is not more than 10 percent greater than its demand-capacity ratio without the *PV panel system* shall be permitted to remain unaltered.
2. Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop-mounted *PV panel systems* where the additional roof dead load due to the system, including ballast where applicable, does not exceed 10 percent of the dead load of the existing roof.

310.2.3 Ballasted photovoltaic (PV) panel systems. Ballasted, roof-mounted *PV panel systems* need not be rigidly attached to the roof or supporting structure. Ballasted, unattached *PV panel systems* shall be designed and installed only on roofs with slopes not more than 1 unit vertical in 12 units horizontal. Ballasted, unattached PV panel systems shall be designed to accommodate sliding in accordance with ASCE 7 Chapter 13.

310.2.3.1 Roof structures supporting ballasted PV panel systems. Roof structures that provide support for ballasted PV panel system shall be checked for deflections, including ponding, in accordance with the *International Building Code*.

310.3 Reinstallation of PV panel systems. Existing installations of rooftop-mounted *PV panel systems approved* under previous code requirements shall be permitted to be reinstalled after *roof repair* or *roof replacement*, provided all of the following conditions are met:

1. Existing rooftop-mounted *PV panel systems* shall be reinstalled in accordance with the manufacturer's installation instructions and the minimum requirements of the edition of the codes to which it was originally installed.
2. The system shall be reinstalled in the previous location or in an *approved* location.
3. Components of the rooftop-mounted *PV panel system* shall not be reused unless such components are in good working condition and *approved.*
4. All single-use components of the PV mounting system shall be replaced in accordance with the manufacturer's installation instructions.

Add new standard(s) as follows:

2703A-2022 Outline of Investigation for Flashing Devices and Systems for Rooftop-Mounted Photovoltaics

Reason: Through several cycles of I-code development, the solar industry and other stakeholders have created code provisions that occur in many locations throughout the I-codes, including the IBC, IFC, and IRC. In previous development cycles, we have created a "solar road map" in IBC Section 3111, and another "solar roadmap" in IRC R329.

This proposal is intended to create a new solar roadmap in the IEBC, by creating new Section 310. This technical requirements in proposed Section 310 are modeled after the other existing solar roadmaps, and are drawn from many different code provisions throughout the I-codes.

The following list identifies sections of other I-codes that were used as sources of language for this IEBC proposal. In some cases the language is the same as other I-codes. In some cases the language is modified to be appropriate to PV-specific requirements in the IEBC.

Section 310.1 General is based on IBC 3111.3 and IBC 1607.14.3.5.

Section 310.1.1 Equipment is based on IBC 3111.3.1.

Section 310.1.2 Fire classification is based on IBC Sections 3111.3.2 and 1505.9, and IRC Section R329.4.2.

Section 310.1.3 Access and pathways is based on IBC Section 3111.3.4 and IRC Section R329.6.

Section 310.1.4 Flashing of PV panel system attachments is a new PV-specific section based on IBC 1503.2 and IRC R903.2. The proposed language is the same as language proposed for the IBC, IRC and IEBC in other proposals submitted for Group B.
Section 310.2 Structural loads and resistance is based on IBC 1607.14.3.

Section 310.2.1.1 Dead load is based on IBC 1606.4.

Section 310.1.2 Roof live load is based on IBC Section 1607.14.3.1 and IRC Section R329.4.1.1.

Section 310.2.1.3 Snow load is based on IBC Section 1608.1.

Section 310.2.1.4 Existing structural elements carrying gravity load is based on IEBC Sections 503.3 & 805.2 and IRC Appendix BO, Section BO105.4.2.1.

Section 310.2.2.1 Wind loads is based on IBC Section 3111.1.1.

Section 310.2.2.2 Existing structural elements carrying lateral load is based on IEBC Sections 503.4 and 805.3.

Section 310.2.3 Ballasted PV panel systems is based on IBC 1613.4.

Section 310.2.3.1 Roof structures supporting ballasted PV panel systems is based on IBC 1607.14.3.5.

Section 310.3 Reinstallation of PV panel systems is newly proposed language that is the same as other proposals for the IBC, IRC, and IEBC.

UL Standards 61730-1, 61730-2, and 1741 are already referenced standards in the IBC and IRC. This proposal seeks to add them to the IEBC, along with any updates submitted in Group B ADMIN proposals.

UL 2703A Outline of investigation for flashing devices and systems for rooftop-mounted photovoltaics is a new standard that is also proposed to become a referenced standard in the IBC and IRC in other Group B proposals.

If both parts of this proposal are approved the language will appear as follows:

SECTION 310

INSTALLATION OF ROOFTOP-MOUNTED PHOTOVOLTAIC (PV) PANEL SYSTEMS

310.1 General . Rooftop-mounted *photovoltaic (PV) panel systems* installed on existing buildings shall be designed and installed in accordance with this section, the *International Fire Code,* NFPA 70 and the manufacturer's installation instructions. Roof structures that provide support for PV panel systems shall be evaluated in accordance with this section.

310.1.1 Equipment . *Photovoltaic panels* and modules shall be *listed* and *labeled* in accordance with both UL 61730-1 and UL 61730-2. Inverters shall be *listed* and *labeled* in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

310.1.2 Fire classification . Rooftop-mounted *PV panel systems* shall have a fire classification in accordance with Section 1505.9 of the *International Building Code* or Section R329 of the *International Residential Code.*

310.1.3 Access and pathways . Roof access, pathways and spacing requirements shall be provided in accordance with Section 1205 of the *International Fire Code* or Section R329 of the *International Residential Code.*

310.1.4 Flashing of PV panel system attachments. Flashing shall be installed in a manner that prevents water from entering the roof at attachment points for rooftop-mounted *PV panel systems* in accordance with one of the following:

1. The *roof covering* manufacturer's installation instructions, or

2. A metallic or nonmetallic flashing material or system that is *listed* and *labeled* in accordance with UL 2703A and installed in accordance with the flashing manufacturer's installation instructions.

310.2 Structural loads and resistance. Structural loads for rooftop-mounted *PV panel systems* shall be determined in accordance with Chapter 16 of the *International Building Code* and ASCE 7. Roof structures providing support for *PV panel systems* shall be evaluated or designed in accordance with this section.

310.2.1 Gravity loads and resistance . Gravity loads for installation of rooftop-mounted *PV panel systems* shall be determined in accordance with this section.

310.2.1.1 Dead load . The weight of *PV panel systems* including their mounting system and ballast shall be considered as dead load.

310.2.1.2 Roof live load.*Roof live load* shall be determined in accordance with Section 304.1 and either Section 1607.14.3 of the *International Building Code* or Section R329 of the *International Residential Code,* as applicable for the type of building.

Exception: *Roof live load* need not be applied to the area of the roof covered by *PV panel systems* where the clear height between the *PV panels* and the roof surface is 24 inches (610 MM) or less.

310.2.1.3 Snow load . Design snow load shall be determined in accordance with Chapter 7 of ASCE 7, but the design roof load shall be not less than that determined by Section 304.1 and Section 1607.14.3 of the *International Building Code*.

310.2.1.4 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which installation of a rooftop-mounted *PV panel system* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be evaluated, replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures.

Exceptions:

1.Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building supporting the *PV panel system* complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code.*

2.For Group R3 and R4 occupancies, installation of rooftop-mounted *PV panel systems* weighing 4 psf (0.1915 kN/m^2) or less over an existing single layer of *roof covering.*

310.2.2 Lateral loads and resistance. Lateral loads for installation of rooftop-mounted *PV panel systems* shall be determined in accordance with this section.

310.2.2.1 Wind loads. Rooftop-mounted *PV panel systems* shall be designed in accordance with Section 1609 of the *International Building Code* and ASCE 7.

310.2.2.2Existing structural elements carrying lateral load. Where the installation of a rooftop-mounted *PV panel system* increases design lateral loads, the lateral force-resisting system of the building shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1.Any existing lateral load-carrying structural element whose demand-capacity ratio with installation of a rooftop-mounted *PV panel system* considered is not more than 10 percent greater than its demand-capacity ratio without the *PV panel system* shall be permitted to remain unaltered.

2.Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop-mounted *PV panel systems* where the additional roof dead load due to the system, including ballast where applicable, does not exceed 10 percent of the dead load of the existing roof.

310.2.3 Ballasted photovoltaic (PV) panel systems. Ballasted, roof-mounted *PV panel systems* need not be rigidly attached to the roof or supporting structure. Ballasted, unattached *PV panel systems* shall be designed and installed only on roofs with slopes not more than 1 unit vertical in 12 units horizontal. Ballasted, unattached PV panel systems shall be designed to accommodate sliding in accordance with ASCE 7 Chapter 13.

310.2.3.1 Roof structures supporting ballasted PV panel systems . Roof structures that provide support for ballasted PV panel system shall be checked for deflections, including ponding, in accordance with the *International Building Code*.

310.3 Reinstallation of PV panel systems. Existing installations of rooftop-mounted *PV panel systems approved* under previous code requirements shall be permitted to be reinstalled after *roof repair* or *roof replacement,* provided all of the following conditions are met:

1.Existing rooftop-mounted *PV panel systems* shall be reinstalled in accordance with the manufacturer's installation instructions and the minimum requirements of the edition of the codes to which it was originally installed.

2.The system shall be reinstalled in the previous location or in an *approved* location.

3.Components of the rooftop-mounted *PV panel system* shall not be reused unless such components are in good working condition and *approved.*

4.All single-use components of the PV mounting system shall be replaced in accordance with the manufacturer's installation instructions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal creates a new "solar road map" in the IEBC, drawn mostly from existing language already found in the IBC, IRC, IFC, and IEBC. It provides options for compliance under the IEBC.

Staff Analysis: A review of the standard proposed for inclusion in the code, UL 2703A--2002 Outline of Investigation for Flashing Devices and Systems for Rooftop-Mounted Photovoltaics, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

The proposed referenced standards, listed below, are currently referenced in the IBC:

- UL 61730-1--2017 Photovoltaic (PV) Module Safety Qualification -- Part 1: Requirements for Construction--with Revisions through April 2020
- UL 61730-2--2017 Photovoltaic (PV) Module Safety Qualifcation -- Part 2: Requirements for Testing--with Revisions through April 2020

The proposed referenced standard, UL 1741--2010 Inverters, Converters, Controllers and Interconnectioni System Equipment for Use with Distribued Energey Resoruces--with Revisions through June 2021, is currently referenced in the IMC.

EB10-25 Part II

EB11-25

IEBC: 301.1, SECTION 310 (New), 310.1 (New)

Proponents: Jeffrey Shapiro, LTFR, representing Lake Travis Fire Rescue

2024 International Existing Building Code

Revise as follows:

301.1 Applicability. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with Section 301.2, 301.3 or 301.4. The provisions of Sections 302 through 310~~309~~ shall apply to all *alterations*, *repairs*, *additions*, relocation of structures and *changes of occupancy* regardless of compliance method.

Add new text as follows:

SECTION 310
FIRE PROTECTION FOR POST-FIRE REPAIR OR RECONSTRUCTION

310.1 Institutional and residential occupancies. Where an unsprinklered Group I, Group R-1, Group R-2 or Group R-4 Occupancy is repaired or reconstructed following a fire incident that caused more than 25-percent of a fire area to remain unoccupiable for a period of 60 or more days, an automatic sprinkler system complying with Section 903.3 shall be installed throughout such fire area or fire areas as part of the repair or reconstruction.

Reason: This proposal is being added to correlate with a new Section 1108 in the IFC, being added by Proposal F162-24, which has been recommended for Approval as Submitted. There was a single comment considered at CAH#2, but the IFC Technical Committee sustained their initial action after hearing discussion. Because many fire-damaged buildings will be rebuilt under the IEBC, it is important for the IEBC to include these provisions in addition to Chapter 11 of the IFC, which deals with construction requirements for existing buildings. The following is the reason statement that was provided with F162-24.

This proposal reflects the progress of a FCAC task group on the topic of retrofitting certain occupancies that have suffered a catastrophic fire. There was insufficient time for further discussion and consideration that might have yielded a consensus proposal, so I am submitting this as a basis for continued discussion. Although I serve as a consultant to the National Fire Sprinkler Association, this proposal has not been reviewed or endorsed by NFSA, and I am not representing NFSA on this issue. My motivation comes from many years in the fire service observing reconstruction of unsprinklered buildings without sprinklers following a catastrophic fire, which has always struck me as illogical. If a newly built occupancy requires sprinklers, repair or reconstruction of a previously existing occupancy that suffered a catastrophic fire, particularly residential and institutional uses where occupants will be sleeping, should not be permitted by code.

During task group discussions, there was broad agreement that something could be done to address this concern in the code, but reaching agreement on code text was challenging. Essentially, the questions are, 1) what should be the trigger, or level of loss, warranting the addition of fire sprinklers in repair or reconstruction, and 2) what portion of a building should be required to be sprinklered?

Discussion explored the possibility of using fire fatalities as a Step 1 trigger, but consensus on a number of fatalities could not be reached. Some believed that a single fire fatality should be enough, while others looked at two or more or didn't support the concept. Also, defining a "fire fatality" in the code is challenging as an enforcement tool because the term might refer to individuals who were deceased at the scene, or it might also include individuals who are injured and later died as a result of such injuries. And, severe injuries might be regarded by those who deal with burn injuries as an equally sufficient justification vs. a fatality. For these reasons, the life-loss and injury triggers were abandoned in this proposal, in favor of trying to define a level of property damage that could be reasonably associated with a catastrophic fire.

Another Step 1 trigger that was considered was "multiple offender" buildings, or buildings that experience repeated fire incidents. This approach was also abandoned because consensus could not be reached on the number of fires over a time period, the damage level that should be considered as a contributing fire, or how a jurisdiction would keep track of a repeating fire incident history over time.

The approach that did gain sufficient traction was looking at a "fire area" as defined in the code to require a minimum 2-hour separation from other portions of a building, and a level of damage to a fire area that should be considered as sufficient to warrant requiring sprinklers as part of repair or reconstruction. There is not a scientific basis for establishing a threshold of this nature, so the threshold must ultimately be decided by a consensus of stakeholders. The suggested 25% of a fire area being unhabitable for a period of 90 or more days seems sufficient to serve as a benchmark. It was pointed out during discussion that, due to permitting delays, 30 days could be a very short timeframe for construction to be completed. However, it's difficult to argue that a fire wasn't a major incident if 25%+ of a fire area remains uninhabitable for 60 days. For example, an 8-unit fire area in an apartment building would require 3 or more units to be vacated for 60 days to trigger this section. A 40-room hotel would require 11 rooms to be vacated for more than 60 days to trigger this section. True, this might encourage a rapid pace of reconstruction by some to avoid the sprinkler requirement, but so be it. It's better to have this requirement as a starting point in the code, and if someone can beat the clock, that should not be a reason to do nothing in the code.

With regard to Step 2, the portion of a building that should be required to be sprinklered where Step 1 has been satisfied, there were two discussion paths, either the entire building or only a sufficiently damaged fire area. This proposal suggests the latter based on feedback from the task group. Considering that a fire area might be a floor or section of a large building, much of which might not have been affected by the fire incident, some would regard it as excessive to require retrofitting sprinklers in those unaffected areas since such areas would not otherwise undergo repair or reconstruction. Hence, the suggested path of only requiring sufficiently impacted fire areas to be sprinklered. Such areas would probably experience substantial removal of drywall due to smoke and water damage, allowing for sprinkler system installation when the structure is exposed.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The cost of installing a fire sprinkler system in a multifamily residential occupancy is nominally 1% to 2% of the total construction cost. This can vary depending on the building design, local codes, and specific system requirements. Estimated cost range from $2 to $10 per square foot is likely.

Estimated Immediate Cost Impact Justification (methodology and variables):

Cost will vary depending on the extent of damage and repair or reconstruction to be done after a particular incident. Also, existing water supply and standpipe piping have an impact on the extent of work required to accomplish an installation. In addition, sprinkler installation costs may be offset by taking advantage of sprinkler incentives associated with other aspects of construction that reduce overall costs.

EB11-25

EB12-25

IEBC: 301.2

Proponents: Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Existing Building Code

Revise as follows:

301.2 Repairs. *Repairs* shall comply with the requirements of Chapter 4. *Reroofing*, other than *roof repairs* to damaged areas, shall be considered an *alteration* and must comply with either Chapter 5 or Chapter 7.

Reason: There is a significant amount of confusion as to when reroofing work would be performed as a repair under Chapter 4 or as an alteration when following the prescriptive method (Chapter 5) or the work area method (Chapter 7). Sections 503.6 and 706.3.1 require unreinforced masonry (URM) parapets to be braced when 25% of the roofing materials are replaced. Similarly, Sections 503.12 and 706.3.2 require the entire roof diaphragm and its connections to be evaluated in high-wind regions when 50% of the roofing materials are replaced.

Some designers and building owners argue that replacing a roof that has exceeded its useful life should be considered a repair, and not an alteration, and should therefore comply with Chapter 4. Chapter 4 would not require the bracing of URM parapets in high-seismic regions or the evaluation of the roof diaphragm and connections in a high-wind region.

As Chapter 3 is the scoping chapter for all compliance methods, this is an appropriate location to make it clear that reroofing operations, other than roof repairs after a wind or other event, are required to meet the provisions for alterations under Chapter 5 or 7. This clarification is needed to ensure that the URM parapets in high seismic regions are braced and roof diaphragms in high wind regions are adequate prior to a building owner replacing the roofing materials when the existing materials have reached their useful life.

There are numerous FEMA publications that address the importance of bracing URM parapets in high seismic regions, and this change would clarify when such a retrofit would be required. A partial list of these FEMA publications are as follows:

FEMA P-774, *Unreinforced Masonry Buildings and Earthquakes, Developing Successful Risk Reduction Programs*

FEMA P-2082-1, *NEHRP Recommended Seismic Provisions for New Buildings and Other Structures, Volume 1 – Part 1 Provisions, Part 2 Commentary*

FEMA P-155, R*apid Visual Screening of Buildings for Potential Seismic Hazards: Supporting Documentation*

FEMA P-154, *Rapid Visual Screening of Buildings for Potential Seismic Hazards: A Handbook*

FEMA 547, *Techniques for the Seismic Rehabilitation of Existing Buildings*

FEMA P-58-2, *Seismic Performance Assessment of Buildings, Volume 2 – Implementation Guide, Second Edition*

FEMA, *Wasatch Front Unreinforced Masonry Risk Reduction Strategy*

FEMA, *Wasatch Front URM Risk Reduction Strategy Best Practices and Replicability*

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The intent of the current IEBC is to treat reroofing as an alteration subject to the requirements of Chapters 5 and 7. This proposal merely clarifies that intent.

EB12-25

EB13-25

IEBC: 301.3, 301.3.1, 301.3.2, 301.3.3

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Existing Building Code

Revise as follows:

301.3 Alteration, addition or change of occupancy. *Existing buildings* complying with this code as required by *International Residential Code* Section R102.6.1, shall comply with Section 301.3.1. The *alteration*, *addition* or *change of occupancy* of all other *existing buildings* shall comply with one of the methods listed in Section 301.3.1, 301.3.2 or 301.3.3 as selected by the applicant. Sections 301.3.1 through 301.3.3 shall not be applied in combination with each other.

Exception: Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code. New structural members added as part of the *alteration* shall comply with the *International Building Code*. This exception shall not apply to the following:

1. *Alterations* for accessibility required by Section 306.
2. *Alterations* that constitute *substantial improvement* in *flood hazard areas*, which shall comply with Sections 503.2, 701.3 or 1303.1.3.
3. Structural provisions of Section 304, Chapter 5 or to the structural provisions of Sections 706, 805 and 906.

301.3.1 Prescriptive compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 5 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.3.2 Work area compliance method. *Alterations*, *additions* and *changes of occupancy* complying with the applicable requirements of Chapters 6 through 12 of this code shall be considered in compliance with the provisions of this code.

301.3.3 Performance compliance method. *Alterations*, *additions* and *changes of occupancy* complying with Chapter 13 of this code shall be considered in compliance with the provisions of this code.

Reason: IRC Section R102.6.1 indicates that where an addition, alteration or change of use is made to an existing structure that results in a use, occupancy, height or means of egress outside of the scope of the IRC, the building must comply with the IEBC.

> **R102.6.1 Additions, alterations, change of use or repairs.** Additions, alterations or repairs to any structure shall conform to the requirements for a new structure without requiring the existing structure to comply with the requirements of this code, unless otherwise stated. Additions, alterations, repairs and relocations shall not cause an existing structure to become less compliant with the provisions of this code than the existing building or structure was prior to the addition, alteration or repair. Where additions, alterations or changes of use to an existing structure result in a use, occupancy, height or means of egress outside the scope of this code, the building shall comply with the International Existing Building Code.

IEBC Section 301.3 then allows the project to use either the prescriptive, work area or performance compliance methods. This proposal is to change this to only allow the prescriptive compliance method when changing from an IRC regulated structure to an IEBC regulated structure. This is needed since the work area and performance compliance methods do not address a change in codes, whereas the prescriptive compliance method will typically require work or change of occupancy to comply with the IBC.

There are significant differences between the IRC and the IBC that are not accounted for in the work area and performance compliance methods, such as means of egress requirements and exterior wall requirements for fire-resistance ratings and openings. In the work area compliance method, this is most easily seen in Section 1011 for change of occupancy classification - this section includes hazard tables for various components of design such as means of egress, heights and areas, and exterior walls, and these tables are based on occupancy classification. It is not possible to use these tables when changing from the IRC to the IEBC/IBC since the IRC does not have occupancy classifications. Also, it would not be appropriate to arbitrarily assign an occupancy classification to an IRC use, since there are fundamental differences in the codes. For example, the IRC has no common path of travel limitations so a change to an equal hazard category, based on an assigned occupancy for the IRC use, would allow unlimited common path of travel before two exits are required. Also, the IRC allows non-rated exterior walls with unlimited openings at a fire separation distance of 3' if a sprinkler system is provided, and 5' if not - the IBC doesn't allow this until 10' (for a VB construction type). If an IRC single family home was to be assigned an R-3 occupancy for the hazard tables, it could be changed to Group A, B, E, I, F-2, S-2 or U with non-rated exterior walls and unlimited openings at an FSD of 3' or 5', which isn't appropriate.

The performance compliance method also appears to not account for a change in code from IRC to IBC since it does not account for fundamental differences in the code. For example, exterior wall requirements for fire-resistance rating and openings are not even considered.

Please support this change requiring prescriptive compliance method when changing from and IRC regulated project to an IEBC/IBC regulated project. Using other compliance methods is not appropriate since fundamental code differences are not accounted for.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal will not change the cost of construction for the following reasons:

1. Use of the work area compliance method is currently allowed but is not possible to use since the hazard tables cannot be used without an existing occupancy group. Therefore, eliminating this option will not change the cost of construction.

2. Use of the performance compliance method is rarely used even when changing occupancy within the IBC, and the proponents of this proposal have never seen it used for a change from an IRC regulated structure to an IBC regulated structure. If this method were to be used for a change from IRC to IBC, the cost could go up or down relative to the prescriptive path required with this proposal.

EB13-25

EB14-25

IEBC: 302.2

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

302.2 Additional codes. *Alterations, repairs, additions* and *changes of occupancy* to, or relocation of, *existing buildings* and structures shall comply with the provisions for *alterations, repairs, additions* and *changes of occupancy* or relocation, respectively, in this code and the *International Energy Conservation Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code*, *International Private Sewage Disposal Code*, *International Property Maintenance Code*, *International Residential Code*<u>, *International Swimming Pool and Spa Code*</u> and NFPA 70. Where provisions of the other codes conflict with provisions of this code, the provisions of this code shall take precedence.

Reason: Any alteration, repair, addition or change of occupancy related to swimming pools and spas should be done in accordance with the International Swimming Pool and Spa Code (ISPSC). There are unique hazards associated with pools and spas that are specifically addressed by the provisions of the ISPSC.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Jurisdictions will be enforcing the minimum requirements for pools and spas. This proposal only clarifies that they would be using the ISPSC for enforcement.

EB14-25

EB15-25

IEBC: SECTION 310 (New), 302.2.1, 501.3, 707.1, 806.3

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Add new text as follows:

SECTION 310 HEALTH CARE FACILITIES

Revise as follows:

~~302.2.1~~ 310.1 ~~Additional codes in health care~~ Health care facilities. In existing Group I-2 occupancies, ambulatory health care *facilities*, outpatient clinics and hyperbaric *facilities*, any altered or added portion of the~~*alterations*, *repairs*, *additions* and *changes of occupancy* to, or relocation of,~~ *existing* ~~*buildings* and structures~~ medical gas system shall ~~also comply with~~ be required to meet the installation requirement in NFPA 99.

Delete without substitution:

~~**501.3 Health care facilities.** In Group I-2 *facilities*, ambulatory care *facilities* and outpatient clinics, any altered or added portion of an existing electrical or medical gas systems shall be required to meet installation and equipment requirements in NFPA 99.~~

~~**707.1 Health care facilities.** In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any altered portion of an existing electrical systems shall be required to meet installation and equipment requirements in NFPA 99.~~

~~**806.3 Health care facilities.** In Group I-2 *facilities*, ambulatory care *facilities* and outpatient clinics, any added portion of an existing electrical system shall be required to meet installation and equipment requirements in NFPA 99.~~

Reason: Provisions for healthcare facilities are current located in Chapter 3, the prescriptive method under general; and in the work area method under alterations Level 1 and 2. The intent of this relocation to Chapter 3 is so that this provision only needs to be addressed once. This will reduce duplication and possibly not be coordinated over time.While the current text does not include hyperbaric facilities, IBC Section 425 indicates compliance with NFPA 99.

This proposal is part of a package of code changes to expand and reorganize Chapter 3 to increase understanding of the options available in the IEBC. Please see the proposal for reorganization for a clean version of what Chapter 3 will look like if all the proposals are successful.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) the ICC Committee for Healthcare (CHC). .

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a relocation of requirements. It is not intended to have any change to construction requirements.

EB15-25

EB16-25

IEBC: 302.3, 302.3.1 (New), 302.3.1.1 (New), 302.3.1.2 (New), 302.3.1.3 (New), AISC (New)

Proponents: Bonnie Manley, representing AISC (manley@aisc.org); Robert Pekelnicky, Degenkolb Engineers, representing Self (rpekelnicky@degenkolb.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

302.3 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the code official to be *unsafe*.

Add new text as follows:

302.3.1 Evaluation of existing structural members and connections. The evaluation of existing structural members and connections shall comply with Sections 302.3.1.1 through 302.3.1.3.

302.3.1.1 Existing structural steel and composite structural steel and concrete members and connections. The evaluation, repair, and alteration of existing structural steel and composite structural steel and concrete members and connections shall be in accordance with AISC 360, Appendix 5.

302.3.1.2 Existing structural stainless steel members and connections. The evaluation, repair, and alteration of existing structural stainless steel members and connections shall be in accordance with AISC 370, Appendix 5.

302.3.1.3 Other existing structural members and connections. The evaluation, repair, and alteration of existing structural members and connections not covered in Section 302.3.1.1 and 302.3.1.2 shall be in accordance with the *International Building Code* as amended by this code.

Add new standard(s) as follows:

AISC

American Institute of Steel
130 East Randolph Street, Suite 2000
Chicago, IL 60601-6219
United States

ANSI/AISC 360—22	Specification for Structural Steel Buildings
ANSI/AISC 370—21	Specification for Structural Stainless Steel Buildings

Reason: While IEBC Section 302.4.1 points users to the IBC for provisions on new structural members and connections, there is no comparable guidance in IEBC Section 302.3 for existing structural members and connections. This proposal is intended to provide the missing requirements for existing buildings utilizing structural steel, composite structural steel and concrete, and structural stainless steel members and connections by adopting direct references to AISC 360 and AISC 370. Both standards are already recognized and adopted by the IBC Chapter 22. Each document includes a mandatory appendix for the evaluation of existing structural members and connections by one of three methods: structural analysis, load tests, or a combination of structural analysis and load tests. Additionally, AISC 360 Appendix 5 specifically contains provisions that allow the user to establish the capacities of older steel connectors, which is important when assessing alterations, additions, and repairs to existing structural steel buildings that have riveted construction.

It is anticipated that guidance for other existing structural materials may be added to this section in the future. In the meantime, Section 302.3.1.3 has been added to provide a direct pointer to the IBC for materials not covered in the other subsections.

AISC makes its standards available to all free of charge at https://www.aisc.org/publications/steel-standards/.

Bibliography: AISC (2022), Specification for Structural Steel Buildings, ANSI/AISC 360-22, American Institute of Steel Construction, Chicago, Ill., August 1, 2022. Available at: https://www.aisc.org/publications/steel-standards/.

AISC (2021), Specification for Structural Stainless Steel Buildings, ANSI/AISC 370-21, American Institute of Steel Construction, Chicago, Ill., June 11, 2021. Available at: https://www.aisc.org/publications/steel-standards/.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

AISC 360 and AISC 370 are already adopted in IBC Chapter 22. This proposal is simply adding a direct pointer in the IEBC to Appendix 5 in both documents.

Staff Analysis: The proposed referenced standards, ANSI/AISC 360--22, Specification for Structural Steel Buildings and ANSI/AISC 370--21, Specification for Structural Stainless Steel Buildings are currently referenced in the IBC.

EB16-25

EB17-25

IEBC: [BS] 304.3.3 (New)

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Add new text as follows:

[BS] 304.3.3 Structural observation. Structural observation in accordance with Section 1704.6 of the *International Building Code*, shall be provided for all work required to comply with either Section 304.3.1 or Section 304.3.2, regardless of the requirements and allowances in Section 1704.6.1 of the *International Building Code*.

Exception: Retrofit work that does not require design by a registered design professional need not comply with this section.

Reason: Structural observation, along with building department inspections and special inspections, is an important part of construction quality assurance for seismic retrofit.

IBC Section 1704.6 is the general provision for structural observation for new buildings. However, Section 1704.6.1 specifically requires structural observation only for Risk Category III-IV, high-rise buildings (H>75'), Seismic Design Category E, and where required by discretion of the design professional or the code official. Therefore, to ensure structural observation for all triggered retrofits (and to simplify the requirement), the proposal includes the phrase "regardless of the requirements and allowances in Section 1704.6.1." The proposal will change nothing for retrofits designed with IEBC Chapter A1, A2, or A4, all of which already explicitly require structural observation.

The proposed exception recognizes that some retrofits (such as most retrofits using IEBC Appendix A3 (or ICC-1300 if that standard is added to the IEBC by a separate proposal) do not require the involvement of a design professional, so making this requirement in those cases would impose a significant additional cost and could wrongly make a design professional liable for the design. The exception does not mention those standards by name, however, since they also encompass engineered design in some cases.

The proposal is limited to structural observation because IEBC Section 109 already addresses inspections, and Section 109.3.9 specifically calls for Special Inspection per the IBC. More specific adjustments to IBC Chapter 17 suited to existing building projects might be appropriate, but they are beyond the scope of this limited proposal, since a full revision of Chapter 17 would also require coordination with AISC or other provisions for existing buildings.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Where structural observation would already be required or would not be required at all (see the Impact Justification), there would be no cost impact. Where a cost increase occurs, it is a design cost, not a construction cost.
We estimate the design cost increase, roughly and conservatively, as $1,000 per site visit, where the number of structural observation site visits could be just one or could be more, depending on the size and scope of the retrofit. In accordance with IBC Section 1704.6.1, compliance is generally by affidavit, with the design professional proposing the "frequency and extent" of observation appropriate to "representative" conditions, then submitting a written statement when the work is complete. Depending on the size and scope of the retrofit, the structural observation could involve a single site visit or perhaps a dozen or more over the course of a long or complicated project.

Estimated Immediate Cost Impact Justification (methodology and variables):

As noted in the reason statement, seismic retrofit using IEBC Appendix A1, A2, or A4 already requires structural observation, so there will be no cost increase for those projects. Retrofit using the prescriptive methods of IEBC Appendix A3 or ICC-1300 will have no cost increase because they are exempt by the proposed exception. And in many cases where the code official would already require compliance with IBC Chapter 17 for a retrofit project (as many do), there would be no cost increase relative to current practice.

In other cases (low rise buildings in Risk Category I or II and Seismic Design Category B-D, using IBC-based or ASCE 41 criteria), the cost increase would be based on the number of hours to complete the structural observation site visits and reporting multiplied by the design professional's hourly billing rate.

Our estimate of $1,000 per site visit is an approximation that will vary with local or regional billing rates and professional practices, as well as project conditions. It is intended to include the time needed for the site visit itself, documentation of the site visit, and travel to a nearby site.

EB17-25

EB18-25

IEBC: [BS] 304.3.1, [BS] TABLE 304.3.1, [BS] 304.3.2, [BS] TABLE 304.3.2

Proponents: Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 304.3.1 Full seismic criteria. Where required, seismic evaluation or design shall comply with one of the following methodologies, which shall not be applied in combination with each other:

1. Section 1613 of the *International Building Code* using 100 percent of hte prescribed forces. Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," values of R, Ω_0 and C_d used for analysis in accordance with Chapter 16 of the *International Building Code* shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system. <u>The requirements for deformation compatibility in Section 12.12.4 of ASCE 7 shall be applicable for all structures in Seismic Design Categories D through F.</u>
2. ASCE 41, using a Tier 3 procedure and both levels of the two-level performance objective in Table 304.3.1 for the applicable *risk category*.

[BS] TABLE 304.3.1 PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH FULL SEISMIC CRITERIA

RISK CATEGORY (Based on IBC Table 1604.5)	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1N EARTHQUAKE HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2N EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3)	Collapse Prevention (S-5)
II	Life Safety (S-3)	Collapse Prevention (S-5)
III	Damage Control (S-2)	Limited Safety (S-4)
IV	Immediate Occupancy (S-1)	Life Safety (S-3)

[BS] 304.3.2 Reduced seismic criteria. Where required, seismic evaluation or design shall comply with one of the following methodologies, which shall not be applied in combination with each other:

1. Section 1613 of the *International Building Code* using 75 percent of the prescribed forces. Values of R, Ω_0 and C_d used for analysis shall be as specified in Section 304.3.1 of this code. <u>The requirements for deformation compatibility in Section 12.12.4 of ASCE 7 shall be applicable for all structures in Seismic Design Categories D through F using the forces prescribed in this section.</u>
2. Applicable chapters of Appendix A of this code, for structures or portions of structures specified in Items 2.1 through 2.4 subject to the limitations of the respective chapter.
   - 2.1. Chapter A1 for unreinforced masonry bearing wall buildings assigned to *Risk Category* I or II.
   - 2.2. Chapter A2 for the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms assigned to *Risk Category* I or II.
   - 2.3. Chapter A3 for cripple walls and sill plate anchorage in residential buildings of light-frame wood construction assigned to *Risk Category* I or II.
   - 2.4. Chapter A4 for soft, weak or open-front wall conditions in multiple-unit residential buildings of wood construction assigned to *Risk Category* I or II.
3. ASCE 41, using the performance objective in Table 304.3.2 for the applicable *risk category*.

[BS] TABLE 304.3.2 PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH REDUCED CRITERIA FORCES

RISK CATEGORY (Based on IBC Table 1604.5)	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1E EARTHQUAKE HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2E EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3). See Note a	Collapse Prevention (S-5)
II	Life Safety (S-3). See Note a	Collapse Prevention (S-5)
III	Damage Control (S-2). See Note a	Limited Safety (S-4). See Note b
IV	Immediate Occupancy (S-1)	Life Safety (S-3). See Note c

a. For Risk Categories I, II and III, the Tier 1 and Tier 2 procedures need not be considered for the BSE-1E earthquake hazard level.

b. For Risk Category III, the Tier 1 screening checklists shall be based on the Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS*-factors that are the average of the values for Collapse Prevention and Life Safety.

c. For Risk Category IV, the Tier 1 screening checklists shall be based on Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS*-factors for Life Safety.

Reason: When option 1 in Section 304.3.1 or 304.3.2 is used to evaluate an existing building or retrofit, deformation compatibility assessment of the existing building is sometimes neglected by designers even though it is technically required by the current IEBC. The reference to ASCE 7, through IBC Section 1613, requires that ASCE 7 is followed completely, unless specific items are excluded by the IEBC.

However, experience suggests that some ASCE 7-based retrofits are designed based on ASCE 7 seismic forces and drifts for the new seismic force-resisting system, but the deformation compatibility of the original lateral system now acting as secondary elements is sometimes ignored. Ignoring deformation compatibility can lead to a collapse of the gravity load supporting system. This is especially critical for existing buildings that do not have the structural integrity and interconnected requirements found in the design standards for new construction.

Several studies have documented these conditions including the ongoing ATC-140 project [ATC 140-7 “Update of Seismic Evaluation and Retrofit of Existing Buildings Guidance” prepared by the Applied Technology Council for FEMA] and a design guide prepared by the Structural Engineers of Southern California (SEAOSC) and ICC in support of using 75% of IBC forces for seismic retrofits in the City of Los Angeles [“Design Guide Volume 1, City of Los Angeles Mandatory Earthquake Hazard Reduction in Existing Non-Ductile Concrete Buildings (NDC)” 2016]

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is simply clarifying that the deformation compatibility provisions that are already required by ASCE 7 are applicable to the use of ASCE 7 to existing buildings.

EB18-25

EB19-25

IEBC: SECTION 304, [BS] 304.3.1, [BS] TABLE 304.3.1, [BS] 304.3.2, [BS] TABLE 304.3.2, ASCE/SEI Chapter 16

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org); Peter Somers, Magnusson Klemencic Associates, representing ASCE/SEI 41 (psomers@mka.com); Robert Pekelnicky, Degenkolb Engineers, representing Self (rpekelnicky@degenkolb.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

SECTION 304
STRUCTURAL DESIGN LOADS AND EVALUATION AND DESIGN PROCEDURES

Revise as follows:

[BS] 304.3.1 Full seismic criteria. Where required, seismic evaluation or design shall comply with one of the following methodologies, which shall not be applied in combination with each other:

1. Section 1613 of the *International Building Code*. Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," values of R, Ω_0 and C_d used for analysis in accordance with Chapter 16 of the *International Building Code* shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system.
2. Section 2.4.4. of ASCE 41, using ~~a~~ the Tier 3 procedure and both levels of the two-level structural performance objective in ASCE 41 Table 2-5 ~~Table 304.3.1~~ for the applicable *risk category*.

Delete without substitution:

~~[BS] TABLE 304.3.1 PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH FULL SEISMIC CRITERIA~~

~~RISK CATEGORY (Based on IBC Table 1604.5)~~	~~STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1N EARTHQUAKE HAZARD LEVEL~~	~~STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2N EARTHQUAKE HAZARD LEVEL~~
~~I~~	~~Life Safety (S-3)~~	~~Collapse Prevention (S-5)~~
~~II~~	~~Life Safety (S-3)~~	~~Collapse Prevention (S-5)~~
~~III~~	~~Damage Control (S-2)~~	~~Limited Safety (S-4)~~
~~IV~~	~~Immediate Occupancy (S-1)~~	~~Life Safety (S-3)~~

Revise as follows:

[BS] 304.3.2 Reduced seismic criteria. Where required, seismic evaluation or design shall comply with one of the following methodologies, which shall not be applied in combination with each other:

1. Section 1613 of the *International Building Code* using 75 percent of the prescribed forces. Values of R, Ω_0 and C_d used for analysis shall be as specified in Section 304.3.1 of this code.

2. Applicable chapters of Appendix A of this code, for structures or portions of structures specified in Items 2.1 through 2.4 subject to the limitations of the respective chapter.
   2.1. Chapter A1 for unreinforced masonry bearing wall buildings assigned to *Risk Category* I or II.
   2.2. Chapter A2 for the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms assigned to *Risk Category* I or II.
   2.3. Chapter A3 for cripple walls and sill plate anchorage in residential buildings of light-frame wood construction assigned to *Risk Category* I or II.
   2.4. Chapter A4 for soft, weak or open-front wall conditions in multiple-unit residential buildings of wood construction assigned to *Risk Category* I or II.
3. Section 2.4.1 of ASCE 41, using the structural performance objective in ASCE 41 Table 2-3 or Table 2-4 ~~Table 304.3.2~~ for the applicable *risk category*. Compliance with the Benchmark Buildings provisions in ASCE 41 Section 3.4 shall be deemed to comply with this section.

Delete without substitution:

~~[BS] TABLE 304.3.2 PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH REDUCED CRITERIA FORCES~~

~~RISK CATEGORY (Based on IBC Table 1604.5)~~	~~STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1E EARTHQUAKE HAZARD LEVEL~~	~~STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2E EARTHQUAKE HAZARD LEVEL~~
~~I~~	~~Life Safety (S-3). See Note a~~	~~Collapse Prevention (S-5)~~
~~II~~	~~Life Safety (S-3). See Note a~~	~~Collapse Prevention (S-5)~~
~~III~~	~~Damage Control (S-2). See Note a~~	~~Limited Safety (S-4). See Note b~~
~~IV~~	~~Immediate Occupancy (S-1)~~	~~Life Safety (S-3). See Note c~~

~~a. For Risk Categories I, II and III, the Tier 1 and Tier 2 procedures need not be considered for the BSE-1E earthquake hazard level.~~

~~b. For Risk Category III, the Tier 1 screening checklists shall be based on the Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS* factors that are the average of the values for Collapse Prevention and Life Safety.~~

~~c. For Risk Category IV, the Tier 1 screening checklists shall be based on Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS* factors for Life Safety.~~

Revise as follows:

ASCE/SEI

American Society of Civil Engineers Structural Engineering Institute
1801 Alexander Bell Drive
Reston, VA 20191-4400

41— ~~2017~~ 2023 Seismic Evaluation and Retrofit of Existing Buildings

Reason: This proposal is completely editorial, replacing the provisions in these sections of the IEBC with direct reference to the same provisions in ASCE 41. There are two primary reasons for this change:

1. This makes the references to ASCE 41 more consistent with the references to ASCE 7 by simply pointing to the applicable section in the reference standard rather than repeating the performance criteria. For ASCE 7, Sections 304.3.1 item 1 and 304.3.2 item 1 point to ASCE 7 for the seismic design parameters (R, Ω0, Cd) and the Importance Factor (implicitly, since there is no direct reference), which relates seismic performance to risk category. The referenced sections of ASCE 41 (Section 2.4.5 for full seismic

criteria and Section 2.4.1 for reduced seismic criteria) include references to tables that define performance based on risk category and the remainder of the ASCE 41 standard includes requirements for achieving that performance. The duplication of ASCE 41 Tables 2-5 and 2-3 within the IEBC is unnecessary and could lead to conflicts if there are changes to the corresponding changes to the ASCE 41 tables.

2. Including the ASCE 41 performance criteria tables in the IEBC was helpful, and in fact necessary for previous versions of ASCE 41, since the ASCE 41 standard was not fully aligned with risk categories as used by the IBC and ASCE 7. However, with the publication of ASCE 41-23, the standard is now fully aligned with risk categories, again rendering duplication of the performance criteria tables (and the footnotes to Table 304.3.2) unnecessary, and potentially in conflict with ASCE 41.

In short, this proposal follows the relationship between ASCE 7 and the IBC/IEBC, whereby the code defines seismic performance through the assignment of risk category, and the standard provides the technical requirements for achieving that performance objective commensurate with the assigned risk category.

In addition, the proposal provides a direct reference to the ASCE 41 Benchmark Building provisions, which allows recently constructed buildings to be shown in compliance with the required seismic performance objectives without requiring seismic evaluation. The Benchmark Building provisions have always been a path to compliance with reduced seismic criteria when using ASCE 41, but the direct reference makes this compliance path more clear. As more and more “modern” structures (those designed to recent editions of ASCE 7) are being renovated, it is helpful to allow these renovations to be deemed to comply without performing unnecessary seismic evaluations. Again, this path to compliance is allowed in the 2024 IEBC by referencing ASCE 41; the proposed updates make this a more direct reference.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impacts. This proposal is fully editorial, replacing specific criteria in the IEBC with pointer to reference the same criteria in ASCE 41.

Staff Analysis: This proposal includes technical revisions to the code text to coordinate with an update of an existing referenced standard. This standard must be completed and readily available prior to the Public Comment Hearing. See CP28 Section 4.6.3.1.2.

EB19-25

EB20-25

IEBC: [BS] 304.3.2, ICC Chapter 16 (New)

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 304.3.2 Reduced seismic criteria. Where required, seismic evaluation or design shall comply with one of the following methodologies, which shall not be applied in combination with each other:

1. Section 1613 of the *International Building Code* using 75 percent of the prescribed forces. Values of R, Ω_0 and C_d used for analysis shall be as specified in Section 304.3.1 of this code.
2. Applicable chapters of Appendix A of this code, for structures or portions of structures specified in Items 2.1 through 2.4 subject to the limitations of the respective chapter.
   2.1. Chapter A1 for unreinforced masonry bearing wall buildings assigned to *Risk Category* I or II.
   2.2. Chapter A2 for the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms assigned to *Risk Category* I or II.
   2.3. Chapter A3 for cripple walls and sill plate anchorage in residential buildings of light-frame wood construction assigned to *Risk Category* I or II.
   2.4. Chapter A4 for soft, weak or open-front wall conditions in multiple-unit residential buildings of wood construction assigned to *Risk Category* I or II.
3. ASCE 41, using the performance objective in Table 304.3.2 for the applicable *risk category*.
4. The provisions of ICC 1300 for one- and two-family dwellings or townhouses of wood light-frame construction, addressing one or more of the following vulnerable configurations.
   4.1. Crawlspace dwellings per Chapter 4 of ICC 1300.
   4.2 Living-space-over-garage dwellings per Chapter 5 of ICC 1300.
   4.3. Hillside dwellings per Chapter 6 of ICC 1300.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

ICC 1300-2024	Vulnerability-based Seismic Assessment and Retrofit of One- and Two-Family Dwellings.

Reason: The recently published document *Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings Volume 1 - Prestandard* (FEMA P-1100, 2018) has been converted to Standard ICC 1300 by the ICC Residential Assessment and Seismic Retrofit Standards Committee. The FEMA prestandard and the ICC standard have used state-of-the-art analysis tools and performance-based methods to develop seismic retrofit provisions for cripple wall, living-space-over-garage, and hillside dwellings.

This proposal recognizes this seismic retrofit standard as providing seismic performance that is equivalent to or exceeds the other methodologies listed in Section 304.3.2. The ICC 1300 standard expands the scope of available prescriptive residential seismic retrofit solutions, thereby encouraging seismic retrofit.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides the option of additional methodologies for seismic retrofit, and in particular prescriptive design methodologies that do not require engineering. The choice to use this methodology is voluntary. This proposal does not impose any new mandatory requirements.

Staff Analysis: A review of the standard proposed for inclusion in the code, ICC 1300--2024 Vulnerability-based Seismic Assessment and Retrofit of One- and Two-Family Dwellings, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

EB20-25

EB21-25

IEBC: 306.6.1.1, 306.7.12, 306.7.13, 306.7.16, 306.7.18.2

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

306.6.1.1 Additions for elevators. Where an *addition* is being constructed exclusively to accommodate the installation of an elevator or elevators to improve accessibility, an accessible means of egress in accordance with Section 1009.1 of the *International Building Code* is not required where all of the following conditions are provided:

1. Two-way communication is provided at all elevator landings that are part of the *addition* in accordance with Section 1009.8 of the *International Building Code*.
2. Each elevator landing is on floor level with access to a horizontal exit or to a stairway with a width of not less than 36 inches (914 mm).
3. The elevator does not serve a required accessible ~~floor~~ story or ~~occupied~~ occupiable roof more than four stories above or below the level of exit discharge.

306.7.12 Toilet rooms. Where it is *technically infeasible* to alter existing toilet rooms to be accessible, one accessible single-user toilet room or one accessible family or assisted-use toilet room constructed in accordance with Section 1110.2.1 of the *International Building Code* is permitted. This toilet room shall be located on the same ~~floor~~ *story* and in the same area as the existing toilet rooms. At the inaccessible toilet rooms, directional signs indicating the location of the nearest such toilet room shall be provided. These directional signs shall include the International Symbol of Accessibility, and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

306.7.13 Bathing rooms. Where it is *technically infeasible* to alter existing bathing rooms to be accessible, one accessible single-user bathing room or one accessible family or assisted-use bathing room constructed in accordance with Section 1110.2.1 of the *International Building Code* is permitted. This accessible bathing room shall be located on the same ~~floor~~ *story* and in the same area as the existing bathing rooms. At the inaccessible bathing rooms, directional signs indicating the location of the nearest such bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility, and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

306.7.16 Dressing, fitting and locker rooms. Where it is *technically infeasible* to provide accessible dressing, fitting or locker rooms at the same location as similar types of rooms, one accessible room on the same ~~level~~ *story* shall be provided. Where separate-sex *facilities* are provided, accessible rooms for each sex shall be provided. Separate-sex *facilities* are not required where only unisex rooms are provided.

306.7.18.2 Multiple-level buildings and facilities. An accessible route from an accessible entrance to public spaces on the ~~level~~ *story* of the accessible entrance shall be provided.

Reason: This proposal is a companion proposal to #10999. Please see that proposal for reasoning.

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG).

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is editorial.

EB21-25

EB22-25

IEBC: 306.7.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

306.7.1 Alterations affecting an area containing a primary function. Where an *alteration* affects the accessibility to, or contains an area of, *primary function*, the route to the *primary function* area shall be accessible. Toilet facilities and drinking fountains serving the area of *primary function*, including the route from the area of primary function to these facilities, shall be accessible. ~~Priority shall be given to the improvements affecting the accessible route to the primary function area.~~

Exceptions:

1. The cumulative costs of providing the accessible route, toilet facilities and drinking fountains are not required to exceed 20 percent of the costs of the *alterations* affecting the area of *primary function*.
2. This provision does not apply to *alteration s*limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration*of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

Reason: This was added by EB26-22. The proponents said this was to clarify what was required. However, while this sounds like a good idea, this will cause lots of confusion with existing buildings.

1. Some will read this to require improvements for the entrance or for an elevator above every other improvement. In the past you could have spent the money where it would have the most effect. What advantage is there for putting in supports for a ramp, or the pit for an elevator (which will not improve access for anyone) when the 20% could have fixed all the bathrooms (which helps persons with walkers, canes, those who need grab bars to stand up or sit down, lever faucets for persons with limited hand dexterity, etc.).
2. If the improvements to the building are a series of small improvements, you cannot really build part of an elevator pit, shaft and cab. Is this saying the money has to be accumulated to provide for a future elevator? Who administers this? What happens if this is years and multiple projects away?
3. The first sentence says that the accessible route includes toilet and drinking fountains. So if those are part of the accessible route, what exactly is this additional sentence trying to say is the priority?
4. The proponent of E26-22 said the fixing getting into the building should always be the priority over fixing the bathrooms. However, bathrooms and parking spaces are the number 1 and 2 when it comes to complaints. Fixing those areas benefits a much larger percentage of persons with disabilities – persons using walkers or canes, persons with stamina or strength issues, persons with mobility issue. While access for a person is a wheelchair is important, that is not the only focus of these improvements.
5. Improvements for accessibility can include lowering counters for access to services, switching out hardware or installing automatic openers at doors to make them easier to use persons with limited strength, signage for persons with vision impairments, adding visible alarms for persons with hearing impairments, etc. Are these considered part of the 'accessible route'? Or do I need to make these a last priority?
6. A tenant would be more likely to want to concentrate on making their space as accessible across the board as possible. If a tenant wants to make this a priority for their space, that is a good thing. Is this telling them that they have to spend for improvements to the common entrance for the building instead?
7. Someone might have a small alteration for this year, but a much larger one planned for next year – where they could afford an

elevator. Why is that not a valid consideration for where money should be spent?

8. The ADA has a priority list in their initial drafts, but it was removed so that what money that was spent could be used the most effectively in that situation. All existing buildings are different, and improvements can happen continually or once every 20 years. This needs to be decided on a case-by-case basis.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The cost for providing the accessible route will stay at the 20% maximum. The intent of this proposal is to clarify. Please see reason statement.

EB22-25

EB23-25

IEBC: 306.7.2, 306.7.2.1 (New), 503.20, 905.4

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Existing Building Code

Revise as follows:

306.7.2 Accessible means of egress. Except as requried by Section 306.7.2.1, accessible~~Accessible~~ means of egress required by Chapter 10 of the *International Building Code* are not required to be added in existing *facilities*.

Add new text as follows:

306.7.2.1 Two-way communication system. Where the *work area* for *alterations* exceeds 50 percent of the *building area* and the building has elevator service, a two-way communication system shall be provided where required by Section 1009.8 of the *International Building Code*.

Delete without substitution:

~~**503.20 Two-way communications systems.** Where the *work area* for *alterations* exceeds 50 percent of the building area and the building has elevator service, a two-way communication systems shall be provided where required by Section 1009.8 of the *International Building Code*.~~

~~**905.4 Two-way communications systems.** In buildings with elevator service, a two-way communication system shall be provided where required by Section 1009.8 of the *International Building Code*.~~

Reason: In the 2021 IEBC, a new requirement was added to require the addition of a two-way communication system at elevators where the work area for alterations exceeds 50 percent of the building area (i.e., a Level 3 alteration). This requirement occurs in the prescriptive compliance method in Section 503.20 (Section 503 is for alterations) and occurs in the work-area compliance method in Section 905.4 (Section 905 is means of egress for Level 3 alterations). A two-way communication system at elevators is an accessible means of egress element required in Section 1009 of the IBC.

Since accessibility requirements (including accessible means of egress) for all compliance methods are given in IEBC Section 306, it is better to locate this requirement in 306, which is what this proposal does. In particular, this requirement is moved to Section 306.7.2 which is specifically for accessible means of egress for alterations.

Also, relocating this requirement fixes an unintentional consequence that occurred when this requirement was added. The requirement was only intended for Level 3 alterations where significant work is being done; however, it is also required for a change of occupancy when using the work-area compliance method since Section 1011.5.2 requires compliance with Section 905 (including 905.4) where a change of occupancy results in an equal or lesser-hazard category. This requires a two-way communication system to be added even if there is no work being done with the change of occupancy. Interestingly, Section 1011.5.1 for a change to a higher-hazard category does not require the two-way communication system to be added. This proposal fixes this by only requiring the two-way communication system where Level 3 alterations are being completed, which is consistent with the intent.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal fixes an unintentional requirement in the code for a change of occupancy. Since this proposal changes the code to be in line with the intent of the code for two-way communication systems, it is considered a clarification that has no cost impact.

EB23-25

EB24-25

IEBC: SECTION 202 (New), 306.7.11.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Existing Building Code

Add new definition as follows:

ASSISTED BATHING. A roll-in shower designed for adults who need assistance and configured to allow space to enable a care giver to assist.
ASSISTED TOILETING. A water closet designed for adults who need assistance and configured to allow space to enable a care giver to assist.

Revise as follows:

306.7.11.1 Accessible dwelling or sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being altered or added within an *existing building*, the requirements of Section 1108 of the *International Building Code* for Accessible units apply only to the quantity of dwelling or sleeping units being altered or added.

Exception: Where permitted for Group I-1 and I-2 dwelling units and sleeping units in accordance with Sections 1108.5.1.1, 1108.5.1.2, 1108.5.2.1 and 1108.5.4 of the International Building Code, toilet and bathing rooms within Accessible units shall be permitted to comply with the assisted toileting and assisted bathing requirements.

Reason: The IBC allows for assisted toileting and bathing for new construction as an option for a percentage of the Accessible units in Assisted living, Nursing homes and Rehabilitation facilities. The percentage varies depending on the need. The purpose of the assisted toileting and bathing is to address the special needs for person who need assistance in toileting and bathing due to strength or stability issues. The technical information was removed from the IBC in E122-24 because the 2025 edition of the ICC A117.1 will now include those provisions. Putting this exception here just allows for facilities that are being renovated to use the same options permitted for them in new construction. This option was developed based on a study done by the Rothschild Foundation, and has already been proven to improve accessibility and safety for both residents and care givers.

This is a joint proposal with the BCAC and Healthcare committees.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This exception is allowing an option that is already permitted for new construction. Since this is an option, it would not increase the cost of construction.

Staff Analysis: This proposal is simply duplicating a definition added in the 2024 cycle to the IBC. The definition cannot be revised in this proposal as it is likely to be scoped to another committee and should be identical

EB25-25

IEBC: SECTION 202 (New), SECTION 306, 306.7.12, 306.7.13, 306.7.14, 306.7.15, 306.7.18.4, 306.7.18.5

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Add new definition as follows:

FAMILY OR COMPANION BATHING ROOM. A room for toileting and bathing that provides privacy and designed for a family with children and for people with disabilities with a companion or assistant.
FAMILY OR COMPANION TOILET ROOM. A toilet room that provides privacy and designed for a family with children and for people with disabilities with a companion or assistant.

SECTION 306
ACCESSIBILITY FOR EXISTING BUILDINGS

Revise as follows:

306.7.12 Toilet rooms. Where it is *technically infeasible* to alter existing toilet rooms to be accessible, one accessible single-user toilet room or one accessible family or ~~assisted-use~~ companion toilet room constructed in accordance with Section 1110.2.1 of the *International Building Code* is permitted. This toilet room shall be located on the same floor and in the same area as the existing toilet rooms. At the inaccessible toilet rooms, directional signs indicating the location of the nearest such toilet room shall be provided. These directional signs shall include the International Symbol of Accessibility, and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

306.7.13 Bathing rooms. Where it is *technically infeasible* to alter existing bathing rooms to be accessible, one accessible single-user bathing room or one accessible family or ~~assisted-use~~ companion bathing room constructed in accordance with Section 1110.2.1 of the *International Building Code* is permitted. This accessible bathing room shall be located on the same floor and in the same area as the existing bathing rooms. At the inaccessible bathing rooms, directional signs indicating the location of the nearest such bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility, and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

306.7.14 Additional toilet and bathing facilities. In assembly and mercantile occupancies, where additional toilet fixtures are added, not fewer than one accessible family or ~~assisted-use~~ companion toilet room shall be provided where required by Section 1110.2.1 of the *International Building Code*. In recreational *facilities*, where additional bathing rooms are being added, not fewer than one family or assisted-use bathing room shall be provided where required by Section 1110.2.1 of the *International Building Code*.

306.7.15 Adult changing stations. Where additional toilet facilities are being added, in occupancies where adult changing stations are required by Section 1110.4.1 of the *International Building Code*, not fewer than one accessible family or ~~assisted-use~~ companion toilet room with an adult changing station shall be provided in accordance with Section 1110.4 of the *International Building Code.* The adult changing station shall be permitted to be located in a family or assisted-use toilet room or bathing room required by Section 306.7.12, 306.7.13 or 306.7.14.

306.7.18.4 Toilet facilities. Where toilet rooms are provided, not fewer than one accessible single-user toilet room or one accessible family or ~~assisted-use~~ companion toilet room complying with Section 1110.2.1 of the *International Building Code* shall be provided.

306.7.18.5 Bathing facilities. Where bathing rooms are provided, not fewer than one accessible single-user bathing room or one accessible family or ~~assisted-use~~ companion bathing rooms complying with Section 1110.2.1 of the *International Building Code* shall be provided.

Reason: The IBC and IPC Development Committees approved E126-22 Part 1 and 2 with Group A. The intent of this proposal is to coordinate with those changes.

Both the family or assisted use bathrooms and assisted toileting and bathing options are included in the IBC. This proposal not intended to change any technical requirements. However, the terminology is so close, it is causing confusion – especially when it comes to the options for the water closet and showers permitted in the family or assisted use toilet or bathroom. Do I have to use the water closet with two swing up grab bars or only a roll-in shower? That is not the intent. This change in terminology will clarify the options.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification in terminology for different options permitted in IBC. There are no changes to construction requirements.

Staff Analysis: This proposal is simply duplicating a definition added in the 2024 cycle to the IBC. The definition cannot be revised in this proposal as it is likely to be scoped to another committee and should be identical.

EB25-25

EB26-25

IEBC: 307.1, 308.1

Proponents: Jeffrey Shapiro, P.E., FSFPE, LTFR, representing Lake Travis Fire Rescue (jeff.shapiro@intlcodeconsultants.com)

2024 International Existing Building Code

Revise as follows:

307.1 Smoke alarms. Where an *alteration*, *addition*, *change of occupancy* or relocation of a building is made to an *existing building* or structure of a Group R and I-1 occupancy, the *existing building* shall be provided with smoke alarms in accordance with Section 907 of the *International Fire Code* or Section R310 of the *International Residential Code*.

~~**Exception:** Work classified as Level 1 *Alterations* in accordance with Chapter 7.~~

Where a *repair* is made to an existing building or structure of a Group R and I-1 occupancy, the existing building shall be provided with smoke alarms in accordance with Section 1103.8 of the *International Fire Code*.

308.1 Carbon monoxide detection. Where ~~an~~ a repair, *addition*, *alteration*, *change of occupancy* or relocation of a building is made to an *existing building* , the *existing building* shall be provided with carbon monoxide detection in accordance with Section 915 of the *International Fire Code* or Section R311 of the *International Residential Code*.

~~**Exceptions:**~~

1. ~~Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.~~
2. ~~Installation, *alteration* or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.~~
3. ~~Work classified as Level 1 *Alterations* in accordance with Chapter 7.~~
4. ~~In Group I-2 occupancies, carbon monoxide detection is not required in each sleeping unit where carbon monoxide detection, which transmits an alarm signal to an *approved* location, is provided in each space containing a carbon monoxide source.~~

Reason: This proposal fixes two issues in the IEBC related to smoke and carbon monoxide detection regulations. With respect to smoke alarms, the current exception in Section 307.1 suggests that smoke alarms need not be provided where Level 1 alterations are performed. That is not correct because Chapter 11 of the IFC requires ALL Group I-1 and Group R occupancies to be provided with smoke detection. If alternations, additions, changes of occupancy or relocations are being done, then the IEBC needs to point to smoke alarm provisions for new construction in the IFC and/or IRC. If repairs are being performed, the IEBC needs to point to the existing building provisions in IFC Chapter 11, since all Group I-1 and Group R occupancies, regardless of whether they are being repaired or otherwise touched, are required by the IFC to have smoke detection. The proposed second sentence is limited to repairs only because that is the other topic covered by the IEBC scope. You'd only be in the IEBC in the first place if you're doing repairs, alterations, etc.

With respect to CO detection, Proposal F148-24 (Approved by the IFC Technical Committee without comment and now on the consent agenda) was a complete rewrite of the CO detection requirements and clarified a number of shortcomings in the 2024 IFC/IBC text. All existing occupancies, regardless of whether they are being repaired, altered, added to or subject to a change of occupancy now require CO detection in accordance with IFC Section 915 if there is a CO source (newly defined if F148-24). Current Exceptions 1-3 in the IEBC are no longer valid since there are no similar exceptions to the IFC and IBC provisions that will be in the 2027 code. Unlike many other IEBC provisions, work being done/not done is not a trigger for CO detection. With respect to the current Exception 4, this isn't needed either and doesn't correlate with the new IFC requirements applicable to existing I-2 Occupancies. However, Section 915.4.1, Exception 2 of Proposal F148-24 provides a path to a similar outcome for sleeping areas in new and existing Group I-2 Occupancies that require CO detection.

It should be noted that changes made by this proposal are exclusively for correlation with the in the 2027 IFC that are applicable to all existing buildings and occupancies, even if no work under the IEBC scope is being performed. The IEBC is scoped with the authority to lessen requirements associated with repair, alteration, addition, relocation or change of use that would otherwise apply. It cannot lessen IFC requirements that are applicable to all existing buildings or occupancies, regardless of whether such work is performed.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes simply correlate with overarching IFC provisions that have already been approved for the 2027 codes consent agenda.

EB26-25

EB27-25 Part I

IEBC: SECTION 202, SECTION 309, 309.2, 309.2.1

Proponents: Eric Banks, e.w.banks consulting llc, representing North American Modern Building Alliance (eric.banks@ewbanksconsulting.com); Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE EXISTING BUILDING CODE COMMITTEE. PART II WILL BE HEARD BY THE ADMIN CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Existing Building Code

Delete without substitution:

~~**[BF] EXTERIOR WALL COVERING.** A material or assembly of materials applied on the exterior side of exterior walls for the purpose of providing a weather-resisting barrier, insulation or for aesthetics, including but not limited to, veneers, siding, exterior insulation and finish systems, architectural trim and embellishments, such as cornices, soffits, facias, gutters and leaders.~~

~~**[BF] EXTERIOR WALL ENVELOPE.** A system or assembly of exterior wall components, including exterior wall finish materials, that provides protection of the building structural members, including framing and sheathing materials, and conditioned interior space from the detrimental effects of the exterior environment.~~

Revise as follows:

SECTION 309 ADDITIONS AND REPLACEMENTS OF EXTERIOR WALL COVERINGS AND ~~EXTERIOR WALL ENVELOPES~~EXTERIOR WALL ASSEMBLIES

309.2 Additions and replacements. Where an ~~*exterior wall covering*~~ exterior wall covering or ~~*exterior wall envelope*~~ exterior wall assembly is added or replaced, the materials and methods used shall comply with the requirements for new construction in Chapter 14 and Chapter 26 of the *International Building Code* if the added or replaced ~~*exterior wall covering*~~ exterior wall covering or ~~*exterior wall envelope*~~ exterior wall assembly involves two or more contiguous stories and comprises more than 15 percent of the total wall area on any side of the building.

309.2.1 Automatic sprinkler systems. Combustible ~~*exterior wall covering*~~ exterior wall covering or combustible ~~exterior wall envelopes~~ exterior wall assemblies shall not be added to an existing high-rise building that is not protected throughout with an automatic sprinkler system.

Exceptions:

1. Where such material is located on a single story and is less than 15 percent of the wall area on any side of the building.
2. Water-resistive barriers installed in accordance with Section 1402.6 of the *International Building Code*.

EB27-25 Part I

EB27-25 Part II

IEBC: [A] 106.2.4

Proponents: Eric Banks, e.w.banks consulting llc, representing North American Modern Building Alliance (eric.banks@ewbanksconsulting.com); Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Existing Building Code

Revise as follows:

[A] 106.2.4 ~~Exterior wall envelope~~ Exterior wall assembly. Construction documents for work affecting the ~~*exterior wall envelope*~~ exterior wall assembly shall describe the ~~*exterior wall envelope*~~ exterior wall assembly in sufficient detail to determine compliance with this code. The construction documents shall provide details of the ~~*exterior wall envelope*~~ exterior wall assembly as required, including windows, doors, flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive barriers and details around openings.

The construction documents shall include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the construction documents maintain the wind and weather resistance of the ~~*exterior wall envelope*~~ exterior wall assembly. The supporting documentation shall fully describe the exterior wall system that was tested, where applicable, as well as the test procedure used.

Reason:

Proponent: Eric Banks, e.w.banks consulting llc, representing North American Modern Building Alliance (eric.banks@ewbanksconsulting.com):

This proposal harmonizes the terminology regarding exterior wall coverings and exterior wall assemblies of the IEBC with the IBC.

In the 2018 I-Codes, defined terms for *exterior wall covering* and *exterior wall envelope* were, intentionally, identical in the IBC and IEBC. Unfortunately, revisions to the IBC terms during the intervening code cycles have neglected to include correlating revisions to the IEBC terms. There is no legitimate need for any inconsistency or variation in the terms between the IBC and IEBC. IEBC Sections 106.2.4, 309, 309.2 and 309.2.1. are the only sections that reference the exterior wall covering and exterior wall envelope defined terms.

The resulting inconsistency in terminology and definitions between the IEBC and the IBC becomes problematic where provisions of Section 309 require *exterior wall coverings* and *exterior wall envelopes* to comply with requirements of IBC Chapters 14 and 26, and where Section 309.2 places other limitations on changes to certain existing exterior wall assemblies. For one, there simply is no exterior wall envelope in the IBC anymore.

The *exterior wall covering* and *exterior wall envelope* term definitions are scoped to the IBC – Fire Safety Code Development Committee (Group A). There is no opportunity to revise the definitions in Group B to bring them back into harmony with the IBC terms. These two IBC terms are often the subject of proposed revisions (include 2024 Group A proposals) and future proposals for further revision are reasonably anticipated. Removing the defined terms for exterior wall covering and exterior wall envelope from the IEBC will, based on IEBC Section 201.3 (Terms defined in other codes), ensure that (1) the IEBC will default to the IBC defined terms, and (2) any revisions to the IBC definitions for e*xterior wall covering* and *exterior wall assembly* will automatically flow into the IEBC without the need for specific code change proposal(s).The North American Modern Building Alliance (NAMBA) is focused on addressing fire safety through the development and enforcement of building codes. Members of NAMBA are: ACC Center for the Polyurethanes Industry, ACC North American Flame Retardant Alliance, Atlas Roofing Corp., BASF Corporation, Covestro, DuPont, EIFS Industry Members Association, EPS Industry Alliance, GAF, Huntsman, Kingspan Insulation LLC, Metal Construction Association, Owens Corning, Polyisocyanurate Insulation Manufacturers Association, Rmax - A Business Unit of the Sika Corporation.

Co-proponent: Marcelo Hirschler, representing GBH International (mmh@gbint.com):

This is a purely editorial proposal to ensure that the IEBC uses the same terms and definitions as the IBC. Nothing is being changed in any section other than the terminology.

In the 2024 IBC, the code no longer uses the term "exterior wall envelope" and replaced it with the term "exterior wall assembly" throughout.

The 2024 IEBC states in chapter 2 on definitions that the terms "exterior wall envelope" and "exterior wall covering" are based on the IBC fire safety decisions, but they were not updated formally in the IEBC. However earlier action, as part of the Errata, updated the IEBC definitions by replacing "exterior wall envelope" with "exterior wall assembly" and revising "exterior wall covering" to make them both consistent with the IBC ones.

This proposal simply provides that consistency between the IBC and IEBC and replaces the term "exterior wall envelope" everywhere else in the IEBC by the correct term "exterior wall assembly".

2024 International Building Code

EXTERIOR WALL ASSEMBLY. *A system including the exterior wall covering, framing, and components such as weather-resistive barriers and insulating materials. This system provides protection of the building structural members and conditioned interior space from the detrimental effects of the exterior environment.*

EXTERIOR WALL COVERING. *A material or assembly of materials applied on the exterior side of exterior walls for the purpose of providing a weather-resisting barrier, insulation or for aesthetics, including but not limited to, veneers, siding, exterior insulation and finish systems, rainscreen systems, architectural trim and embellishments such as cornices, soffits, fascias, gutters and leaders.*

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not add, remove, or alter any requirement of the code, therefore, it presents no inherent increase or decrease in the cost of construction. The proposal seeks to simply coordinate terminology and definitions regarding exterior wall coverings and exterior wall assemblies of the IEBC with the those in the IBC.

EB27-25 Part II

EB29-25

IEBC: SECTION 202 (New), 309.1, 309.2, 309.2.1

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Existing Building Code

Add new definition as follows:

HIGH-RISE BUILDING. A *building* with an occupied floor or occupied roof located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

309.1 General. The provisions of Section 309 apply to all *alterations*, *repairs*, *additions*, relocations of structures and *changes of occupancy* regardless of compliance method.

309.2 Additions and replacements. Where an *exterior wall covering* or *exterior wall envelope* is added or replaced, the materials and methods used shall comply with the requirements for new construction in Chapter 14 and Chapter 26 of the *International Building Code* if the added or replaced *exterior wall covering* or *exterior wall envelope* involves two or more contiguous stories and comprises more than 15 percent of the total wall area on any side of the building.

Revise as follows:

309.2.1 Automatic sprinkler systems. ~~Combustible *exterior wall covering* or combustible exterior wall envelopes~~ *Exterior wall coverings* or *exterior wall assemblies* shall not be added to an existing high-rise building that is not protected throughout with an automatic sprinkler system unless the *exterior wall assembly* complies with the requirements of Chapters 14 and 26 of the International Building Code.

> **~~Exceptions~~ Exception:** Where the added exterior wall assembly is located on a single story and is less than 15 percent of the wall area on any side of the building.
>
> 1. ~~Where such material is located on a single story and is less than 15 percent of the wall area on any side of the building.~~
> 2. ~~Water-resistive barriers installed in accordance with Section 1402.6 of the *International Building Code*.~~

Reason: Exterior wall assemblies that have met the requirements of NFPA 285 (as required by chapters 14 and 26 of the IBC) have been shown to provide a high level of fire safety. In fact there does not appear to have been a fatal fire starting in an exterior wall assembly that has been tested to, and complied with, NFPA 285. Therefore there is no need to demand that the replacement or added exterior wall assembly be composed exclusively of noncombustible materials, just like new construction does not require exterior wall assemblies to be constructed exclusively of noncombustible materials. The IBC (and IEBC) require that exterior wall assemblies comply with the appropriate (and severe) NFPA 285 test. Demanding the exclusive use of noncombustible materials will thwart innovation and mean that there are fewer (safe) options for repairs or alterations of existing buildings.

The IFC already requires that all high-rise buildings be sprinklered and testing to NFPA 285, as required in IBC Chapters 14 an 26, applies specifically to buildings over 40 feet in height, which means that it applies to all high-rise buildings. This code proposal retains the requirement that the high-rise building must be sprinklered. In order to clarify the concept of what is a high-rise building in the IEBC, this proposal adds a definition of high-rise building, which is identical to that in the IBC.

The code proposal retains the first exception presently in the code, while slightly rewording it.

The code proposal deletes the second exception, for two reasons.

First: the charging section already will require complying with the entirety of chapter 14, including 1402.6.

Second: It is impossible for water-resistive barriers to be "installed in accordance with Section 1402.6 of the IBC" because that section does not provide any "installation" information on water-resistive barriers. Section 1402.6 of the IBC simply describes (in exceptions 2.1 and 2.2) the fire properties (in terms of heat release, effective heat of combustion, flame spread, and smoke development) that water-resistive barriers need to comply with in order for testing the exterior wall assembly to NFPA 285 not be required, which applies only if such a water-resistive barrier is the only combustible component in the exterior wall.

Note that the IBC uses the term "exterior wall assembly" and not the term "exterior wall envelope", used in earlier editions. A separate proposal recommends making that correlative change throughout the IEBC.

The IBC section 1402.6 reads as follows:
1402.6 Water-resistive barriers. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.Combustibility shall be determined in accordance with Section 703.3. For the purposes of this section, fenestration products, flashing of fenestration products and water-resistive-barrier flashing and accessories at other locations, including through wall flashings, shall not be considered part of the water-resistive barrier.
Exceptions:
1. Exterior walls in which the water-resistive barrier is the only combustible component and the exterior wall has an exterior wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1404.2.
2. Exterior walls in which the water-resistive barrier is the only combustible component and the water-resistive barrier complies with the following:
2.1 A peak heat release rate of less than 150 kW/m2, a total heat release of less than 20 MJ/m2 and an effective heat of combustion of less than 18 MJ/kg when tested on specimens at the thickness intended for use, in accordance with ASTM E1354, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.
2.2 A flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723, with test specimen preparation and mounting in accordance with ASTM E2404.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code proposal will allow added flexibility in the use of exterior wall assemblies, as it does not require that all components be noncombustible. That means that a lager selection of materials will be able to be chosen for the exterior wall assembly. That means that it is likely that less testing to ASTM E136 will be required. On the other hand, it is possible that new testing to NFPA 285 may be required but it is likely that systems will be used that have already been used elsewhere or for which engineering assessments of equivalency are available.

Staff Analysis: This proposal is simply duplicating a definition from the IBC and IFC. The definition cannot be revised in this proposal as it is scoped to another committee.

EB29-25

EB30-25

IEBC: 309.2, 309.2.1

Proponents: Eric Banks, e.w.banks consulting llc, representing North American Modern Building Alliance (eric.banks@ewbanksconsulting.com)

2024 International Existing Building Code

Revise as follows:

309.2 Additions and replacements. Where an *exterior wall covering* or *exterior wall envelope* is added or replaced, the materials and methods used shall comply with the requirements for new construction in Chapter 14 and Chapter 26 of the *International Building Code* if the added or replaced *exterior wall covering* or *exterior wall envelope* involves two or more contiguous stories and comprises more than 15 percent of the total wall area on any side of the building.

309.2.1 Automatic sprinkler systems. Combustible *exterior wall covering* or combustible exterior wall envelopes shall not be added to an existing high-rise building that is not protected throughout with an automatic sprinkler system.

Exceptions:

1. Where such material is located on a single story and is less than 15 percent of the wall area on any side of the building.
2. Water-resistive barriers installed in accordance with Section 1402.6 of the *International Building Code*.
3. *Additions* or *replacements* of combustible *exterior wall coverings* and combustible exterior wall envelopes on the basis of an *approved* engineering analysis.

Reason: This proposal seeks to provide flexibility in complying with Section 309.2.1 while still adhering to its intent and the intent of the code. Adding a third exception allowing the these type of additions and replacements on the basis of a specific engineering analysis of changes performed by a qualified approved source.

Retrofits, updates, and improvements to exterior walls and roofs of existing buildings provide building owners and local jurisdictions with one of the best means to achieve meaningful and long-term reductions in energy consumption and related emissions from buildings. In many cases, these retrofits, updates, and improvements will add insulation, remove and replace existing insulation, reduce air leakage, and increase the water resistance and weather resistance of the exterior walls of buildings. Well-designed building envelopes / enclosures also improve the long-term durability and lifespan of buildings.

Two cycles ago, Section 309 was added to the 2021 IEBC. Section 309 ensured the addition or modification of exterior wall coverings and exterior wall assemblies must comply with the requirements of IBC Chapter 14 on Exterior Walls and Chapter 26 on Plastic. Both IBC chapters include important fire safety provisions such as testing of assemblies in accordance with NFPA 268 for ignition resistance from exterior radiant heat exposure and NFPA 285 for vertical and lateral flame propagation when various combustible materials, conditions, and assemblies are present. Fire safety provisions in IBC Chapters 14 & 26 also address issues of fire-resistance-rated assemblies, when such ratings are required. The addition of Section 309 was reasonable and appropriate.

Last cycle saw the addition of Section 309.2.1 that effectively prohibits adding combustible exterior wall coverings and combustible exterior wall assemblies to certain high-rise buildings. In doing so, this section prevents the ability of building owners to make substantial improvements to exterior wall assemblies of existing non-sprinklered high-rise buildings. A blanket prohibition for all non-sprinklered high-rise buildings allows no opportunity for innovative, performance-based solutions backed up by fire test data and sound evaluation and analysis performed by qualified professionals. This proposal is not intended to 'undo' Section 309.2.1, but to provide flexibility in allowing additions and replacements that are subject to increased oversight and justification.

The North American Modern Building Alliance (NAMBA) is focused on addressing fire safety through the development and enforcement of building codes. Members of NAMBA are: ACC Center for the Polyurethanes Industry, ACC North American Flame Retardant Alliance, Atlas Roofing Corp., BASF Corporation, Covestro, DuPont, EIFS Industry Members Association, EPS Industry Alliance, GAF, Huntsman, Kingspan Insulation LLC, Metal Construction Association, Owens Corning, Polyisocyanurate Insulation Manufacturers Association, Rmax - A Business Unit of the Sika Corporation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal provides an additional compliance option for the alteration, repair, and addition to certain existing buildings, therefore, does not inherently present an increase or decrease to the cost of construction

EB30-25

EB31-25

IEBC: SECTION 310 (New), 310.1 (New)

Proponents: Bryan Holland, representing National Electrical Manufacturers Association (NEMA) (bryan.holland@nema.org); Megan Hayes, representing NEMA (megan.hayes@nema.org)

2024 International Existing Building Code

Add new text as follows:

SECTION 310
DATA CENTERS AND COMPUTER ROOMS

310.1 Data centers and computer rooms. Where an alteration, addition, change of occupancy or relocation of a building is made to an existing building or structure or part of a building or structure that contain data centers or computers rooms shall comply with Section 2702.2.20 and Section 429 of the International Building Code.

Reason: Data centers and computers rooms have and are rapidly becoming critical infrastructure requiring reliable power systems with sufficient standby and emergency power, resilient to transient energy from overvoltage and surge currents. This proposal adds essential power reliability by mandating standby power for the equipment and systems installed for existing data centers and computer rooms along with emergency power for life safety and fire responder operations. Additionally, surge protection will be required for all existing services and feeders installed for the normal, standby, and emergency equipment and systems. The combination of standby power, emergency power, and surge protection will ensure existing data centers and computer rooms will remain energized during normal power outages and will not be damaged from transient surges after undergoing alteration, addition, change of occupancy, or relocation.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal will increase the cost of existing data centers and computer rooms undergoing alteration, addition, change of occupancy, or relocation by requiring compliance with the requirements outlined in Sections 429 and 2702.2.20 of the IBC as required for new data centers and computer rooms. The increased costs at time of alteration, addition, change of occupancy, or relocation will be offset operational savings achieved by reduced downtime, increased productivity, and protection against data loss and equipment damage. This return on investment will vary depending on project scale and scope.

For example, a small computer room with a single network terminal may only require the installation of a single surge-protective device and a UPS for standby power backup whereas and existing 50k square foot standalone data center with thousands of network terminals may require extensive electrical infrastructure upgrades to meet the proposed requirements in Sections 429 and 2702.2.20.

Actual costs in dollars could be as low as $500 in the first example above to more than $100k in electrical upgrades in the second example above.

Estimated Immediate Cost Impact Justification (methodology and variables):

Unknown - No Cost Impact Justification Study Performed. NEMA's proposals are developed by a member consensus process where both our bylaws and federal regulations prohibit us from discussing prices, cost, and other financial details of electrical products.
The best we can offer is a statement that we acknowledge the proposed requirements will indeed increase the cost of construction dependent on the scale and scope of the project, but that we also believe these initial costs will be offset by operational savings achieved by reduced downtime, increased productivity, and protection against data loss and equipment damage, as stated in our proposal.

EB31-25

EB32-25

IEBC: SECTION 310 (New), 310.1 (New), 310.1.1 (New), [BS] 503.2, [BS] 701.3, [BS] 1303.1.3

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Add new text as follows:

SECTION 310
FLOOD HAZARD AREAS

310.1 Flood hazard areas. In *flood hazard areas*, *alterations* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

310.1.1 Compliance with flood hazard provisions. For projects utilizing the Performance Compliance Method with a structurally connected horizontal addition that does not constitute *substantial improvement*, the addition is not required to comply with the flood design requirements for new construction, provided that both of the following apply:

1. The *addition* shall not create or extend any nonconformity of the *existing building* with the flood-resistant construction requirements.
2. The *lowest floor* of the *addition* shall be at or above the lower of the *lowest floor* of the *existing building* or the *lowest floor elevation* required in Section 1612 of the *International Building Code* or Section 306 of the *International Residential Code* as applicable.

Delete without substitution:

~~**[BS] 503.2 Flood hazard areas.** For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable, any *alteration* that constitutes *substantial improvement* of the *existing structure* shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.~~

~~For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable, any *alterations* that do not constitute *substantial improvement* of the *existing structure* are not required to comply with the flood design requirements for new construction.~~

~~**[BS] 701.3 Flood hazard areas.** In *flood hazard areas*, *alterations* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.~~

~~**[BS] 1303.1.3 Compliance with flood hazard provisions.** In *flood hazard areas*, buildings that are evaluated in accordance with this section shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable, if the work covered by this section constitutes *substantial improvement*. If the work covered by this section is a structurally connected horizontal *addition* that does not constitute *substantial improvement*, the *addition* is not required to comply with the flood design requirements for new construction, provided that both of the following apply.~~

~~1. The *addition* shall not create or extend any nonconformity of the *existing building* with the flood-resistant construction requirements.~~

~~2. The *lowest floor* of the *addition* shall be at or above the lower of the *lowest floor* of the *existing building* or the *lowest floor* elevation required in Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.~~

Reason: Provisions for flood hazard areas are current located in the prescriptive method under alterations; in the work area method alterations Level 1, and is addressed in the performance compliance method. The intent of this relocation to Chapter 3 is so that this provision only needs to be addressed once. This will reduce duplication and possibly not be coordinated over time.

This proposal is part of a package of code changes to expand and reorganize Chapter 3 to increase understanding of the options available in the IEBC. Please see the proposal for reorganization for a clean version of what Chapter 3 will look like if all the proposals are successful.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a relocation of requirements. It is not intended to have any change to construction requirements.

Staff Analysis: CC # EB32-25 and CC # EB64-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

EB32-25

EB33-25

IEBC: SECTION 505, 505.1, 310.1 (New), 505.2, 505.3, 505.3.1, 505.4, 702.4, 702.5, 702.5.1, 702.6, 1011.5.6

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION ~~505~~310 WINDOWS AND EMERGENCY ESCAPE OPENINGS

Delete without substitution:

~~**505.1 Replacement windows.** The installation or replacement of windows shall be as required for new installations.~~

Add new text as follows:

310.1 General. The installation of replacement windows shall be as required for new installation. Windows in alterations and changes of occupancy shall comply with Section 310.2 through 310.4.

Revise as follows:

~~505.2~~310.2 Window fall prevention on replacement windows. In Group R-2 or R-3 buildings containing dwelling units, and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices or other window fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable.
2. One of the following applies:
   - 2.1. The window replacement includes replacement of the sash and frame.
   - 2.2. The window replacement includes the sash only where the existing frame remains.
3. One of the following applies:
   - 3.1. In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
   - 3.2. In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
5. The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

Exception: Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.

~~505.3~~310.3 Replacement window emergency escape and rescue openings. ~~Where windows are required to provide *emergency*~~

~~*escape and rescue openings* in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code,* replacement windows shall be exempt from the requirements of Section 1031.3 of the *International Building Code* and Section 319.2 of the *International Residential Code,* provided that the replacement window meets the following conditions:~~

1. ~~The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.~~
2. ~~Where the replacement of the window is part of a *change of occupancy,* it shall comply with Section 1011.5.6.~~

Where operable windows are required to serve as *emergency escape and rescue openings*in accordance with Section 1031 of the*International Building Code*or in accordance with Section R319 of the*International Residential Code*,replacement windows shall be exempt from the requirements of Section 1031.3 of the *International Building Code* and Section 319.2 of the *International Residential Code*, provided that the replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

~~505.3.1~~310.3.1 Control devices. Window opening control devices or fall prevention devices complying with ASTM F2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings*. After operation to release the control device allowing the window to fully open, the control device shall not reduce the net clear opening area of the window unit. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools.

~~505.4~~310.4 Bars, grilles, covers or screens. Bars, grilles, covers, screens or similar devices are permitted to be placed over *emergency escape and rescue openings*, bulkhead enclosure or window wells that serve such openings, provided all of the following conditions are met:

1. The minimum net clear opening size complies with the code that was in effect at the time of construction.
2. Such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening.
3. Where such devices are installed, they shall not reduce the net clear opening of the *emergency escape and rescue openings*.
4. Smoke alarms shall be installed in accordance with Section 907.2.11 of the *I nternational Building Code*.

Delete without substitution:

~~**702.4 Window fall prevention .** In Group R-2 or R-3 buildings containing dwelling units and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices or other window fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:~~

1. ~~The window is operable.~~
2. ~~One of the following applies:~~
   - 2.1. ~~The window replacement includes replacement of the sash and frame.~~
   - 2.2. ~~The window replacement includes the sash only where the existing frame remains.~~

3. ~~One of the following applies:~~

 3.1. ~~In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.~~

 3.2. ~~In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.~~

4. ~~The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.~~

5. ~~The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).~~

~~**Exception:**~~

~~Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.~~

~~**702.5 Replacement window for emergency escape and rescue openings.** Where windows are required to provide *emergency escape and rescue openings* in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Section 1031.3 of the *International Building Code* and Section R310.2 of the *International Residential Code*, provided that the replacement window meets the following conditions:~~

1. ~~The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.~~
2. ~~Where the replacement window is part of a *change of occupancy* it shall comply with Section 1011.5.6.~~

~~**702.5.1 Control devices.** Window opening control devices or fall prevention devices complying with ASTM F2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings*. After operation to release the control device allowing the window to fully open, the control device shall not reduce the net clear opening area of the window unit. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools.~~

~~**702.6 Bars, grilles, covers or screens.** Bars, grilles, covers, screens or similar devices are permitted to be placed over *emergency escape and rescue openings*, bulkhead enclosure or window wells that serve such openings, provided all of the following conditions are met:~~

1. ~~The minimum net clear opening size complies with the code that was in effect at the time of construction.~~
2. ~~Such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening.~~
3. ~~Where such devices are installed, they shall not reduce the net clear opening of the *emergency escape and rescue openings*.~~
4. ~~Smoke alarms shall be installed in accordance with Section 907.2.11 of the *International Building Code*.~~

~~**1011.5.6 Existing emergency escape and rescue openings.** Where a *change of occupancy* would require an *emergency escape and*~~

~~*rescue opening* in accordance with Section 1031 of the *International Building Code*, operable windows serving as the *emergency escape and rescue opening* shall comply with the following:~~

1. ~~An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38 m^2) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).~~
2. ~~A replacement window where such window complies with both of the following:~~
   - ~~2.1.~~ ~~The replacement window meets the size requirements in Item 1.~~
   - ~~2.2.~~ ~~The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.~~

Reason: Provisions for window fall prevention devices and emergency escape and rescue openings are current located in the prescriptive method in it's own section, but it deals with replacement windows, so that would be applicable in alterations and change of occupancy; and in the work area method under alterations Level 1 and change or occupancy. The intent of this relocation to Chapter 3 is so that this provision only needs to be addressed once. This will reduce duplication and possibly not be coordinated over time.

This proposal is part of a package of code changes to expand and reorganize Chapter 3 to increase understanding of the options available in the IEBC. Please see the proposal for reorganization for a clean version of what Chapter 3 will look like if all the proposals are successful.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a relocation of requirements. It is not intended to have any change to construction requirements.

EB33-25

EB34-25

IEBC: SECTION 310 (New), 310.1 (New), SECTION 708, 708.1, SECTION 809, 809.1, SECTION 907, 907.1, SECTION 1104, 1104.1

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Add new text as follows:

SECTION 310 ENERGY CONSERVATION

310.1 Minimum requirements. *Alterations* or additions to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code or International Residential Code.* The *alterations* and additions shall conform to the energy requirements of *International Energy Conservation Code or International Residential Code.*

Delete without substitution:

~~SECTION 708 ENERGY CONSERVATION~~

~~**708.1 Minimum requirements.** Level 1 *alterations* to *existing buildings* or structures do not require the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.~~

~~SECTION 809 ENERGY CONSERVATION~~

~~**809.1 Minimum requirements.** Level 2 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.~~

~~SECTION 907 ENERGY CONSERVATION~~

~~**907.1 Minimum requirements.** Level 3 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.~~

~~SECTION 1104 ENERGY CONSERVATION~~

~~**1104.1 Minimum requirements.** *Additions* to *existing buildings* shall conform to the energy requirements of the *International Energy*~~

~~*Conservation Code* or *International Residential Code* as they relate to new construction.~~

Reason: Provisions for energy conservation are current located in the the work area method under additions, alterations Level 1, 2 and 3. The IECC contains provisions for alterations to existing buildings, so while this is currently not in the Prescriptive method, this makes sense to be applicable to all options.

The intent of this relocation to Chapter 3 is so that this provision only needs to be addressed once. This will reduce duplication and possibly not be coordinated over time.

This proposal is part of a package of code changes to expand and reoganize Chapter 3 to increase understanding of the options available in the IEBC. Please see the proposal for reorganization for a clean version of what Chapter 3 will look like if all the proposals are successful.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a relocation of requirements. It is not intended to have any change to construction requirements.

EB34-25

EB35-25

IEBC: SECTION 310 (New), 310.1 (New), 502.6, 503.18, 506.6, 903.4, 1011.4, 1101.6

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Add new text as follows:

SECTION 310 ENHANCED CLASSROOM ACOUSTICS

310.1 Enhanced classroom acoustics. In Group E occupancies, classrooms with a volume of 20,000 cubic feet or less, that are located in additions, or in alterations where the area of work exceeds 50 percent of the building area, shall be provided with enhanced classroom acoustics. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.

Delete without substitution:

~~**502.6 Enhanced classroom acoustics.** In Group E occupancies, enhanced classroom acoustics shall be provided in all classrooms in the *addition* with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.~~

~~**503.18 Enhanced classroom acoustics.** In Group E occupancies, where the *work area* exceeds 50 percent of the building area, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.~~

~~**506.6 Enhanced classroom acoustics.** In Group E occupancies, where the *work area* exceeds 50 percent of the building area, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.~~

~~**903.4 Enhanced classroom acoustics.** In Group E occupancies, where the *work area* is a Level 3 *alteration*, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.~~

~~**1011.4 Enhanced classroom acoustics.** In Group E occupancies, where the *work area* is a Level 3 *alteration*, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.~~

~~**1101.6 Enhanced classroom acoustics.** In Group E occupancies, enhanced classroom acoustics shall be provided in all classrooms in the *addition* with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.~~

Reason: Provisions for classroom acoustics are currently located in the prescriptive method under additions, alterations (exceeding 50%), and change of occupancy (with alterations exceeding 50%); and in the work area method under additions, alterations Level 3, and change of occupancy (with alterations Level 3). The intent of this relocation to Chapter 3 is so that this provision only needs to be addressed once. This will reduce duplication and possibly not be coordinated over time.

This proposal is part of a package of code changes to expand and reorganize Chapter 3 to increase understanding of the options available in the IEBC. Please see proposal EB7-25 for reorganization and a clean version of what Chapter 3 will look like if all the proposals are successful.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a relocation of requirements. It is not intended to have any change to construction requirements.

EB35-25

EB36-25

IEBC: SECTION 310 (New), 310.1 (New), CHAPTER 10, SECTION 1009, 1009.1

Proponents: Julius Carreon, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (jcarreon@bellevuewa.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov); Sean Angeley, City of Bellingham, representing Washington Associated of Building Officials, Technical Code Development Committee (smangeley@cob.org)

2024 International Existing Building Code

Add new text as follows:

<u>**SECTION 310**</u>
<u>**PLUMBING**</u>

<u>**310.1 Minimum Fixtures.** Where an *alteration* results in increased occupant load of the story by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the International Plumbing Code based on the increased occupant load.</u>

CHAPTER 10
CHANGE OF OCCUPANCY

SECTION 1009
PLUMBING

Revise as follows:

1009.1 Increased demand. Where the occupancy of an *existing building* or part of an *existing building* is changed such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the *International Plumbing Code*, the new occupancy shall comply with the intent of the respective *International Plumbing Code* provisions.

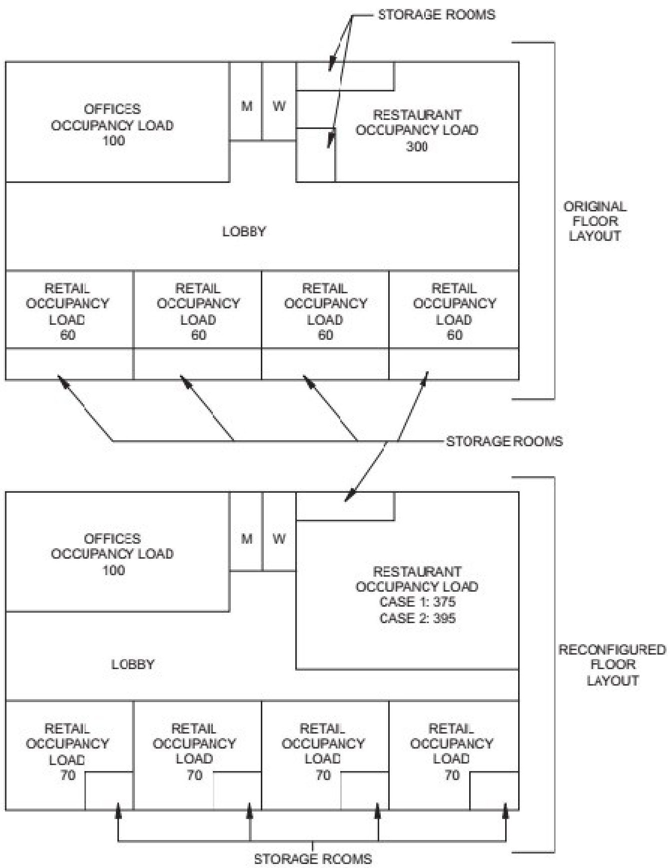
> ~~**Exception:** Only where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the International Plumbing Code based on the increased occupant load.~~

Reason: This code change is to undo the inadvertently substantive change when the plumbing requirements in the alterations section of the code (Section 809 in the 2018 IEBC and prior) were moved to the exception for plumbing fixtures in the change of occupancy section during the 2021 code cycle (See EB92-19): https://www.cdpaccess.com/proposal/5439/8306/preview/.

This provision allows existing plumbing fixtures to remain unchanged as long as renovations result in an occupant load increase of no more than 20% of the current load. During the 2021 code change cycle, proponents of EB92-19 argued that a 20% occupant load increase qualifies as a change of occupancy. They suggested relocating this provision from the Level 2 Alteration section to the Change of Occupancy chapter as an exception.

While we acknowledge that a significant occupant load increase could qualify as a change of occupancy, even within the same group classification (e.g., converting a restaurant to a bar/nightclub within Group A-2), we interpret the 20% allowance differently. We believe it should only apply to reconfigurations where the building's use or occupancy does not change, aligning with the definition of an alteration (See Figure 809.1 as an example). This interpretation reflects that plumbing fixture requirements depend not only on occupant load but also on the building's use or occupancy type (see IBC Table 2902.1). For instance, in a change of occupancy scenario, converting a mercantile space (occupancy load factor = 60 sf/person) to a business use (occupancy load factor = 150 sf/person) could decrease the occupant load of the space but necessitate different plumbing fixture requirements. Applying the 20% exception in this scenario seems inappropriate because it could result in significantly insufficient plumbing fixtures for the new business use. Hence, this proposal is intended to correct this by removing the exception in Section 1009.1 and relocating it back to the alteration section.

In place of relocating the 20% plumbing allowance back to the alteration level 2 work area section, we believe it should be permitted for any compliance method. Hence, we are proposing to relocate the provision as a new section in Chapter 3.



(Alteration example from 2018 IEBC Commentary Figure 809.1)

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code proposal is a clarification (or correction) that could decrease construction costs for alteration projects but may increase costs for change-of-occupancy projects.

EB36-25

EB37-25

IEBC: SECTION 504, [BE] 504.1, [BE] 504.1.1, [BE] 504.1.2, 310.1.2.1 (New), [BE] 504.1.3, 310.1.3.1 (New), [BE] 504.1.4, [BE] 504.2, [BE] 504.3, [BE] 504.4, [BE] 504.5, 310.6 (New), 802.2.1, 804.5.1.2, 804.5.1.2.1, 804.5.1.2.2, 804.5.1.2.3, 1305.2.11, 1305.2.11.1

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION ~~504~~ 310
FIRE ESCAPES

[BE] ~~504.1~~ 310.1 Where permitted. Fire escapes shall be permitted only as provided for in Sections ~~504.1.1~~ 310.1.1 through ~~504.1.4~~ 310.1.4.

[BE] ~~504.1.1~~ 310.1.1 New buildings. Fire escapes shall not constitute any part of the required means of egress in new buildings.

[BE] ~~504.1.2~~ 310.1.2 Existing fire escapes. Existing fire escapes shall continue to be accepted as a component in the means of egress in *existing buildings* only.

Add new text as follows:

310.1.2.1 Use of existing ladders. In buildings of Group E or I occupancy, rooming houses and childcare centers, use of existing ladders is prohibited.

Revise as follows:

[BE] ~~504.1.3~~ 310.1.3 New fire escapes. New fire escapes for *existing buildings* shall be permitted only where exterior stairways cannot be utilized because of lot lines limiting stairway size or because of sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.

Add new text as follows:

310.1.3.1 Use of windows. Windows shall be permitted to provide access from single dwelling units or sleeping units in Group R and I-1 occupancies or to provide access from spaces having a maximum occupant load of 10 in other occupancy classifications, provided:

1. The window shall have a minimum net clear opening of 5.7 square feet (0.53 m^2) or 5 square feet (0.46 m^2) where located at grade.
2. The minimum net clear opening height shall be 24 inches (610 mm) and net clear opening width shall be 20 inches (508 mm).
3. The bottom of the clear opening shall not be greater than 44 inches (1118 mm) above the floor.

Revise as follows:

[BE] ~~504.1.4~~ 310.1.4 Limitations. Fire escapes ~~shall comply with this section and~~ shall not constitute more than 50 percent of the required number of exits nor more than 50 percent of the required exit capacity.

[BE] ~~504.2~~ 310.2 Location. Where located on the front of the building and where projecting beyond the building line, the lowest landing shall be not less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall be not less than 12 feet (3658 mm).

[BE] ~~504.3~~ 310.3 Construction. The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other *approved noncombustible materials*. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type V construction. Walkways and railings located over or supported by combustible roofs in buildings of Type III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

[BE] ~~504.4~~ 310.4 Dimensions. Stairways shall be not less than 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairways not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 8 inches (203 mm) below the door.

[BE] ~~504.5~~ 310.5 Opening protectives. Doors and windows within 10 feet (3048 mm) of fire escape stairways shall be protected with $^{3}/_{4}$-hour opening protectives.

Exception: Opening protection shall not be required in buildings equipped throughout with an *approved* automatic sprinkler system.

Add new text as follows:

310.6 Access. Occupants shall have unobstructed access to the fire escape without having to pass through a room subject to locking.

Revise as follows:

802.2.1 Existing vertical openings. Existing interior vertical openings connecting two or more floors shall be enclosed with *approved* assemblies having a fire-resistance rating of not less than 1 hour with *approved* opening protectives.

Exceptions:

1. Where vertical opening enclosure is not required by the *International Building Code* or the *International Fire Code*.
2. Interior vertical openings other than stairways may be blocked at the floor and ceiling of the *work area* by installation of not less than 2 inches (51 mm) of solid wood or equivalent construction.
3. The enclosure shall not be required where:
    - 3.1. Connecting the main floor and mezzanines; or
    - 3.2. All of the following conditions are met:
        - 3.2.1. The communicating area has a low-hazard occupancy or has a moderate-hazard occupancy that is protected throughout by an automatic sprinkler system.
        - 3.2.2. The lowest or next-to-the-lowest level is a street floor.
        - 3.2.3. The entire area is open and unobstructed in a manner such that it is reasonable to assume that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants.
        - 3.2.4. Exit capacity is sufficient to provide egress simultaneously for all occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity.
        - 3.2.5. Each floor level, considered separately, has not less than one-half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.
4. In Group A occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories.

5. In Group B occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:
   5.1. Buildings not exceeding 3,000 square feet (279 m^2) per floor.
   5.2. Buildings protected throughout by an *approved* automatic fire sprinkler system.
6. In Group E occupancies, the enclosure shall not be required for vertical openings not exceeding three stories where the building is protected throughout by an *approved* automatic fire sprinkler system.
7. In Group F occupancies, the enclosure shall not be required in the following locations:
   7.1. Vertical openings not exceeding three stories.
   7.2. Special-purpose occupancies where necessary for manufacturing operations and direct access is provided to not fewer than one protected stairway.
   7.3. Buildings protected throughout by an *approved* automatic sprinkler system.
8. In Group H occupancies, the enclosure shall not be required for vertical openings not exceeding three stories where necessary for manufacturing operations and every floor level has direct access to not fewer than two remote enclosed stairways or other *approved* exits.
9. In Group M occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:
   9.1. Openings connecting only two floor levels.
   9.2. Occupancies protected throughout by an *approved* automatic sprinkler system.
10. In Group R-1 occupancies, the enclosure shall not be required for vertical openings not exceeding three stories in the following locations:
    10.1. Buildings protected throughout by an *approved* automatic sprinkler system.
    10.2. Buildings with less than 25 dwelling units or sleeping units where every sleeping room above the second floor is provided with direct access to a fire escape that complies with Section 310 or other *approved* second means of egress ~~exit by means of an *approved* exterior door or window having a sill height of not greater than 44 inches (1118 mm)~~ and where both of the following conditions are met:
        10.2.1. Any exit access corridor exceeding 8 feet (2438 mm) in length that serves two means of egress, one of which is an unprotected vertical opening, shall have not fewer than one of the means of egress separated from the vertical opening by a 1-hour fire barrier.
        10.2.2. The building is protected throughout by an automatic fire alarm system, installed and supervised in accordance with the *International Building Code*.
11. In Group R-2 occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:
    11.1. Vertical openings not exceeding two stories with not more than four dwelling units per floor.
    11.2. Buildings protected throughout by an *approved* automatic sprinkler system.
    11.3. Buildings with not more than four dwelling units per floor where every sleeping room above the second floor is provided with direct access to a fire escape the complies with Section 310 or other *approved* second means of egress ~~exit by means of an *approved* exterior door or window having a sill height of not greater than 44 inches (1118 mm)~~ and the building is protected throughout by an automatic fire alarm system complying with Section 803.4.
12. One- and two-family dwellings.
13. Group S occupancies where connecting not more than two floor levels or where connecting not more than three floor levels and the structure is equipped throughout with an *approved* automatic sprinkler system.

14. Group S occupancies where vertical opening protection is not required for open parking garages and ramps.

804.5.1.2 Fire escapes required. For other than Group I-2, where more than one exit is required, an existing or newly constructed fire escape complying with Section ~~804.5.1.2.1~~ 310 shall be accepted as providing one of the required means of egress.

Delete without substitution:

~~**804.5.1.2.1 Fire escape access and details.** Fire escapes shall comply with all of the following requirements:~~

1. ~~Occupants shall have unobstructed access to the fire escape without having to pass through a room subject to locking.~~
2. ~~Access to a new fire escape shall be through a door, except that windows shall be permitted to provide access from single dwelling units or sleeping units in Group R-1, R-2 and I-1 occupancies or to provide access from spaces having a maximum occupant load of 10 in other occupancy classifications.~~
   - 2.1. ~~The window shall have a minimum net clear opening of 5.7 square feet (0.53 m^2) or 5 square feet (0.46 m^2) where located at grade.~~
   - 2.2. ~~The minimum net clear opening height shall be 24 inches (610 mm) and net clear opening width shall be 20 inches (508 mm).~~
   - 2.3. ~~The bottom of the clear opening shall not be greater than 44 inches (1118 mm) above the floor.~~
   - 2.4. ~~The operation of the window shall comply with the operational constraints of the *International Building Code*.~~
3. ~~Newly constructed fire escapes shall be permitted only where exterior stairways cannot be utilized because of lot lines limiting the stairway size or because of the sidewalks, alleys, or roads at grade level.~~
4. ~~Openings within 10 feet (3048 mm) of fire escape stairways shall be protected by fire assemblies having minimum $^3/_4$-hour fire-resistance ratings.~~

   ~~**Exception:** Opening protection shall not be required in buildings equipped throughout with an *approved* automatic sprinkler system.~~
5. ~~In all buildings of Group E occupancy, up to and including the 12th grade, buildings of Group I occupancy, rooming houses and childcare centers, ladders of any type are prohibited on fire escapes used as a required means of egress.~~

~~**804.5.1.2.2 Construction.** The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other *approved noncombustible materials*. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type V construction. Walkways and railings located over or supported by combustible roofs in buildings of Types III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.~~

~~**804.5.1.2.3 Dimensions.** Stairways shall be not less than 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm). Landings at the foot of stairways shall be not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long and located not more than 8 inches (203 mm) below the door.~~

Revise as follows:

1305.2.11 Means of egress capacity and number. Evaluate the means of egress capacity and the number of exits available to the building occupants. In applying this section, the means of egress are required to conform to the following sections of the *International Building Code*: 1003.7, 1004, 1005, 1006, 1007, 1016.2, 1026.1, 1028.3, 1028.5, 1030.2, 1030.3, 1030.4 and 1031. The number of exits credited is the number that is available to each occupant of the area being evaluated. Existing fire escapes shall be accepted as a component in the means of egress when conforming to Section ~~504~~ 310.

Under the categories and occupancies in Table 1305.2.11, determine the appropriate value and enter that value into Table 1306.1 under Safety Parameter 1305.2.11, Means of Egress, for means of egress and general safety.

1305.2.11.1 Categories. The categories for means-of-egress capacity and number of exits are:

1. Category a—Compliance with the minimum required means-of-egress capacity or number of exits is achieved through the use of a fire escape in accordance with Section ~~504~~ 310.
2. Category b—Capacity of the means of egress complies with Section 1005 of the *International Building Code*, and the number of exits complies with the minimum number required by Section 1006 of the *International Building Code*.
3. Category c—Capacity of the means of egress is equal to or exceeds 125 percent of the required means-of-egress capacity, the means of egress complies with the minimum required width dimensions specified in the *International Building Code*, and the number of exits complies with the minimum number required by Section 1006 of the *International Building Code*.
4. Category d—The number of exits provided exceeds the number of exits required by Section 1006 of the *International Building Code*. Exits shall be located a distance apart from each other equal to not less than that specified in Section 1007 of the *International Building Code*.
5. Category e—The area being evaluated meets both Categories c and d.

Reason: In the current IEBC, there are two largely duplicative sections that address fire escapes, neither of which is fully coordinated with provisions in the IFC addressing fire escapes. The slight differences between the provisions in the prescriptive compliance method (as referenced in the performance compliance method) and the work area method do not appear to have any substantive basis. It is also confusing that these provisions are scoped to different committees. This proposal relocates the provisions from the prescriptive compliance method (Chapter 5) to the provisions for all compliance methods (Chapter 3). This proposal also incorporates three existing provisions from the work area compliance method to the new uniform provisions:

- Section 804.5.1.2.1(5) becomes 310.1.2.1.
- Section 804.5.1.2.1(2) becomes 310.1.3.1.
- Section 804.5.1.2.1(1) becomes 310.6.

Creating uniform provisions for fire escapes will facilitate further coordination between the IEBC and IFC in a future code development cycle.

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG) and the ICC Building Code Action Committee (BCAC).

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies and consolidates existing requirements related to fire escapes.

EB37-25

EB38-25

IEBC: 401.4 (New)

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com)

2024 International Existing Building Code

Add new text as follows:

<u>**401.4 Demolition and replacement.** Where the building above the foundation is deemed by the code official to be damaged beyond repair or where the intent is to demolish and replace the damaged building, the replacement building, including its remaining or replaced foundation, shall comply with the requirements for new construction in Chapter 16 of the *International Building Code*.</u>

Reason: If the best way to "repair" a building is to demolish and replace it, should the replacement be designed like a new building? This question has been posed in each of the last two code cycles (see the history below), and there is growing consensus around the answer: Yes, since the replacement will have essentially the same value and longevity as new construction, it should be designed with the standards for new construction.

Many code officials already implement this policy based on their own judgment. But because the code is unclear, practice is inconsistent, and owners do not know in advance what rules will apply. This proposal offers a uniform approach consistent with current IEBC principles. Nearly all agree that where the entire building is destroyed by a damaging event (fire, flood, earthquake, etc.), the replacement structure should be designed and built as new construction.

This proposal codifies this common-sense requirement in two cases:

<u>Where the code official deems the building "damaged beyond repair."</u> Yes, this calls for judgment – the same judgment that is already being applied without this provision. There is no way to fully define and quantify this damage state, and past attempts to do so have failed (see below). Indeed, any quantitative rule would just create a game that the code official will have to referee anyway. So we might as well make it clear from the start that code official discretion will be needed here, as the code official sees fit. If the owner proposes to repair what remains, the code official can accept that and not have to make a call.

<u>Where the owner proposes to demolish the damaged building as a means of "repair."</u> In many such cases, the code official will agree with the owner. In other cases, however, an owner might want to tear down a repairable building in order to take advantage of allowances that the IEBC grants to repairs, but not to new construction. These allowances, which include reduced design loads (Section 304) and the use of "like materials" (Section 302.4), while appropriate for typical damage and repairs, should not apply if the project is essentially new construction. We anticipate some questions about the proposal's details:

<u>Why must the foundation comply, especially given the potential cost of replacing it?</u> The proposal starts by considering damage to the portion above the foundation because fire, earthquake, and other causes of extensive damage often leave the existing foundation intact, or at least reusable. Even so, new structural elements, as required, generally need an equally compliant foundation. Any attempt to write a provision that would allow foundation re-use by default would inevitably end up having to parse deficient conditions. It is better to set an enforceable rule, as proposed, and rely on the judgment of design professionals and code officials for case-by-case variances. That said, nothing in the proposal prevents an adequate foundation in good condition from being re-used with the approval of the code official.

<u>Why does the proposal require IBC compliance for only the structural design in Chapter 16?</u> This responds to questions asked about a similar proposal last cycle (EB36-22; see below). Limiting the requirement to the structural design helps accommodate non-conforming conditions in the original building, e.g. regarding building separation, stair width, or similar issues. In typical repairs, the IEBC already requires the repair itself to match the IBC, with allowances for existing non-conforming conditions. Reduced structural loads are among the IEBC's most common allowances (Section 302.4), so this proposal focuses on Chapter 16. (That said, if the committee prefers to require full IBC compliance, that is easily achieved by simply striking the words "Chapter 16 of".)

<u>What if only part of the building is damaged beyond repair?</u> This proposal does not affect current practice regarding partial demolition and replacement. Such cases will continue to rely on the preferences and judgment of owners, design professionals, and code officials. In the case of damage beyond repair to a well-defined portion of a building, such as a top story or a wing (in plan), one rational approach would be to demolish and replace that portion as if it were an addition, i.e. designed as new construction with consideration for any structural and functional interaction with the remaining portions of the existing building. This approach was part of proposal EB36-22 (see

below), but it raised enough questions about interpretation and potential implementation that committee members suggested it be removed, so we have removed it from this proposal.

Finally, some history. As noted, since the code does not clearly address this situation, code officials have grappled with it inconsistently.

- Some jurisdictions apply a “50 percent replacement cost” threshold adapted from legacy codes, but requiring the code official to calculate replacement costs and account for changing real estate markets was explicitly rejected for the IEBC some years ago (though a similar test is used in flood hazard areas to determine whether damage meets the definition of *substantial damage*).
- Others have tried to define “complete damage,” adapted from the current IEBC definition of *substantial structural damage* or similar measures of the affected area, but none of those attempts have made it into the model code.
- EB41-19 tried to define a triggering loss level as damage “[down] to the foundation,” but that left too many loopholes (e.g. where a nominal portion of the superstructure – just a few feet of framing, or even just a sill plate – remains).
- EB41-19 also suggested treating this situation as a Level 3 alteration, but that would not have invoked “new construction” requirements and would have left open questions about how to define the work area.
- EB36-22 was nearly identical to this proposal, but it included a second sentence addressing cases of partial demolition and replacement (to a wing or “portion” of the building). The proposal was disapproved 8-7 (with the chair breaking a tie vote), with essentially all of the opposition related to the second sentence, which this proposal no longer includes.
- As a public comment in 2022, we proposed eliminating the second sentence, and the revised proposal was supported 93-49 – 65.5% approval, just short of the two-thirds requirement.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0.00. Where current practice and code official judgment already apply the code this way there will be no cost increase.

The revisions will not have a cost impact since this is essentially a reorganization and clarification of current code requirements for adding new lateral elements into existing URM buildings.

These revisions may or may not have an impact on construction cost, dependent on several factors that can be specific to each individual URM building and retrofit approach.

The revisions in Section A113.1 could lead to minor increase in the construction costs for wall anchorage retrofits depending on which method is used for IEBC-triggered seismic evaluation and retrofit of existing URM buildings (note that chapter A1 is just one of several possible retrofit procedures listed in IEBC Section 304.3.2 for triggered seismic retrofits that allow the use of reduced seismic criteria).

Specifically, this proposal could result in a slight increase in the number of retrofit anchors in a building or require increased length of development of the wall anchorage into the diaphragm system. Additional single anchors can range in cost from $50.00 to $100.00, not including labor.

Given the very wide range of seismic retrofit scope and costs for URM buildings, reflecting high variability in existing structural systems, varying current condition of the structure at the time of retrofit, and range of impacts to existing architectural finishes required to access retrofit areas, a direct cost impact or percentage increase of construction cost is impossible to estimate.

At most this will have a minor increase in the structural cost of the wall anchorage retrofit, which itself is generally a small percentage of the total retrofit cost for most URM retrofits using Appendix A1

Estimated Immediate Cost Impact Justification (methodology and variables):

Because this proposal merely codifies what most jurisdictions and code officials already understand to be the intent of the code with respect to "total loss" buildings, we believe there will actually be no cost increase at all relative to current practice.

But if a jurisdiction currently allows a severely damaged building to be rebuilt entirely from its existing foundation to match the pre-damage nonconforming conditions, the proposal requires only the structural elements of the replacement building to meet IBC requirements as new construction; therefore, there would be no cost increase for any other system or element. Further, even in this second case, damage at a "total loss" level would already trigger structural criteria for new construction for most elements carrying dead, live, snow, and wind (if the damage was due to wind) loads. A cost increase would be expected only with respect to the lateral system of the replacement building (i.e. wind, if the damage was *not* caused by wind, and seismic), where the IEBC allows loads for repair projects lower than loads for new construction. Instead of original wind or reduced seismic loads, the replacement would have to use W and E loads as for new construction.

EB39-25

IEBC: 403.1, SECTION 202 (New)

Proponents: Jeffrey Hugo, NFSA - National Fire Sprinkler Association, representing NFSA (hugo@nfsa.org)

2024 International Existing Building Code

Revise as follows:

403.1 General. *Repairs* shall be done in a manner that maintains the level of fire protection provided. *Construction documents* shall not be required to be prepared or submitted for approval to *repair* a *fire protection system.*

Add new definition as follows:

FIRE PROTECTION SYSTEM. Approved devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.

Reason: Construction documents are meant to describe the design, location, and physical characteristics of a project to support the permitting process for new construction or significant alterations. However, when it comes to repairs, the scope of work is fundamentally different. According to the IEBC, repairs involve replacing, renewing, or reconstructing parts of an existing building for maintenance or to fix damage—and for fire protection systems, these repairs must be "like for like" replacements. This means the repaired components must match the original in terms of function, design, and characteristics. Requiring construction documents for repairs is unnecessary because:

1. Repairs Restore, Not Redesign:
   Repairs don't change the original design or functionality of a fire protection system—they simply bring it back to its approved condition. Since the IEBC requires that replacements are "like for like," there's no need for additional documentation to prove compliance with the system's original design.
2. Purpose of Repairs:
   The goal of a repair is straightforward: maintain the system or fix specific damage. This type of work doesn't introduce new construction or changes that would justify creating new construction documents.
3. Avoiding Unnecessary Delays:
   Requiring construction documents for routine repairs adds unnecessary delays and costs for building owners and contractors. It also creates more work for code officials without adding value to the approval process.
4. IEBC Requirements Are Clear:
   The IEBC already specifies that repairs must involve "like for like" replacements, ensuring that the original design, safety features, and compliance are preserved. This requirement ensures repairs meet the same standards without the need for additional documentation.

This proposal adds the definition of fire protection system to the IEBC to align it with the IBC and IFC, creating consistency across the codes. A fire protection system is defined as *approved devices, equipment, and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire, or any combination thereof.* Adding this definition ensures users of the IEBC have a clear understanding of what constitutes a fire protection system, making the code easier to apply and enforce while maintaining consistency with related codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The clarifies the code that construction documents for repairs are not required.

Staff Analysis: This proposal is simply duplicating a definition from the IBC and IFC. The definition cannot be revised in this proposal as it is scoped to another committee.

EB40-25

IEBC: [BS] 405.2.7 (New)

Proponents: Randy Shackelford, representing Simpson Strong-Tie Co. (rshackelford@strongtie.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Add new text as follows:

[BS] 405.2.7 Decks and Balconies. Where damage occurs to gravity load-carrying structural framing components or their connections in decks or balconies, all structural framing components and their connections shall be evaluated and repaired or retrofitted to comply with the applicable provisions for dead, live, snow, and handrail and guard loads of the *International Building Code.*

Exception: Decks and balconies constructed prior to 2018 are permitted to be designed for a live load equal to the occupancy served.

Reason: This code change aims to address one of the elements of a structure that is most likely to deteriorate over time and cause life-safety issues: exterior decks and balconies.
The industry group for the deck industry is NADRA, the North American Deck and Railing Association. They state on their website that "With more than 60 million decks in the US (50m residential and 10m commercial), it is estimated that 30 million decks are past their useful life and need to be replaced or repaired. It is crucial for homeowners to have their decks inspected to verify the integrity of their deck to ensure user safety as well as help extend the deck's life-span, improve appearance, and increase livability."
Professor Emeritus Frank Woeste, a well-known wood engineer, states in his article "Preventing Early Framing Failures" that "Sometimes, the structural connections-think bolts, lag screws, engineered structural screws, ordinary decking screws, concrete anchors, joist hangers, and other structural connector hardware-are deficient due to a design defect or corrosion (rust), which alone can cause a deck element to fail without warning. But decayed framing system components, such as joists, beams, posts, footings, stairways, guard systems and handrails, decking and treads, can alone cause or contribute to a collapse event. Or course, decayed wood coupled with a deficient connection can jointly cause a collapse event."

Failure of deteriorated decks is so common, in fact that there is an actual Deck Safety Month. Several articles and reports of injuries and even deaths related to deck failures are contained in the Bibliography of this proposal.

With so many deck and balcony elements that can deteriorate over time, we think it just makes sense that when part of a deck or balcony is damaged, that it be examined and repaired, if necessary. There is no other trigger that we are aware of that would encourage a building owner to have their deck examined by a professional.

The exception is added because, prior to the 2018 IBC, decks and balconies were designed to resist a live load equal to the occupancy served. In that year the deck live load was increased by 50%. It would be unfair to require decks designed to meet the old live load to be upgraded to the new higher live load.

Bibliography: *Preventing Early Framing Failures* Journal of Light Construction. Author: Frank Woeste. https://www.jlconline.com/deck-builder/preventing-early-deck-framing-failures_o
North American Deck and Railing Association Deck Safety Initiative https://www.nadra.org/deck-safety
Coastal decks: Red rust on decks is a safety warning ICC Building Safety Journal Author: Frank Woeste, Joseph Loferski, Bruce Barker https://www.iccsafe.org/building-safety-journal/bsj-technical/coastal-decks-red-rust-on-decks-is-a-safety-warning/
Local firefighters, coroner fall during deck collapse at scene. WNKY news https://www.wnky.com/local-firefighters-coroner-fall-during-deck-collapse-at-scene/
Deck Collapse on LBI: Two Injured, One Seriously TAPinto Stafford/LBI https://www.tapinto.net/towns/stafford-slash-lbi/sections/home-and-garden/articles/deck-collapse-on-lbi-two-injured-one-seriously
7 hospitalized after porch collapses on Cape Cod Boston 25 News https://www.boston25news.com/news/local/7-hospitalized-after-

porch-collapses-cape-cod/7CJWWJJDJZGPZKX4CS2VU2DCPI/

Investigation underway after Galveston house balcony collapses, killing 'PR Fairy' Susan Farb Morris   ABC 13 News

https://abc13.com/post/susan-farb-morris-death-investigation-galveston-beach-house-balcony-collapse/14966607/

Cost Impact: Increase

Estimated Immediate Cost Impact:

Provided that this code proposal alone, rather than just owners preference, requires a damaged deck/balcony to be brought up to code in the case of damage, there will be a cost increase.

Regarding the dollar amount and detail cost – we can provide the following estimate. There are two cases: When the inspection finds that the rest of the deck/balcony still meets code, and when the inspection finds that there are other deficiencies that need to be corrected.

1. Inspection finds that deck/balcony otherwise meets code:

a)

Design professional site visit to examine existing structure and damage to structure:

3 hours x $185/ hr = $555 - including travel time

b) Design professional to analyze structure based on field observations and provide letter of findings

3 hours x $185 / hr = $555

2. If structure is deemed deficient-

a) Design professional provide design drawings and details for retrofit (assume 3 sheets including – specifications / general notes – foundation and framing plan – details)

3 hours design x $185/hr = $555

5 hours drafting x $100 / hr = $400

b) It is impossible to estimate the costs to repair the structurally damaged deck/balcony because it will involve too many factors, such as the size of the deck/balcony, the scope of the damage, what material the deck/balcony is constructed of.

Total to check if it meets code - $1,110

Total if deck/balcony does not meet code to provide design for retrofit: $955

Retrofit/repair cost will vary depending on level of deterioration and is impossible to accurately estimate.

Estimated Immediate Cost Impact Justification (methodology and variables):

Design professional inspection, analysis, and design cost data based on experience of a design engineer in Austin, Texas.

The additional cost to repair/retrofit the deck/balcony will depend on too many variables to be able to make an accurate estimate. It will depend on the size and construction method of the deck/balcony, and scope of the damage to the deck/balcony.

Estimated Life Cycle Cost Impact:

Long term, inspection and improvement of damaged decks/balconies will reduce the possibility of injury to deck/balcony occupants if there were a failure.

EB40-25

EB41-25

IEBC: [BS] 405.2.2, [BS] 405.2.3, [BS] 405.2.4, [BS] 405.2.4.1, [BS] 405.2.5

Proponents: Julie C. Furr, PE, Smith Seckman Reid, Inc, representing Self (jcfurr@ssr-inc.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 405.2.2 Disproportionate earthquake damage. A building assigned to Seismic Design Category D, E or F that has sustained *disproportionate earthquake damage* shall comply with Section 405.2.3. ~~be subject to the requirements for buildings with *substantial structural damage* to vertical elements of the lateral force-resisting system~~.

[BS] 405.2.3 Substantial structural damage to vertical elements of the lateral force-resisting system. ~~A building that has sustained *substantial structural damage*~~ Where the building has sustained *substantial structural damage* based on the amount of damage to the vertical elements of its lateral force-resisting system, the building shall be evaluated in accordance with Section 405.2.3.1, and either repaired in accordance with Section 405.2.3.2 or repaired and retrofitted in accordance with Section 405.2.3.3, depending on the results of the evaluation.

Exceptions:

1. Buildings assigned to Seismic Design Category A, B or C whose *substantial structural damage* was not caused by earthquake need not be evaluated or retrofitted for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or retrofitted for load combinations that include earthquake effects.

[BS] 405.2.4 Substantial structural damage to gravity load-carrying components. Where the building has sustained *substantial structural damage* based on the amount of damage to gravity load-carrying components, damaged gravity load-carrying components ~~Gravity load-carrying components that have sustained *substantial structural damage*~~ shall be retrofitted to comply with the applicable provisions for dead, live and snow loads in the *International Building Code*. Undamaged gravity load-carrying components, including undamaged foundation components, that receive dead, live or snow loads from retrofitted components shall also be retrofitted if required to comply with these design loads.

[BS] 405.2.4.1 Lateral force-resisting system ~~elements~~. ~~Regardless of the level of damage to vertical elements of the lateral force-resisting system, if *substantial structural damage*~~ Where the building has sustained *substantial structural damage* based on the amount of damage to gravity load-carrying components, and the damage was caused primarily by wind or seismic effects, ~~then~~ the building shall be evaluated in accordance with Section 405.2.3.1 and, if noncompliant, retrofitted in accordance with Section 405.2.3.3.

Exceptions:

1. Buildings assigned to Seismic Design Category A, B or C whose *substantial structural damage* was not caused by earthquake need not be evaluated or retrofitted for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or retrofitted for load combinations that include earthquake effects.

[BS] 405.2.5 Substantial structural damage to snow load-carrying components. ~~Where *substantial structural damage* to any snow load-carrying components is caused by or related to snow load effects, any~~ Where the building has sustained substantial structural damage based on the amount of damage to gravity load-carrying components caused by snow effects, damaged and undamaged components required to carry snow loads on roof framing of similar construction shall be repaired, replaced or retrofitted to satisfy the requirements of Section 1608 of the *International Building Code*.

Reason: This proposal clarifies that *substantial structural damage* is a condition sustained by the BUILDING, not individual components/systems. While SSD is determined based on the amount of collective damage to components/systems, the components/systems themselves are either undamaged or damaged and require repair. No technical changes have been made to the intent of the sections. This clarification is necessary to avoid confusion caused by literal interpretations of the current language.

For example: it has been argued that in a storm damaged building, individual elements that were damaged but still standing were not required to be brought up to current code, since less than 20% of each individual element was damaged. The roof had experienced a partial collapse and one exterior wall had completely collapsed, resulting in a determination of SSD for the building.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies intent and does not make technical changes to the provisions.

EB41-25

EB42-25

IEBC: SECTION 202, [BS] 405.2.4, [BS] 405.2.5, [BS] 405.2.4.1

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] SUBSTANTIAL STRUCTURAL DAMAGE. A condition where any of the following apply:

1. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 33 percent from its predamage condition.

2. The capacity of any vertical component carrying gravity load, or any group of such components, that has a tributary area more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its predamage condition, and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location.

3. The capacity of any structural component carrying snow load, or any group of such components, that supports more than 30 percent of the roof area of similar construction has been reduced more than 20 percent from its predamage condition caused by snow loads, and the remaining capacity with respect to dead, live and snow loads is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location.

For purposes of this definition, work done to implement repairs shall not be considered damage that reduces structural capacity.

[BS] 405.2.4 Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained *substantial structural damage* shall be retrofitted to comply with the applicable provisions for dead, live and snow loads in the *International Building Code*. ~~Undamaged~~ Damaged or undamaged gravity load-carrying components, including undamaged foundation components, that receive dead, live or snow loads from retrofitted components shall also be retrofitted if required to comply with these design loads.

[BS] ~~405.2.5~~ 405.2.4.1 Substantial structural damage to snow load-carrying components. Where *substantial structural damage* to any snow load-carrying components is caused by or related to snow load effects, any components required to carry snow loads on roof framing of similar construction shall be repaired, replaced or retrofitted to satisfy the requirements of Section 1608 of the *International Building Code*.

[BS] ~~405.2.4.1~~ 405.2.4.2 Lateral force-resisting elements. Regardless of the level of damage to vertical elements of the lateral force-resisting system, if *substantial structural damage* to gravity load-carrying components was caused primarily by wind or seismic effects, then the building shall be evaluated in accordance with Section 405.2.3.1 and, if noncompliant, retrofitted in accordance with Section 405.2.3.3.

Exceptions:

1. Buildings assigned to Seismic Design Category A, B or C whose *substantial structural damage* was not caused by earthquake need not be evaluated or retrofitted for load combinations that include earthquake effects.

2. One- and two-family dwellings need not be evaluated or retrofitted for load combinations that include earthquake effects.

Reason: This proposal does three things:

1. Clarifies that when substantial structural damage has occurred, damaged and undamaged elements within the load path must be

considered when designing repairs.
2. Clarifies that Item 3 of the SSD definition applies only when the damage has been caused by snow.
3. Reorders sections so that both 405.2.5 and 405.2.4.1 are subsections of 405.2.4

Item-3 was introduced into the 2018 IEBC specifically to address roof framing components that were damaged from snow load effects. Prior to the 2018 IEBC, only elements damaged from snow required repair. Since the 2015 edition of the IEBC, damage to components supporting snow load would have been considered less-than substantial damage and allowed to be restored to its pre-damaged condition.

The 2009 Spokane / Coeur d'Alene and 2011, 2015 New England winters resulted in hundreds of damaged or collapsed roofs. As a result, the variable loading patterns of snow was considered a potential hazard to other undamaged roof framing components of similar construction and the concern was addressed in item-3.

The way the current language is written, if a roof is damaged from other effects such as fire of deterioration and is in a region where snow loads apply, and more than 30% of if components of similar construction are damaged, it would be considered substantial structural damage and subjected to repair section 405.2.4.

In 2021, compliance with snow loads was added to 405.2.4 meaning that repair to components carrying snow load damaged by effects other than snow load would have to be repaired to consider IBC snow loads as well as components receiving dead, live and snow loads from retrofitted components including foundations.

Clearly, this could lead to a substantial effort for repairs of damaged components not related to snow load effects. This code change proposal restores the original intent of the code and clarifies the intent of Item-3 that was meant to address only components damaged from the effects of snow.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Minimum $0.00. Where current practice and code official judgment already apply the code, this way the revisions will reduce the costs of repairing components carrying snow load if the damage was not from the effects of snow load and will not have a cost impact.

Estimated Immediate Cost Impact Justification (methodology and variables):

This code change proposal would reduce the costs of repairing components carrying snow load if the damage was not from the effects of snow load, but minimally the cost would not increase.

EB42-25

EB43-25

IEBC: [BS] 405.2.4

Proponents: Michael Fillion, representing self (mrf.structure@verizon.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 405.2.4 Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained *substantial structural damage* shall be retrofitted to comply with the applicable provisions for dead, live and snow loads in the *International Building Code*. Undamaged gravity load-carrying components, including undamaged foundation components, that receive dead, live or snow loads from retrofitted components shall also be retrofitted if required to comply with these design loads.

<u>**Exception:** Components that have sustained substantial structural damage from snow loads.</u>

Reason: This code change proposal is for clarification and to assure that the code user is directed to the correct section of this code when evaluating gravity load-carrying components that have sustained substantial structural damage. Prior to the 2018 edition of the IEBC, there were two conditions that described substantial structural damage, Condition-1 applied to vertical elements of the lateral force-resisting system and Condition-2 applied to vertical components carrying gravity load. For Condition-2, the corresponding repair section is **405.2.4**, substantial structural damage to gravity load-carrying components which required gravity load-carrying components that have sustained substantial structural damage to be retrofitted to comply with the applicable provisions for dead and live loads in the International Building Code.

In the 2011 and 2015 New England winters, they experienced a prolonged period of sub-freezing temperatures and a series of snowstorms, the cumulative effect resulting in hundreds of roofs being damaged or collapsed from snow loads. The 2015 IEBC and prior editions allowed these snow damaged components to be restored to their predamaged condition. Of concern was when there was damage to a substantial number of similar components. Due to variations in wind direction affecting snow drifts and areas of snow accumulation along with other factors, there was concern that the other undamaged components of similar construction could also, in time, be subjected to the same damaging effects. These concerns were addressed in the 2018 IEBC. Section **405.2.1.1** requires that when there is less than substantial structural damage, structural components whose damage was caused by or related to snow load effects shall be repaired, replaced or altered to satisfy the requirements of Section 1608 of the International Building Code. To address the concern of when a substantial amount of similar components are damaged, **Condition-3** was added to the definition of substantial structural damage and applied when more than 30 percent of the roof area of similar construction has been reduced more than 20 percent from its predamaged condition, and the remaining capacity with respect to dead, live and snow loads is less than 75 percent of that required by the international building code for new buildings. As an example of similar construction, consider the drifting zone between a high and low roof. If more than 30 percent of the roof rafters in that zone sustain substantial structural damage, then the remaining undamaged rafters in that zone would have to be evaluated for IBC compliance and retrofitted if required. The corresponding repair section for substantial structural damage to snow load-carrying components is **405.2.5.**

In the 2021 Edition of the IEBC, snow loads were added to the retrofit compliance requirement of section **405.2.4.**

Because of that, when there is substantial structural damage to gravity load carrying components caused by snow, sections **405.2.4** and **405.2.5** both apply. These sections have different repair / evaluation scopes. For section **405.2.4**, the damaged components are required to be repaired, section **405.2.5** not only requires the damaged components to be repaired but also requires undamaged components of similar construction to be evaluated and retrofitted as required for IBC compliance.

By adding the exception, users are directed to the proper repair section.

For substantial structural damage Condition-2, section **405.2.4** is used. For Condition-3, section **405.2.5** is used.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is for clarification to direct code users to the correct code section

EB43-25

EB44-25

IEBC: 406.1, NFPA Chapter 16 (New)

Proponents: Bryan Holland, representing National Electrical Manufacturers Association (NEMA) (bryan.holland@nema.org)

2024 International Existing Building Code

Revise as follows:

406.1 General. Maintenance and *repairs* ~~*Repairs*~~ to existing electrical wiring and equipment shall be in accordance with NFPA 70 and NFPA 70B, as applicable.

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

70B-23	Standard for Electrical Equipment Maintenance

Reason: This proposal adds the term "maintenance" and a pointer to NFPA 70B in section 406.1 to ensure existing electrical wiring and equipment are properly maintained and repaired in compliance with the NEC and NFPA 70B. NFPA 70B details preventive maintenance for electrical, electronic, and communication systems and equipment, such as those used in industrial plants, institutional and commercial buildings, and large multi-family residential complexes, to prevent equipment failures and worker injuries. The section 202 definition of "Repair" is: *The reconstruction, replacement or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.* As such, it is essential that Section 406.1 pointer users to the applicable NFPA standard for electrical equipment maintenance. The proposal also adds the 70B standard to Chapter 16 as an official referenced standard.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code proposal has no cost impact on the cost of construction but will require compliance with NFPA 70B when electrical equipment installed in an existing building undergoes repair or maintenance. The cost to maintain equipment varies greatly and is dependent on the scale, scope, environmental conditions, and other variables associated with the electrical equipment being maintained.

Staff Analysis: A review of the standard proposed for inclusion in the code, NFPA 70B--2023 Standard for Electrical Equipment Maintenance, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

EB44-25

EB45-25

IEBC: 407.2, UL Chapter 16 (New)

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

407.2 Mechanical draft systems for manually fired appliances and fireplaces. A mechanical draft system shall be permitted to be used with manually fired appliances and fireplaces where such a system complies with all of the following requirements:

1. The mechanical draft device shall be *listed* and labeled in accordance with UL 378 and shall be installed in accordance with the manufacturer's ~~installation~~ instructions.
2. A device shall be installed that produces visible and audible warning upon failure of the mechanical draft device or loss of electrical power at any time that the mechanical draft device is turned on. This device shall be equipped with a battery backup if it receives power from the building wiring.
3. A smoke detector shall be installed in the room with the appliance or fireplace. This device shall be equipped with a battery backup if it receives power from the building wiring.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

UL 378--2006	Draft Equipment—With Revisions Through September 2013

Reason: These changes will align with the changes to this specific requirement in Section 804.3.8 of the International Mechanical Code. The PMCCAC recommends that the Code Correlation Committee assign a [M] scoping to this section because this is specifically covered already in the IMC. Having the same committee responsible for this requirement in the I-Codes will help ensure consistency.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal aligns with what is already required by the IMC.

Staff Analysis: The proposed referenced standards are currently referenced in the IMC:

- UL 378--2006, Draft Equipment--With Revisions Through Septemnber 2013

EB45-25

EB46-25

IEBC: 408.1

Proponents: Gregory Benton, NYS, representing Department of State, Division of Building Standards and Codes (gregory.benton@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov)

2024 International Existing Building Code

Revise as follows:

408.1 Materials. Plumbing materials and supplies that are prohibited in the *International Plumbing Code* shall not be used for *repairs* ~~that are prohibited in the *International Plumbing Code*~~.

Reason: Current wording can be easily misinterpreted to mean repairs can't be performed on prohibited plumbing configurations, i.e. building traps, rather than prohibited materials and supplies can't be used for repairs. Suggest rearranging wording to make this more straightforward.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is solely an editorial clarification.

EB46-25

EB47-25

IEBC: 408.2

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

408.2 Maximum flow and w~~W~~ater ~~closet replacement~~ consumption. The maximum flow and water consumption ~~flow rates and quantities~~ for all replaced ~~water closets~~ plumbing fixtures shall ~~be 1.6 gallons (6 L) per flushing cycle.~~ comply with the *International Plumbing Code* or *International Residential Code*.

~~**Exception:** Blowout-design water closets [3.5 gallons (13 L) per flushing cycle].~~

Reason: The IPC and IRC provides consumption flow rates and quantities for a number of plumbing fixtures. This requirement should cover all fixtures with consumption and flow rates requirements, not just water closets.

The PMGCAC recommends that the Code Correlation Committee assign a [P] scoping to this section because the plumbing code committee has oversight on plumbing fixture requirements. Having the same committee responsible for plumbing fixtures in the I-Codes will help ensure consistency.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This will not increase the cost of construction. This is not a requirement to replace all water closets. The requirement only applies when the water closet is replaced. The cost is already present by choosing to replace the water closet.

EB47-25

EB48-25

IEBC: 501.1, 501.1.1, 601.1, 601.1.1, 1301.1, 1301.1.1

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

501.1 Scope. ~~The provisions of this chapter shall control the alteration,~~ *Alterations, additions* and *changes of occupancy* ~~of~~ to *existing buildings* ~~and structures~~, including *historic buildings*, ~~and structures as referenced in Section 301.3.1~~ using the prescriptive compliance method shall comply with this chapter.

Delete without substitution:

~~**501.1.1 Compliance with other methods.** *Alterations*, *additions* and *changes of occupancy* to *existing buildings* and structures shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.~~

Revise as follows:

601.1 Scope. ~~The provisions of this chapter shall be used in conjunction with Chapters 7 through 12 and shall apply to the *alteration*~~ *Alterations*, *additions* and *changes of occupancy* ~~of~~ to *existing* ~~*structures*~~ *buildings*, including ~~historic structures~~ *historic buildings*, ~~as referenced in Section 301.3.2. The work performed on an *existing building* shall be classified in accordance~~ using the work area compliance method shall comply with this chapter.

Delete without substitution:

~~**601.1.1 Compliance with other alternatives.** *Alterations*, *additions* and *changes of occupancy* to *existing structures* shall comply with the provisions of Chapters 7 through 12 or with one of the alternatives provided in Section 301.3.~~

Revise as follows:

1301.1 Scope. ~~The provisions of this chapter shall apply to the *alteration*~~ *Alterations*, *additions* and *changes of occupancy* ~~of~~ to *existing* ~~*structures*~~ *buildings*, including ~~historic structures~~ *historic buildings*, as ~~referenced in Section 301.3.3~~ using the performance compliance method shall comply with this chapter. ~~The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings* while permitting, *alteration*, *addition* and *change of occupancy* without requiring full compliance with Chapters 6 through 12, except where compliance with the prescriptive method of Chapter 5 or the work area method of other provisions of this code is specifically required in this chapter.~~

Delete without substitution:

~~**1301.1.1 Compliance with other methods.** *Alterations*, *additions* and *changes of occupancy* to *existing structures* shall comply with the provisions of this chapter or with one of the methods provided in Section 301.3.~~

Reason: This proposal is an editorial cleanup of Sections 501.1, 601.1, 1301.1. First, the referenced types of work are changed from singular to plural for consistency with other code sections, including Chapter 3. Second, terminology is standardized to use the defined terms "existing building" and "historic building." Because of the revised wording of these sections, their subsections are no longer needed and deleted without substitution.

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG) and the ICC Building Code Action Committee (BCAC).

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial. See reason statement.

EB48-25

EB49-25

IEBC: 502.1, 502.1.1 (New), 502.1.2 (New)

Proponents: Kurt Beres, representing MA Design (kurtb@ma-architects.com)

2024 International Existing Building Code

Revise as follows:

502.1 General. *Additions* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* to the *existing building* or structure shall be made to ensure that the *existing building* or structure together with the *addition* are not less complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *addition* except that the structural elements need only comply with Sections 502.2 through 502.3.An *existing building* together with its *additions* shall comply with the height and area provisions of Chapter 5 of the *International Building Code*. Where a new *occupiable roof* is added to a building or structure, the *occupiable roof* shall comply with the provisions of the *International Building Code* .

~~**Exception**~~ **Exceptions**:

1. In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the *International Building Code.*
2. In Other than Group R and Group I Occupancies, additions complying with section 502.1.1 through 502.1.2.

Add new text as follows:

502.1.1 Exceeding allowable height or area. When the combined height or area of the existing building and the addition exceeds the height or area allowed by Chapter 5 of the International Building Code, including any allowable area and height increases, a fire wall or a fire barrier is to be provided between the existing building and addition. The following requirements shall apply:

1. When a fire wall that complies with Section 706 of the International Building Code is constructed between the existing building and the addition, the addition shall be is permitted to be considered a separate building.
2. When a fire barrier that complies with Section 707 of the International Building Code is constructed between the addition, all of the following is required shall comply:
   - 2.1. The combined height and area of the existing building and the addition are to be used to determine the construction type and the fire protection requirements for the addition.
   - 2.2. The construction type of the existing building and addition may differ.
   - 2.3. When the addition is equipped throughout with an automatic sprinkler system installed in accordance with section 903.3.1.1 of the International Building Code, the following is permitted shall apply:
     - 2.3.1. The Chapter 5 tabular values corresponding to a building equipped throughout with an automatic sprinkler installed in accordance with 903.3.1.1 of the building code may be used, whether or not the existing building is equipped throughout with an automatic sprinkler system. in accordance with 903.3.1.1 of the building code.
     - 2.3.2. The addition is eligible for all applicable code alternatives, exceptions, trade-offs or reductions whether or not the existing building is equipped throughout with an automatic sprinkler system in accordance with section 903.3.1.1. of the building code.
     - 2.3.3. A new fire protection system is not required in the existing building. Any existing fire protection systems shall be maintained in the existing building, if provided.

502.1.2 Not Exceeding allowable height and area.. When the combined height and area of the existing building and the addition does not exceed the height and area allowed by Chapter 5 of the International Building Code, but the area of the existing building plus the new addition creates a fire area greater than the threshold limits of Chapter 9 of the International Building Code, the limit of the protection system installation is to be determined in accordance with one of the following:

1. When a fire wall that complies with Section 706 of the International Building Code is constructed between the existing building and the addition, a fire protection system is to be provided in the addition where required by Chapter 9 of the International Building Code in the addition only.
2. When a fire barrier that complies with Table 707.3.10 of the International Building Code is constructed between the exiting building and the addition, a fire protection system is to be provided in the addition where required by Chapter 9 of the International Building Code in the addition only.
3. When a fire wall or a fire barrier is not provided between the existing building and the addition, a fire protection system is to be installed where required by Chapter 9 of the International Building Code in the addition and the fire protection system must extend into the existing building to a fire barrier complying with Table 707.3.10 of the International Building Code.

Reason: The proposed code modification is based on the Ohio Existing Building Code and provides alternatives to the design of additions to existing buildings that may not be able to be modified due to a) technical feasibility, b) cost impacts of making the entire combined building compliant with the building code. As a result it increases design flexibility, adaptive reuse of existing structures, while reducing cost. It has proven to be a beneficial addition to the Ohio Building Code that would benefit from use and input from a wider audience.

Bibliography: 2024 Ohio Existing Building Code forms the basis for this proposed section.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The cost impact will vary by project but it is expected that not only will there be a reduction in the cost due to constructing fire barriers in lieu of fire walls, but it will allow for increased adaptive reuse of existing structures where modifying the existing structure is cost prohibitive.

Estimated Immediate Cost Impact Justification (methodology and variables):

Variables:

The size, length of fire wall, and extent of existing fire suppression.

Fire Wall to Fire Barrier converting a fire wall to fire barrier on a most recent project resulted in $457/lf to $377lf reduction or roughly 17.5% in the construction of the wall.

Sprinklers from another recent project to install into an existing structure was $8/sf. So assuming an existing 9,000sf small warehouse building 50'x180' with a new addition of indeterminate size. The cost savings would be $72,000 for a sprinkler system and potentially $4,000 in the construction of the wall.

Methodology:

There is a significant cost difference between building fire barriers vs. fire walls, and adding sprinklers to existing structures. The above example is based on recent sf and lf costs for fire barriers vs fire walls as well as adding a sprinkler system to an existing structure. The LF for a Fire Wall vs/ Fire Barrier did not include any costs associated with additional structure to construct the fire wall, or rated door assemblies. The sprinkler value did not include any additional pip or capacity sizing to expand the sprinkler main to accommodate the existing structure vs the addition as these can vary.

Estimated Life Cycle Cost Impact:

There can be significant reduction of cost, as it expands the life cycle of existing structures, allowing them to be more easily incorporated into expansions and/or additions.

EB50-25

IEBC: CHAPTER 5, SECTION 502, 502.1.1, CHAPTER 11, SECTION 1101, [BS] 1101.3

Proponents: Julius Carreon, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (jcarreon@bellevuewa.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

CHAPTER 5
PRESCRIPTIVE COMPLIANCE METHOD

SECTION 502
ADDITIONS

Revise as follows:

[BS] 502.1.1 Risk category assignment. The risk category of the *addition* and *existing building* shall be classified in accordance with Section 1604.5 of the *International Building Code.* Where the *addition* is structurally independent of ~~and~~ the *existing building*, or the addition and the existing building have different occupancies, the *risk category* of each existing and added occupancy shall be determined in accordance with Section 1604.5.1 of the *International Building Code*. Where application of that section results in a higher *risk category* for the *existing building* compared with the *risk category* for the *existing building* before the *addition*, such a change shall be considered a *change of occupancy* and shall comply with Section 506 of this code. Where application of that section results in a higher *risk category* for the *addition* compared with the *risk category* for the *addition* by itself, the *addition* and any systems in the *existing building* required to serve the *addition* shall comply with the requirements of the *International Building Code* for new construction for the higher *risk category*. Where the addition is not structurally independent of the *existing building*, the *existing building* and its *addition* acting together as a single structure shall be assigned a risk category in accordance with Table 1604.5 of the *International Building Code.* Where the *addition* results in a building being assigned to a higher *risk category* for the *existing building* compared with the *risk category* for the *existing building* before the *addition*, such a change shall comply with Section 506 of this code.

> **Exception:** Unless risk category IV is triggered, the original risk category classification of the existing building is permitted to remain where the increase in building area or increase in occupant load due to the addition is less than 10 percent than before the addition. The cumulative effect of changes in building area or occupant load over time shall be considered.

CHAPTER 11
ADDITIONS

SECTION 1101
GENERAL

[BS] 1101.3 Risk category assignment. The risk category of the *addition* and *existing building* shall be classified in accordance with Section 1604.5 of the *International Building Code.* Where the *addition* is structurally independent of ~~and~~ the *existing building*, or the addition and the existing building have different occupancies, the *risk category* of each existing and added occupancy shall be determined in accordance with Section 1604.5.1 of the *International Building Code.* Where application of that section results in a higher *risk category* for the *existing building* compared with the *risk category* for the *existing building* before the *addition*, such a change shall be considered a *change of occupancy* and shall comply with Chapter 10 of this code. Where application of that section results in a higher *risk category* for the *addition* compared with the *risk category* for the *addition* by itself, the *addition* and any systems in the *existing* *building* required to serve the *addition* shall comply with the requirements of the *International Building Code* for new construction for the higher *risk category*. Where the addition is not structurally independent of the *existing building*, the *existing building* and its *addition* acting together as a single structure shall be assigned a risk category in accordance with Table 1604.5 of the *International Building Code.* Where the *addition* results in a building being assigned to a higher *risk category* for the *existing building* compared with the *risk category* for the *existing building* before the *addition*, such a change shall comply with Chapter 10 of this code.

> **Exception:**Unless risk category IV is triggered, the original risk category classification of the existing building is permitted to remain where the increase in building area or increase in occupant load due to the addition is less than 10 percent than before the addition. The cumulative effect of changes in building area or occupant load over time shall be considered.

Reason: The proposed amendment to Sections 502.1.1 and 1101.3 of the International Existing Building Code (IEBC) aims to provide clear and specific guidelines for assigning risk categories to building additions and the existing structures they adjoin.

Historically, users of the International Existing Building Code (IEBC) referred to Section 1604.5 of the International Building Code (IBC) to determine the appropriate risk category, as there was no explicit provision within the IEBC itself. The 2024 edition of the IEBC now includes a provision for risk category assignment for additions. However, the amendments to Sections 502.1.1 and 1101.3 specifically address the assignment of risk categories in cases where the addition and the existing building have different uses (multiple occupancies). These amendments do not address scenarios where the addition and the existing building share similar occupancies or when an addition is structurally connected to the existing building. This omission may lead to confusion among users regarding the continued necessity of referring to IBC Section 1604.5 to determine the risk category for these cases.

This proposal resolves potential ambiguities by:

- Adding a reference to IBC Section 1604.5 for general risk category classification.
- Establishing that when an addition is structurally independent or occupied by different occupancies, the risk category for each portion shall be evaluated per IBC Section 1604.5.1 and the new IEBC provisions in Section 502.1.1 (and Section 1101.3) to determine whether the existing building and/or the addition must be classified under a higher risk category.
- Establishing that when an addition is not structurally independent, regardless whether the addition and the existing building have different or similar uses, the combined structure shall be assigned a single risk category using IBC Table 1604.5.

If the addition results in a higher risk category for the existing building, the change must comply with IEBC Section 506, the Change of Occupancy provision for the prescriptive method, or IEBC Chapter 10 for the work area method.

This proposal provides an exception that allows the original risk category to remain if the increase in building area or occupant load is less than 10%, unless risk category IV is triggered. This proposed exception aligns with the lateral design exceptions offered for existing buildings in other sections of the IEBC, such as Exception 1 of Section 506.5.3, concerning seismic loads for buildings and structures undergoing a change of occupancy. This exception provides the necessary flexibility to existing buildings undergoing small additions that do not involve essential facilities.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal will not increase or decrease the cost of construction since this is intended to clarify the proper application of the code. In some cases, with small additions, construction costs may decrease because this proposal provides an exception for triggering a higher risk category if the proposed addition is less than 10% of the existing building.

EB50-25

EB51-25

IEBC: 502.1.2, 1101.2

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com)

2024 International Existing Building Code

Revise as follows:

502.1.2 Creation or extension of nonconformity. ~~An *addition* shall not~~ Where the intended *addition* would create or extend any nonconformity in the *existing building* to which the *addition* is being made with regard to accessibility, structural strength, supports and attachments for nonstructural components, fire safety, means of egress or the capacity of mechanical, plumbing or electrical systems, the nonconforming components and systems shall be altered to comply with the requirements of the *International Building Code* for new construction.

.

> **Exception:** Nonconforming supports and attachments for nonstructural components that serve the *addition* from within the *existing building* need not be altered to comply with *International Building Code* Section 1613 unless the components are part of the *addition*'s life-safety system or are required to serve an *addition* assigned to *Risk Category* IV.

1101.2 Creation or extension of nonconformity. ~~An *addition* shall not~~ Where the intended *addition* would create or extend any nonconformity in the *existing building* to which the *addition* is being made with regard to accessibility, structural strength, supports and attachments for nonstructural components, fire safety, means of egress or the capacity of mechanical, plumbing or electrical systems, the nonconforming components and systems shall be altered to comply with the requirements of the *International Building Code* for new construction.

> **Exception:** Nonconforming supports and attachments for nonstructural components that serve the *addition* from within the existing building need not be altered to comply with *International Building Code* Section 1613 unless the components are part of the *addition*'s life safety system or are required to serve an *addition* assigned to *Risk Category* IV.

Reason: The proposal is an editorial clarification. The current wording just says what's not allowed. More effective wording, as proposed, tells the user what to do in unacceptable cases, with specific design criteria. This is consistent with how other structural provisions in the IEBC are written. The IBC is specified as the criteria for modification of any non-conforming elements, consistent with the rest of Sections 502 and 1101, which are about additions.

As background, we note that Section 502.1.2 was added to the 2024 IEBC by proposal EB48-22 (SCSC was the proponent), based on wording and logic from Section 1101.2. EB48-22 added the words "supports and attachments for nonstructural components," as well as the Exception.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal merely restates the current provision in a way that is more direct and complete for the user, consistent with how other IEBC provisions are written.

EB51-25

EB52-25 Part I

IEBC: [BS] 502.2, [BS] 1103.3, ACI Chapter 16 (New)

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-B CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Existing Building Code

CHAPTER 5
PRESCRIPTIVE COMPLIANCE METHOD

Revise as follows:

[BS] 502.2 Flood hazard areas. For buildings and structures in *flood hazard* areas established in Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, additions and foundations shall comply with the following, as applicable~~,~~:

1. An ~~any~~ *addition* that constitutes *substantial improvement* of the *existing structure* shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.
2. For new foundations, foundations raised or extended upward, and replacement foundations, the foundations shall be in compliance with the requirements for new construction for flood design.
3. Existing buildings with slab-on-ground foundations shall not be elevated on new, raised, extended, or replaced foundations unless the existing slabs are assessed in accordance with ACI 562 and, if required in accordance with the assessment, strengthened in accordance with ACI 562 and ACI 318 to meet the load requirements of Chapter 16 of the *International Building Code*, or Chapter 3 of the *International Residential Code*, as applicable.
4. ~~For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable, any~~ Any *additions* that do not constitute *substantial improvement* of the *existing structure* are not required to comply with the flood design requirements for new construction, provided that both of the following apply:

   4.1 The *addition* shall not create or extend a nonconformity of the *existing building* or structure with the flood-resistant construction requirements.

   4.2 The *lowest floor* of the *addition* shall be at or above the lower of the *lowest floor* of the *existing building* or structure or the *lowest floor* elevation required in Section 1612 of the *International Building Code* or Section R306 of the *International Residential Code*, as applicable.

CHAPTER 11
ADDITIONS

[BS] 1103.3 Flood hazard areas. *Additions* and *foundations* in *flood hazard areas* shall comply with the following requirements:

1. For horizontal *additions* that are structurally interconnected to the *existing building*:
   1.1. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

   1.2. If the *addition* constitutes *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

   1.3. If the *addition* does not constitute *substantial improvement*, the *addition* is not required to comply with the flood design requirements for new construction, provided that both of the following apply:
      1.3.1. The *addition* shall not create or extend any nonconformity of the *existing building* with the flood-resistant construction requirements.
      1.3.2. The *lowest floor* of the *addition* shall be at or above the lower of the *lowest floor* of the *existing building* or the *lowest floor* elevation required in Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

2. For horizontal *additions* that are not structurally interconnected to the *existing building*:
   2.1. The *addition* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.
   2.2. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.

3. For vertical *additions* and all other proposed work that, when combined, constitute *substantial improvement*, the *existing building* shall comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable.
4. For a new foundation, replacement foundation or a foundation raised or extended upward, the foundation shall comply with Section 1612 of the *International Building Code,* or Section R306 of the *International Residential Code*, as applicable.
5. <u>For existing buildings with slab-on-ground foundations, the buildings shall not be elevated on new, raised, extended, or replaced foundations unless the existing slabs are assessed in accordance with ACI 562 and, if required in accordance with the assessment, strengthened in accordance with ACI 562 and ACI 318 to meet the load requirements of Chapter 16 of the *International Building Code*, or Chapter 3 of the *International Residential Code*, as applicable.</u>

Add new standard(s) as follows:

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331-3439

<u>318-19</u> <u>Building Code Requirements for Structural Concrete and Commentary</u>

EB52-25 Part I

EB52-25 Part II

IRC: BO102.7.1 (New), ACI Chapter 44 (New)

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

SECTION BO102
COMPLIANCE

BO102.7 Flood hazard areas. Work performed in existing buildings located in a flood hazard area as established by Table R301.2 shall be subject to the provisions of Section R104.3.1.

Add new text as follows:

<u>**BO102.7.1** **Elevation projects.** Existing buildings in flood hazard areas with slab-on-ground foundations shall not be elevated on new, raised, extended, or replaced foundations unless the existing slabs are assessed in accordance with ACI 562 and, if required in accordance with the assessment, strengthened in accordance with ACI 562 and ACI 318 to meet the load requirements of Chapter 3.</u>

Add new standard(s) as follows:

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331

<u>562-21</u> <u>Assessment, Repair, and Rehabilitation of Existing Concrete Structures—Code Requirements</u>

Reason:
All across the country, communities are seeing permit applications to raise existing buildings on foundations that comply with elevation and foundation requirements for construction in flood hazard areas. From a structural perspective, these projects are relatively straightforward when the existing foundations are perimeter walls, piers, piles, or columns. However, it is significantly more complicated when existing buildings have slab-on-ground foundations.

On-ground slabs are designed to be supported by underlying soils, so it's not a surprise that elevating buildings that are on existing slab foundations can be challenging. One method to elevate buildings on slabs is elevating the slab itself. These slabs would need to perform as elevated structural floor systems, which they were not necessarily originally designed to do. This proposal is intended to ensure that slabs are appropriately evaluated and reinforced, if necessary, as structural elements to resist flood loads and load combinations.

It should be the standard of care that contractors and design professionals perform evaluations of slab foundations as part of proposals to elevate buildings on those foundations. However, FEMA has reported on problems and failures of elevation projects when slabs are not evaluated and strengthened before raising. However, we're also aware that many slab-on-ground buildings have been successfully raised when assessments are performed prior to starting the elevation process, and when the assessments prompt strengthening. Citing the standard ACI 562 brings consistency to those assessments to determine what additional stiffening and/or strengthening of the now spanning structural slab is required to accommodate the required loads.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal would require that a specific set of standards be used to evaluate existing slabs when buildings on those slab foundations are proposed to be elevated and, if necessary, those slabs would need to be reinforced and strengthened in accordance with those standards. In order to meet the code requirement that buildings and structures be constructed to safely support all loads, a design professional or contractor should perform some type of evaluation of an existing slab foundation to determine whether the slab should be reinforced as part of a project to elevate-in-place or relocate the building. There is no added cost of construction for this proposal because this proposal simply specifies the consensus standards to accomplish something they should already be doing. Not performing an evaluation is negligent and exposes the designer/builder to liability. Not adequately performing the evaluation could also add repair costs if the slab is elevated without reinforcement and subsequently cracks or fails.

Staff Analysis: Part I: The proposed referenced standard, ACI 318-19 Building Code Requirements for Structural Concrete and Commentary, is currently referenced in the IBC and IRC.

Part II: The proposed referenced standard, ACI 562-21 Assessment, Repair, and Rehabilitation of Existing Concrete Structures—Code Requirements, is currently referenced in the IEBC.

EB52-25 Part II

EB53-25

IEBC: [BS] 502.3, [BS] 502.4, [BS] 503.3, [BS] 503.11, [BS] 706.2, [BS] 805.2, [BS] 906.2, [BS] 1103.1, [BS] 1103.2

Proponents: Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 502.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose vertical load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 503.3. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 502.4 ~~502.3~~.

Exception: Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code.* ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.~~

[BS] 502.4 Existing structural elements carrying lateral load. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the lateral force-resisting system of the *existing structure* and its *addition* acting together as a single structure shall comply with Section 1609 of the *International Building Code* and with Section 304.3.1 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is not more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 304.3.1 or the full seismic forces in effect at the time.
2. Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code.* ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.~~

[BS] 503.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design dead, live and snow loads including snow drift effects required by the *International Building Code* for new structures.

Exceptions:

1. Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code*. ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.~~
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less over an existing single layer of roof covering.

[BS] 503.11 Substantial structural alteration. Where the *work area* exceeds 50 percent of the building area and where work involves a *substantial structural alteration*, the lateral load-resisting system of the altered building shall satisfy the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code. Where the building is assigned to Seismic Design Category D or F, supports and attachments for nonstructural components required to serve any portion of the building with a use included in *Risk Category* IV shall comply with Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

Exceptions:

1. Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code*. ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.~~
2. Where the intended *alteration* involves structural components of the lowest story of a building, only the lateral load-resisting system above that story need not comply with this section.

[BS] 706.2 Addition or replacement of roofing or replacement of equipment. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code*. ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.~~
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less over an existing single layer of roof covering.

[BS] 805.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design dead, live and snow loads, including snow drift effects, required by the *International Building Code* for new structures.

Exceptions:

1. Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code*. ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.~~

2. Buildings in which the increased dead load is attributable to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less over an existing single layer of roof covering.

[BS] 906.2 Existing structural elements resisting lateral loads. Where work involves a *substantial structural alteration,*the lateral load-resisting system of the altered building shall be shown to satisfy the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code. Where the building is assigned to Seismic Design Category D or F, supports and attachments for nonstructural components required to serve any portion of the building with a use included in *Risk Category* IV shall comply with Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

Exceptions:

1. <u>Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code.*</u> ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.~~
2. Where the intended alteration involves only the lowest story of a building, structural components of the lateral load resisting system above that story need not comply with this section.

[BS] 1103.1 Additional gravity loads. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 805.2. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 1103.2.

Exception: <u>Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code.*</u> ~~Buildings of Group R occupancy with not more than five dwelling units or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.~~

[BS] 1103.2 Lateral force-resisting system. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the lateral force-resisting system of the *existing structure* and its *addition* acting together as a single structure shall comply with Section 1609 of the *International Building Code* and Section 304.3.1 of this code.

Exceptions:

1. <u>Buildings within the scope of *International Residential Code* Section R101.2 shall comply with this code or the *International Residential Code.*</u> ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.~~
2. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is not more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609of the *International Building Code* and Section 304.3.1 of this code*. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.*

When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, alteration or *repair* in compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 304.3.1 or the full seismic forces in effect at the time.

Reason: This proposal clarifies duplicative but not entirely identical language from the IEBC, that allows certain existing buildings to use the IRC instead of the IEBC. This simplifies its use and coordinates the IEBC exceptions that have been present since the 2018 edition. Chapter 4 contains similar exceptions which were more narrowly focused and applicable to seismic provisions not available in the IRC, so were intentionally left untouched by this proposal.

This coordination also removes the need to check two different codes to find the most suitable approach. This proposal acknowledges that, in general, if you're doing an existing building project in a small residential building – even an old or non-conforming one – you should just use the IRC. (This rationale will become even more compelling as the IRC develops its own existing building provisions in Appendix BO, formerly Appendix J.)

What about buildings that might qualify for these IEBC exceptions and are not eligible to use the IRC? Doesn't this proposal make compliance harder (or more expensive) for them? No, because these exceptions already require the building to be in compliance with applicable structural provisions of a code for new construction (the IRC or IBC), so the exception already requires as much or more work as the requirement it's meant to waive. Further, understanding that the IEBC exceptions were meant for typical wood-frame houses, any building not eligible for the IRC because of its size (a four-story dwelling?) or use (A, B, E, I, or other non-R occupancy) was not meant to be exempt in the first case. And what about buildings that are within the scope of the IRC but get bumped to the IBC for structural provisions because they're in high wind or high seismic areas? These buildings also lose no advantage, since they would not be triggered to use those IRC structural provisions anyway, owing to the IRC's general allowance for existing building projects that leave the building "no less compliant."

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

As noted in the reason statement, the revisions are clarifications and preserve the general allowance in Section 101.2 exception to use the IRC.

Staff Analysis: ADM1-25 Part I contains a related proposed revision to IEBC Section 101.2 that will be heard by the ADMIN committee. Similar exceptions to IEBC Section 101.2 are included in IBC Section 101.2, IFC Section 1001.1, IPC Section 101.2, IMC Section 101.2, and IFGC Section 101.2.

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IEBC: [BS] 502.4, [BS] 503.4, [BS] 805.3, [BS] 1103.2

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 502.4 Existing structural elements carrying lateral load. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the lateral force-resisting system of the *existing structure* and its *addition* acting together as a single structure shall comply with Section 1609 of the *International Building Code* and with Section 304.3.1 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is not more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* that brought the structure into ~~in~~ compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* that brought the structure into ~~in~~ compliance with Section 304.3.1 or the full seismic forces in effect at the time.
2. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

[BS] 503.4 Existing structural elements carrying lateral load. Except as permitted by Section 503.13, where the *alteration* increases design lateral loads, results in a prohibited structural irregularity as defined in ASCE 7, or decreases the capacity of any existing lateral load-carrying structural element, the lateral force-resisting system of the altered building or structure shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609 of the *International Building Code* and Section 304.3.1 or 304.3.2 of this code. The same methodology shall be used for the altered and unaltered structures. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* that brought the structure into ~~in~~ compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* that brought the structure into ~~in~~ compliance with Section 304.3.1 or Section 304.3.2, Item 1 or 3, or the full or reduced seismic forces in effect at the time.

2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, “roof” shall mean the roof level above a particular story.
3. Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop *photovoltaic panel systems* where the additional roof dead load due to the system, including ballast where applicable, does not exceed 5 pounds per square foot (psf) (0.2394 kN/m^2) and does not exceed 10 percent of the dead load of the existing roof.

[BS] 805.3 Existing structural elements resisting lateral loads. Except as permitted by Section 805.4, where the *alteration* increases design lateral loads, or where the alteration results in prohibited structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the lateral force-resisting system of the altered building or structure shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609of the *International Building Code* and Section 304.3.1 or 304.3.2 of this code . The same methodology shall be used for the altered and unaltered structures.For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* that brought the structure into ~~in~~ compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* that brought the structure into ~~in~~ compliance with Section 304.3.1 or 304.3.2 Item 1 or 3 or the full or reduced seismic forces in effect at the time.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, “roof” shall mean the roof level above a particular story.
3. Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop *photovoltaic panel systems* where the additional roof dead load due to the system, including ballast where applicable, does not exceed 5 pounds per square foot (psf) (0.2394 kN/m^2) and does not exceed 10 percent of the dead load of the existing roof.

[BS] 1103.2 Lateral force-resisting system. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the lateral force-resisting system of the *existing structure* and its *addition* acting together as a single structure shall comply with Section 1609 of the *International Building Code* and Section 304.3.1 of this code.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

2. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is not more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609of the *International Building Code* and Section 304.3.1 of this code. *For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.*

When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, alteration or *repair*<u>that brought the structure into</u> ~~in~~ compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* <u>that brought the structure into</u> ~~in~~ compliance with Section 304.3.1 or the full seismic forces in effect at the time.

Reason: Although the overall intent is to allow the clock to be "reset" with respect to cumulative changes if a prior addition, alteration, or repair complied with the wind or seismic provisions at the time (or current code); however, the wording of portions of these four provisions is not entirely clear. There appears to be a minor loophole in which one could have implemented a very small addition, alteration, or repair that was in compliance with the seismic requirements of the then-current code, but most of the structure was not improved, and that might arguably "reset the clock". It is doubtful this is the intent. Instead, it seems likely that the intent was to have only an addition, alteration, or repair that brought the whole structure into compliance with the wind or seismic provisions reset the clock.

Bibliography: "Evaluation of the Effects of Oakland's Earthquake Damage Repair Ordinance" by G.R. Searer, T.F. Paret, S.A. Freeman, and U.M., Gilmartin, pubished in the Proceedings of the 8th US Conference on Earthquake Engineering in San Francisco, California in April 2006.

Cost Impact: Increase

Estimated Immediate Cost Impact:

There is a small (likely very small) chance that someone might have taken advantage of these small loopholes. This change would head off that permissive interpretation and cause them to have to strengthen more members due to their proposed addition or alteration. So either the cost stays the same because the design professonal was always going to interpret the provisions according to the intent, or the cost increases due to the fact that the accidental loophole was closed. If the design professional was going to do something sneaky like add a small addition that complies with Section 1609 and then design a big repair, addition, or alteration that doesn't have to consider all of the other repairs, additions, or alterations that have occurred in the past, that tactic would be prohibited by this change. Although there have not been many studies that quantify the costs of upgrades of existing buildings, the proponent conducted a study of the Oakland Earthquake Damage Repair Ordinance that was implemented after the 1989 Loma Prieta Earthquake and found that repair+upgrade cost anywhere from 53 percent more to 3370 percent more, with several projects costing about 400 percent more, than if repair-only had been permitted. So for a project that would only address the damaged elements and cost, say $100,000, the repair+upgrade might cost $500,000. These are potentially substantial cost increases; however, the cost increases *associated with these loopholes* would be very rare due to a confluence of unlikely events or due to precluding a sneaky approach to avoid the intent of the trigger.

Estimated Immediate Cost Impact Justification (methodology and variables):

The study that quantified the cost differential of repair+upgrade compared to repair-only is this paper: "Evaluation of the Effects of the Oakland's Earthquake Damage Repair Ordinance" by G.R. Searer, T.F. Paret, S.A. Freeman, and U.M., Gilmartin, pubished in the Proceedings of the 8th US Conference on Earthquake Engineering in San Francisco, California in April 2006.

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IEBC: 502.6, 1101.6

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

502.6 Enhanced classroom acoustics. In additions to Group E occupancies, enhanced classroom acoustics shall be provided in all classrooms ~~in the *addition*~~ with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.

1101.6 Enhanced classroom acoustics. In additions to Group E occupancies, enhanced classroom acoustics shall be provided in all classrooms ~~in the *addition*~~ with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.

Reason: There is a technical glitch for if the volume is applied to the addition, or to the classrooms. The provisions for acoustics in IBC Section 1207, IRBC 503.18, 506.4, 903.4, and 1011.4 all are applicable for classroom with a volume of 20,000 cubic feet. The size of addition is not relevant if it does not include classrooms.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification for where acoustic improvements are needed in an addition, not an increase in requirements.

EB55-25

EB56-25

IEBC: SECTION 503, SECTION 505, 503.21 (New), 505.1, 505.2, 505.3, 505.3.1, 505.4, SECTION 506, SECTION 504, 504.7 (New), [BE] 504.1, [BE] 504.1.1, [BE] 504.1.2, [BE] 504.1.3, [BE] 504.1.4, [BE] 504.2, [BE] 504.3, [BE] 504.4, [BE] 504.5

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

SECTION 503
ALTERATIONS

Delete without substitution:

~~SECTION 505~~
~~WINDOWS AND EMERGENCY ESCAPE OPENINGS~~

Add new text as follows:

<u>503.21</u> <u>Windows and emergency escape and rescue openings</u>. <u>Windows and emergency escape and rescue opening shall comply with this section.</u>

Revise as follows:

~~505.1~~ <u>503.21.1</u> **Replacement windows.** The installation or replacement of windows shall be as required for new installations.

~~505.2~~ <u>503.21.2</u> **Window fall prevention on replacement windows.** In Group R-2 or R-3 buildings containing dwelling units, and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices or other window fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable.
2. One of the following applies:
   2.1. The window replacement includes replacement of the sash and frame.
   2.2. The window replacement includes the sash only where the existing frame remains.
3. One of the following applies:
   3.1. In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
   3.2. In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
5. The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

Exception: Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.

~~505.3~~ 505.21.3 **Replacement window emergency escape and rescue openings.** Where windows are required to provide *emergency escape and rescue openings* in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code,* replacement windows shall be exempt from the requirements of Section 1031.3 of the *International Building Code* and Section 319.2 of the *International Residential Code,* provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. Where the replacement of the window is part of a *change of occupancy,* it shall comply with Section 1011.5.6.

~~505.3.1~~ 503.21.3.1 **Control devices.** Window opening control devices or fall prevention devices complying with ASTM F2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings*. After operation to release the control device allowing the window to fully open, the control device shall not reduce the net clear opening area of the window unit. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools.

~~505.4~~ 503.21.4 **Bars, grilles, covers or screens.** Bars, grilles, covers, screens or similar devices are permitted to be placed over *emergency escape and rescue openings*, bulkhead enclosure or window wells that serve such openings, provided all of the following conditions are met:

1. The minimum net clear opening size complies with the code that was in effect at the time of construction.
2. Such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening.
3. Where such devices are installed, they shall not reduce the net clear opening of the *emergency escape and rescue openings*.
4. Smoke alarms shall be installed in accordance with Section 907.2.11 of the *International Building Code*.

SECTION ~~506~~ 504
CHANGE OF OCCUPANCY

Delete without substitution:

~~SECTION 504~~
~~FIRE ESCAPES~~

Add new text as follows:

504.7 Fire escapes. Fire escapes shall comply with this section.

Revise as follows:

[BE] ~~504.1~~ 504.7.1 Where permitted. Fire escapes shall be permitted only as provided for in Sections ~~504.1.1~~504.7.1.1 through ~~504.1.4~~ 504.7.1.4 .

[BE] ~~504.1.1~~ 504.7.1.1 New buildings. Fire escapes shall not constitute any part of the required means of egress in new buildings.

[BE] ~~504.1.2~~ 504.7.1.2 Existing fire escapes. Existing fire escapes shall continue to be accepted as a component in the means of egress in *existing buildings* only.

[BE] ~~504.1.3~~ 504.7.1.3 New fire escapes. New fire escapes for *existing buildings* shall be permitted only where exterior stairways cannot be utilized because of lot lines limiting stairway size or because of sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.

[BE] ~~504.1.4~~ 504.7.1.4 Limitations. Fire escapes shall comply with this section and shall not constitute more than 50 percent of the required number of exits nor more than 50 percent of the required exit capacity.

[BE] ~~504.2~~ 504.7.2 Location. Where located on the front of the building and where projecting beyond the building line, the lowest landing shall be not less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall be not less than 12 feet (3658 mm).

[BE] ~~504.3~~ 504.7.3 Construction. The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other *approved noncombustible materials*. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type V construction. Walkways and railings located over or supported by combustible roofs in buildings of Type III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

[BE] ~~504.4~~ 504.7.4 Dimensions. Stairways shall be not less than 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairways not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 8 inches (203 mm) below the door.

[BE] ~~504.5~~ 504.7.5 Opening protectives. Doors and windows within 10 feet (3048 mm) of fire escape stairways shall be protected with $^3/_4$-hour opening protectives.

Exception: Opening protection shall not be required in buildings equipped throughout with an *approved* automatic sprinkler system.

Reason: The intent of this proposal is similar to the more extensive reordering proposed for Chapter 3 and 10. This follows the order of the IBC with the idea that this order is familiar and it will be easier for people to find requirements and use the IEBC.
Chapter 5 is basically divided into additions, alterations, changes of occupancy. Windows and EERO's should not be a separate section; 506.4 addressed EERO under COO. Fire escapes are typically required where the occupant load increases in a COO. Fire escapes should not be in a separate section, but under COO. There are other proposals to relocated these sections and matching sections in the work area method into Chapter 3. That is preferred. However, they should at least not be separate sections in Chapter 5.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a reorganization of sections. There are no changes to requirements.

EB56-25

EB57-25

IEBC: 503.1.1 (New)

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Erik Madsen, representing NCSEA (emadsen@dci-engineers.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Existing Building Code

Add new text as follows:

503.1.1 Photovoltaic panel systems. Roof structures that provide support for *photovoltaic panel systems* shall be shown to comply with or be altered to comply with Section 1607.14.3 of the *International Building Code*.

Reason: This proposal provides a pointer in the IEBC to current provisions in the IBC that give direction on how and when live load offsets are appropriate to use when installing photovoltaic systems. Unlike new construction that can be designed for all planned loads, the structural capacity of existing buildings is a fixed value. When new systems not considered in the original building design are installed, it is critical that the additional new load be properly accounted for to avoid adverse performance (deflection, ponding, etc) or localized failures of the structure.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This language points to an existing IBC section that already addresses live load offsets and does not impose new technical requirements.

EB57-25

EB58-25

IEBC: [BS] 503.11, [BS] 906.2

Proponents: Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.11 Substantial structural alteration. Where the *work area* exceeds 50 percent of the building area and where work involves a *substantial structural alteration*, the lateral load-resisting system of the altered building shall satisfy the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code. Where the building is assigned to Seismic Design Category D or F, supports and attachments for nonstructural components required to serve any portion of the building with a use included in *Risk Category* IV shall comply with Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.
2. Where the intended *alteration* involves only ~~structural components of~~ the lowest story of a building assigned to *Risk Category* I, II, or III, ~~only~~ structural components of the lateral load-resisting system above that story need not comply with this section. This exception shall not be used to reduce or exempt any of the work required by Sections 503.6 through 503.10 or any of the work required by Section 503.12.

[BS] 906.2 Existing structural elements resisting lateral loads. Where work involves a *substantial structural alteration,*the lateral load-resisting system of the altered building shall be shown to satisfy the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code. Where the building is assigned to Seismic Design Category D or F, supports and attachments for nonstructural components required to serve any portion of the building with a use included in *Risk Category* IV shall comply with Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.
2. Where the intended alteration involves only the lowest story of a building assigned to *Risk Category* I, II, or III, structural components of the lateral load resisting system above that story need not comply with this section. This exception shall not be used to reduce or exempt any of the work required by Section 706.3.1, Section 706.3.2 or Sections 906.4 through 906.7.

Reason: This proposal clarifies the application of an exception that applies where a substantial structural alteration (SSA) involves only the lowest story of a building. It confirms that the intent of the exception is to waive the full-building upgrade triggered by the SSA itself, but not to waive other proactive risk reduction measures that might apply to the same project. The proposal has matching parts for the Prescriptive and Work Area methods.

The limitation of Exception 2 to Risk Category I – III serves two purposes. First, it clarifies the intended scope of Exception 2, which is not meant to override Section 503.5, which already triggers a full building retrofit for SDC F (i.e. RC IV with high seismicity) with a major alteration. Second, it clarifies the intended scope of Exception 2, which is not meant to override the part of the provision dealing with nonstructural components in RC IV.

The limitation where Exception 2 conflicts with other triggers clarifies several issues:

It clarifies the intended scope of Exception 2, which is not meant to override triggered roof-level improvements. Without this clarification, there would be a fair question as to whether triggered roof-level work is actually required. This clarification is necessary for two cases (though both are admittedly limited): First, a major (or Level 3) alteration with substantial structural alteration within the first story. This level of work should trigger the following improvements above:a) rigid wall-flexible diaphragm wall anchorage triggered by major alteration in SDC C-F (Sec 503.7 or 906.4); b) URM wall anchors at floor and roof triggered by major alteration in SDC C-F (Sec 503.8 or 906.5); c) URM parapets triggered by major alteration in SDC C-F (Sec 503.9 or 906.6); and d) URM partition bracing triggered by major alteration in SDC C-F (Sec 503.10 or 906.7). Second, a major (or Level 3) alteration with substantial structural alteration within the first story, together with significant reroofing on the same permit. This level of work should trigger the following improvements above: a) URM parapets in SDC D-F (Sec 503.6 or 706.3.1); b) Roof strengthening for wind where the basic wind speed > 130 mph (Sec 503.12 or 706.3.2).

Notes for reference:

- Exception 2 is already limited in its application. Since 503.11 already presumes a work area greater than 50%, then if the intended work involves only the first story, Exception 2 would already only waive work in the upper story of a 2-story building.
- Per the IBC, a “story” goes from the upper surface of a given floor to the upper surface of the floor above. Thus, a floor diaphragm & floor framing are part of the story below. So, Exception 2 does not exempt the diaphragm above the lowest story.

As background, we note that these sections and exceptions were revised for the 2024 IEBC by proposals EB15-22, which made editorial improvements, and EB66-22, which added the sentence about SDC D & F. SCSC was the proponent for both.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Will not increase costs, assuming code users have been applying Exception 2 as intended relative to the other related IEBC sections (eg 503.5 etc).

EB58-25

EB59-25

IEBC: [BS] 503.12, [BS] 706.3.2

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.12 ~~Roof diaphragms~~ Roofs resisting wind uplift loads in high-wind regions. Where the intended *alteration* requires a permit for *reroofing* and involves removal of roofing materials from more than 50 percent of the ~~roof diaphragm of a building or section~~ total area of the roof or from more than 50 percent of a structurally independent section of the roof of a building located where the basic wind speed, *V*, is greater than 130 mph (58 m/s) in accordance with Figure 1609.3(2) of the *International Building Code*, ~~roof diaphragms,~~ the connections of the roof ~~diaphragm to roof framing members, and roof-to-wall connections~~ deck to its supports within the reroofing area shall be evaluated for the wind uplift loads specified in Section 1609 of the *International Building Code*~~, including wind uplift~~. If the ~~diaphragms and~~ connections located within the reroofing area in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the *International Building Code*.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

[BS] 706.3.2 ~~Roof diaphragms~~ Roofs resisting wind uplift loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the total area of the roof or from more than 50 percent of a structurally independent section of the roof ~~diaphragm or section~~ of a building located where the basic wind speed, *V*, is greater than 130 mph (58 m/s), in accordance with Figure 1609.3(2) of the *International Building Code*, ~~roof diaphragms,~~ connections of the roof deck to its supports located within the reroofing area ~~diaphragm to roof framing members, and roof-to-wall connections~~ shall be evaluated for the wind uplift loads specified in the *International Building Code*~~, including wind uplift~~. If the ~~diaphragms and~~ connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code.*

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

Reason: A provision in the first edition of the IEBC, published in 2003, required that when more than 50% of the roofing materials were removed from a roof diaphragm, the integrity of the diaphragm was to be evaluated, and if found to be deficient because of insufficient or deteriorated connections, such connections were to be provided or replaced. This provision appears to have been originally intended to address obviously deficient or deteriorated connections based on a visual observation of the diaphragm's top surface only; deficiencies or deterioration beyond this could not be observed or easily remedied in the relatively short period of time available between removal and replacement of a roofing system. Our inquiries to the International Code Council Technical Services indicated that the committee responsible for drafting this original provision was focused on connections, which they believed were often the cause of failures in high winds; however there were no meeting minutes or other written records that correlated the development of this original provision to any studies or documentation of any structural failures, including roof diaphragm failures.

This original provision changed dramatically in the 2009 IEBC requiring an evaluation that goes far beyond the integrity of only the diaphragm connectors, to include an evaluation of the entire diaphragm. In most cases, the evaluation of an existing roof diaphragm is challenging because most of the structure to be evaluated is concealed. A diaphragm evaluation conforming to this and/or the current provision could involve the following: 1) removal of all existing roofing down to the structural diaphragm for observation and, except where drawings are available and sufficiently detailed, collection of data to support the structural analysis; 2) engineering calculations, which cannot be performed extemporaneously in the field, evaluating the diaphragm and connection strengths to resist the prescribed design wind forces; 3) installation of temporary protection for the roof in anticipation of the possibility of resulting structural retrofit work; 4) both demobilization and subsequent remobilization of the roofing crew; 5) design and permitting of any necessary structural retrofit work; 6) potentially hiring a subcontractor capable of installing the necessary structural retrofits; and 7) resuming installation of the replacement roofing system. (It is significant to note that the code change proposal upon which the revisions to this 2009 IEBC provision were based did not reference any studies, reports, investigations, etc. documenting diaphragm failures. This code change proposal also stated it would not increase the cost of construction, which appears to have been a gross misrepresentation.)

This provision has become onerous to many building owners trying to maintain and protect their buildings from the weather. Even in those cases where the evaluation indicates that the existing diaphragm possesses the strength required to resist the code-prescribed loads, the costs associated with the evaluation and roofing delays alone, without the need for any structural retrofits, can be substantial and can result in significant increases in costs for the routine exercise of reroofing. And where structural upgrades to a roof diaphragm are found to be necessary, the additional costs associated with the evaluation and retrofits may put the total cost for the project beyond the budget of the building owner. Where this occurs, not being able to reroof the building could lead to deterioration related to a breached roofing envelope resulting in the need for additional expenditures, both structural and non-structural. Some jurisdictions in high wind areas have deleted this provision and others have amended it to only consider the effects of wind uplift.

Wind can and does cause structural damage to buildings due to shortcomings in the original codes, problems with the design, construction defects, or some combination of these factors. However, the safety and sufficiency of existing structures are only rarely revisited unless significant damage has occurred or if a proposed structural alteration or occupancy change triggers compliance with the provisions for new structures. One such instance is that addressed in IEBC Sections 503.6 and 706.3.1; the requirement that unreinforced masonry (URM) parapets be braced when reroofing buildings in high seismic regions. This provision addresses an exceptional hazard demonstrated by repeated poor performance, arguably justifying the imposition of costs on a building owner to abate a significant latent danger to the public. To justify the high costs of diaphragm evaluations and upgrades, there should be a commensurate extraordinary risk from wind-related diaphragm vulnerabilities. Such vulnerabilities may be regional, such as the URM parapet provision that only applies in Seismic Design Categories D through F, or they could be limited to regions or building types where extraordinary vulnerabilities have been observed. However, our research has revealed that there is no evidence of damage to roof diaphragms or that roof diaphragms exhibit extraordinary vulnerabilities in buildings subjected to high wind loads. Factory Mutual (FM), formerly known as FM Global, is an American mutual insurance company with offices worldwide that specializes in loss prevention. FM has extensive loss data over many years and has indicated that most of their loss experience for roofs in high wind regions is primarily due to uplift on components and cladding. FM claims that during a windstorm, damage to the building’s structural frame seldom occurs. They have experienced very few if any losses related to load transfer through diaphragms or any portion of the primary structure for that matter with a few exceptions. The costliest impact of these storms is damage that results when a building envelope is torn open, allowing wind and rain into the building. Keeping the roof deck fastened during a windstorm is of utmost importance, for once it is breached, positive pressures can be created within the building envelope to further increase the total wind uplift load on the roof as well.

The requirement that a building undergoes a diaphragm evaluation, involving a significant investigative and analytical effort by an engineer with the possibility of costly structural upgrades, is an extraordinary burden that should only be justifiable based on a commensurately extraordinary hazard. Otherwise, it is logical, appropriate, and consistent with longstanding engineering practice to let grandfathered structures stand unaffected by the increasingly complex regulations governing new structures. Retroactive upgrades are an appropriate tool when the costs of inaction definitively outweigh the costs of action. But that burden should be limited to where there is sufficient evidence of major structural concern.

This code change proposal is focused on the true hazard of wind uplift to building roofs in high wind regions, particularly to roof edges and corners where the uplift can be highest. Upon removal of the existing roofing materials, the roof deck and its connections to the framing can often be readily observed, assessed and, if required, remediated to resist the code-required wind uplift design forces at a reasonable cost to the building owner. The proposal also clarifies the area of evaluation and potential remediation as the area where roofing materials are removed. This proposal rescinds the current requirements pertaining to the evaluation and potential upgrade of roof diaphragms in high wind regions, for which there is no historical evidence substantiating the existence of extraordinary vulnerabilities in these structural components.

This code change proposal also recommends replacing the term “roof diaphragm” with “roof deck” as not all buildings have roof diaphragms. Metal buildings with standing seam metal roof decks typically rely on steel-rod cross braces in the plane of the roof to resist in-plane wind loads. By using the term “roof diaphragm” these type buildings would be excluded from the provision allowing the most critical hazard of roof deck attachment to resist wind uplift to not be addressed.

Bibliography: <u>Provisions from the 2003 IEBC</u>

507.3 Roof diaphragm. Where roofing materials are removed from more than 50 percent of the roof diaphragm of a building or section of a building where the roof diaphragm is a part of the main windforce-resisting system the integrity of the roof diaphragm shall be evaluated and if found deficient because of insufficient or deteriorated connections, such connections shall be provided or replaced.**[BS]ROOF DECK.** The flat or sloped surface constructed on top of the exterior walls of a building or other supports for the purpose of enclosing the story below, or sheltering an area, to protect it from the elements, not including its supporting members or vertical supports.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0.00 by limiting this section to uplift only and not including diaphragms.

Estimated Immediate Cost Impact Justification (methodology and variables):

Extensive field investigation and modification of structural connections has been eliminated from the scope of work.

EB59-25

EB60-25

IEBC: [BS] 503.13, [BS] 805.4

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.13 Voluntary structural ~~lateral force-resisting~~ system alterations. Structural alterations that are intended exclusively to improve the structural ~~lateral force-resisting~~ system and are not required by other sections of this code shall not be subject to the structural requirements of Section 503 , provided that all of the following apply:

1. With the *alteration* complete, the capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

   Exception: New lateral force-resisting systems designed in accordance with the *International Building Code* are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.

3. Supports and attachments for nonstructural elements removed and reinstalled to facilitate the work comply with the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

   Exception: Condition 4 need not be satisfied where the work complies with Section 304.3.2, Item 3.

[BS] 805.4 Voluntary structural ~~lateral force-resisting~~ system alterations. Structural *alterations* that are intended exclusively to improve the structural ~~lateral force-resisting~~ system and are not required by other sections of this code shall not be subject to the structural requirements of this chapter or Chapter 7, provided that the following conditions are met:

1. With the *alteration* complete, the capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

   Exception: New lateral force-resisting systems designed in accordance with the *International Building Code* are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.

3. Supports and attachments for nonstructural elements removed and reinstalled to facilitate the work comply with the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

   Exception: Condition 4 need not be satisfied where the work complies with Section 304.3.2 Item 3.

Reason: Only voluntary improvements in the lateral force-resisting system are currently encouraged by Sections 503.13 and 805.4. This does not make sense. A building owner may want to voluntarily strengthen the roof framing of their building to be able to resist snow loads or reduce ponding or to better resist dead loads (e.g., an older bowstring truss). They may want to voluntarily strengthen or stiffen their floor framing to reduce deflection or vibrations. They may want to voluntarily strengthen their building against tornado uplift or flood loads.

This change encourages voluntary structural strengthening of all parts of buildings, not just the lateral force-resisting system of the buildings. The "do no harm" approach to seismic strengthening has been quite successful. Voluntary strengthening of other components of the structural stystem should also be permitted as long as it does no harm.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This change is permissive, and it gives owners options that they did not have before. Consequently, it will either result in no change in the cost of a project, or it will decrease the cost of voluntary improvements in the structural systems of buildings. Given that design professionals charge several hundred dollars an hour, having a reduced design effort can easily save thousands of dollars in design fees for smaller projects (e.g., reduction in design effort of 20 hours x $250/hour = $5,000) and tens of thousands of dollars in design fees for larger projects (e.g., reduction in design effort of 100 hours x $250/hour = $25,000). And if the scope of work for a typical retrofit project can be reduced by even a few percentage points, significant savings can be achieved -- on the order of thousands of dollars for small projects (e.g., $50,000 project x 5% savings = $2,500) to potentially tens or hundreds of thousands of dollars (e.g., $10,000,000 project x 5% savings = $500,000 savings), depending on the scope of the project, the purpose of the work, and how much additional work need not be performed due to relaxing the requirements for voluntary improvements to the structural systems of buildings.

One could also back into possible project cost savings by using the design fees that are saved (which seem pretty reasonable) and then converting the saved design fees to an equivalent project cost (i.e., using an approximate conversion rate that very conservatively assumes design fees are roughly 20 percent of the project cost). For example, if the design fees saved are just $5,000, that could equate to a scope reduction of approximately $5,000 / (0.15) = $25,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

The fact that this proposal will decrease costs is a no-brainer. The possible savings presented here are based on my own experience and knowledge, and I have attempted to bound the possible savings using different hypothetically-sized scopes. Variables include the cost of materials, the cost of labor, the complexity and nature of the work being performed, the work that need not be performed if this proposal passes, and the amount of reduced design effort associated with being allowed to target exactly what is desired to be targeted and nothing more, just like is permitted with voluntary seismic strengthening.

EB60-25

EB61-25

IEBC: [BS] 503.13, [BS] 805.4

Proponents: Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.13 Voluntary structural ~~lateral force-resisting system~~ alterations. Voluntary ~~S~~structural alterations that are intended exclusively to improve resistance to snow, wind, rain, earthquake, atmospheric ice or tsunami loads ~~the lateral force-resisting system~~ and are not required by other sections of this code ~~shall~~ need not meet the requirements of *International Building Code* Sections 1608, 1609, 1611, 1613, 1614 or 1615 nor~~not~~ be subject to the structural requirements of Section 503 , provided that all of the following apply:

1. With the structural *alteration* complete, the capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

   Exception: New lateral force-resisting systems designed in accordance with the *International Building Code* are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.

3. Supports and attachments for nonstructural elements removed and reinstalled to facilitate the work comply with the *International Building Code* for new construction.
4. The structural *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

   Exception: Condition 4 need not be satisfied where the work complies with Section 304.3.2, Item 3.

Where the *code official* determines the proposed voluntary structural alterations for structures in flood hazard areas are *substantial improvement*, the requirements of Section 1612 of the IBC, or Section R322 of the IRC, as applicable, shall apply.

[BS] 805.4 Voluntary structural ~~lateral force-resisting system~~ alterations. Voluntary ~~S~~structural *alterations* that are intended exclusively to improve resistance to snow, wind, rain, earthquake, atmospheric ice or tsunami loads ~~the lateral force-resisting system~~and are not required by other sections of this code ~~shall~~need not meet the requirements of *International Building Code* Sections 1608, 1609, 1611, 1613, 1614 or 1615 nor ~~not~~ be subject to the structural requirements of this chapter or Chapter 7, provided that the following conditions are met:

1. With the structural *alteration* complete, the capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

   Exception: New lateral force-resisting systems designed in accordance with the *International Building Code* are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.

3. Supports and attachments for nonstructural elements removed and reinstalled to facilitate the work comply with the *International Building Code* for new construction.

4. The <u>structural </u>*alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

   Exception: Condition 4 need not be satisfied where the work complies with Section 304.3.2 Item 3.

<u>Where the *code official* determines the proposed voluntary structural alterations for structures in flood hazard areas are *substantial improvement*, the requirements of Section 1612 of the IBC, or Section R322 of the IRC, as applicable, shall apply.</u>

Reason: The language in Section 503.13 (and later matched in Section 806.4) addressing “Voluntary lateral force-resisting system alterations” was first introduced in the 1994 UBC. Since then, in spite of periodic updates to the language, the concept at the heart of this section has remained: to encourage voluntary partial retrofits to increase the resilience of the existing building stock. This language is used to permit a partial retrofit scope to address one or more specific vulnerabilities (soft story, cripple wall, etc.) and to retrofit to a level lower the full code forces when this is found to be more practical. Meanwhile, design for environmental loads has undergone significant development in ASCE 7 as well as the IBC and IRC, broadening the environmental loads and resulting effects for which voluntary retrofit might be provided. This proposal updates the terminology to include the broader scope of environmental loads addressed in ASCE 7 and the broader scope of voluntary retrofit measures that could be implemented. This is intended to include a broad range of measures including such items as hurricane clips to improve roof framing resistance to wind or tornado uplift, bracing on nonstructural components, and glazing improvements for wind or seismic loading. This language is also intended to waive mandatory compliance with Chapter 3 full seismic forces or reduced seismic forces, allowing the structural loads to be set by the owner’s retrofit criteria.

FEMA publications very broadly encourage voluntary partial retrofit against environmental hazards including seismic, wind, flood, tsunami, etc. A partial list of FEMA documents that support partial retrofit includes:

FEMA P-807 - Seismic Evaluation and Retrofit of Multi-Unit Wood-Frame Buildings With Weak First Stories.

FEMA P-807-1 - Guidance and Recommendations for the Seismic Evaluation and Retrofit of Multi-Unit Wood-Frame Buildings with Weak First Stories

FEMA P-1100 - Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings

FEMA P-232 – Homebuilders’ Guide to Earthquake Resistant Design and Construction

ICSSC RP10 - Standards of Seismic Safety for Existing Federally Owned and Leased Buildings ICSSC Recommended Practice 10 (RP 10-22). Section 1.11 specifically recognizes the ability to perform voluntary partial retrofit, using wording that largely mirrors the language used in the IEBC.

Other documents that support partial retrofit include: ASCE 41 Tier 2 retrofit provisions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is at most cost-neutral and could result in cost decreases, since it will give more flexibility in the scope of voluntary environmental load improvements, thereby making achieving improved structural performance more cost effective and encouraging broader implementation of voluntary improvements. By eliminating the potential for additional structural scope, often unrelated to the intended work, that could be triggered by a voluntary improvement project, the proposal could reduce construction costs. If a given project would not have had any other triggered structural scope anyway, then this proposal is cost-neutral.

EB61-25

EB62-25

IEBC: [BS] 503.13, [BS] 805.4

Proponents: Nathalie Boeholt, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (nathalie.boeholt@seattle.gov); Julius Carreon, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (jcarreon@bellevuewa.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.13 Voluntary lateral force-resisting system alterations. Structural alterations that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be subject to the structural requirements of Section 503 , provided that all of the following apply:

1. With the *alteration* complete, the capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

   <u>2.1. Where approved, new lateral force-resisting systems are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted provided that both of the following apply:</u>

   <u>2.1.1. The selected design criteria is the *International Building Code*.</u>

   <u>2.1.2 The new "Ordinary" or "Intermediate" system provides deformation compatibility with the existing lateral force-resisting system.</u>

   ~~**Exception:** New lateral force-resisting systems designed in accordance with the *International Building Code* are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.~~

3. Supports and attachments for nonstructural elements removed and reinstalled to facilitate the work comply with the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

   Exception: Condition 4 need not be satisfied where the work complies with Section 304.3.2, Item 3.

[BS] 805.4 Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be subject to the structural requirements of this chapter or Chapter 7, provided that the following conditions are met:

1. With the *alteration* complete, the capacity of existing structural systems to resist forces is not reduced.

2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

    2.1. Where approved, new lateral force-resisting systems are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted provided that both of the following apply:

        2.1.1. The selected design criteria is the *International Building Code*.

        2.1.2. The new "Ordinary" or "Intermediate" system provides deformation compatibility with the existing lateral force-resisting system.

    ~~**Exception:** New lateral force-resisting systems designed in accordance with the *International Building Code* are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.~~

3. Supports and attachments for nonstructural elements removed and reinstalled to facilitate the work comply with the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

    Exception: Condition 4 need not be satisfied where the work complies with Section 304.3.2 Item 3.

Reason: Sub-section 2 of sections 503.13 and 805.4 was changed in the last code cycle (with EB70-22) to clarify that when the selected design criteria is the IBC, regardless of the force level used, and under certain conditions, there can be flexibility with the type of lateral force-resisting system used to supplement or replace inadequate lateral systems in an existing building. EB70-22 was approved as submitted at the Committee Action Hearings (vote 10-2).

Edits were proposed during the Public Comment Hearings that improved this section based on comments from the committee, but they were unfortunately disapproved based on confusing arguments presented during the public hearing. This version is better, it addresses the following comments from the committee:

Comment 1: "This should be part of the paragraph and not be an exception."

- This proposal moves the text out of the exception into the text of sub-section 2.

Comment 2: "This proposal is too broad."

- This proposal adds "where approved" in sub-section 2.1 which indicates that approval by the code official is required. This gives a chance to the code official to review and determine if the proposal is reasonable.
- This proposal adds sub-section 2.1.2 as a criterion for when this flexibility can be used. It clarifies that the purpose is to provide deformation compatibility with an existing structure that would likely not be allowed in today's codes due to its low ductility.

This proposal addresses the committee comments and adds clarity, it does not change the technical intent.

Note that EB70-22, as modified by this proposal (corresponding to the PCH proposal), was adopted in the 2021 Washington State Existing Building Code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impact for construction, this is an editorial change to add clarity to the code language. See reason statement.

EB62-25

EB63-25 Part I

IEBC: [A] 106.2.1, 503.16, 503.16.1, 503.17, 503.18, 503.20, 506.6

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IEBC CODE COMMITTEE. PART II WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Existing Building Code

Revise as follows:

[A] 106.2.1 Construction documents. Construction documents shall be dimensioned and drawn on suitable material. Electronic media documents are permitted to be submitted where *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *code official*. The ~~*work areas*~~ areas of work shall be shown.

503.16 Conditions for Group I-1 occupancies. Group I-1 occupancies that are being altered and where the ~~*work area*~~ area of *alteration* work is greater than 50 percent of the ~~aggregate~~ building area shall be classified as Condition 1 or Condition 2 in accordance with Section 308.2 of the *International Building Code*.

503.16.1 Smoke Barriers in Group I-1, Condition 2. In Group I-1, Condition 2 occupancies where the ~~*work area*~~ area of *alteration* work is on a story used for sleeping rooms for more than 30 care recipients, the story shall be divided into not less than two compartments by smoke barrier walls in accordance with Section 420.6 of the *International Building Code*.

503.17 Ambulatory care facilities. Where a ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area and the ~~*work area*~~ area of *alteration* work includes an existing *ambulatory care facility*, the following shall be provided:

1. A smoke compartment in accordance with Section 422.3 of the *International Building Code* where the *alteration* results in an *ambulatory care facility* greater than 10,000 square feet on one story.
2. Separation from adjacent spaces in accordance with Section 422.2 of the *International Building Code*, where any such facility has the potential for four or more care recipients are to be incapable of self-preservation at any time.

503.18 Enhanced classroom acoustics. In Group E occupancies, where the ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.

503.20 Two-way communications systems. Where the ~~*work area for alterations*~~ area of *alteration* work exceeds 50 percent of the building area and the building has elevator service, ~~a~~ two-way communication systems shall be provided where required by Section 1009.8 of the *International Building Code*.

506.6 Enhanced classroom acoustics. In Group E occupancies, where the ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.

EB63-25 Part I

EB63-25 Part II

IEBC: [BS] 503.5, [BS] 503.7, [BS] 503.8, [BS] 503.9, [BS] 503.10, [BS] 503.11

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

[BS] 503.5 Seismic Design Category F. Where the ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category F, the lateral force-resisting system of the altered building shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code. Supports and attachments for nonstructural components serving any portion of the building with a use included in *Risk Category* IV shall comply with Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

[BS] 503.7 Anchorage for concrete and reinforced masonry walls. Where the ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area, the building is assigned to Seismic Design Category C, D, E or F and the building's structural system includes concrete or reinforced masonry walls with a flexible roof diaphragm, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of wall anchors at the roof line.

[BS] 503.8 Anchorage for unreinforced masonry walls in major alterations. Where the ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area, the building is assigned to Seismic Design Category C, D, E or F and the building's structural system includes unreinforced masonry bearing walls, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of wall anchors at the floor and roof lines.

[BS] 503.9 Bracing for unreinforced masonry parapets in major alterations. Where the ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category C, D, E or F, and the building has parapets constructed of unreinforced masonry, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of parapet bracing to resist out-of-plane seismic forces.

[BS] 503.10 Anchorage of unreinforced masonry partitions in major alterations. Where the ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area, or where the building is assigned to Seismic Design Category C, D, E or F, and the building has unreinforced masonry partitions and nonstructural walls, the *alteration* work shall include evaluation of the existing condition or removal, anchoring or alteration of any such partitions or walls within the ~~*work area*~~ area of *alteration* work and adjacent to egress paths from the ~~*work area*~~ area of *alteration* work, to comply with Section 304.3.2 .

[BS] 503.11 Substantial structural alteration. Where the ~~*work area*~~ area of *alteration* work exceeds 50 percent of the building area and where work involves a *substantial structural alteration*, the lateral load-resisting system of the altered building shall satisfy the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code. Where the building is assigned to Seismic Design Category D or F, supports and attachments for nonstructural components required to serve any portion of the building with a use included in *Risk Category* IV shall comply with Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.
2. Where the intended *alteration* involves structural components of the lowest story of a building, only the lateral load-resisting system above that story need not comply with this section.

Reason: In the IEBC "work area" is a defined term that is central to application of the Work Area Compliance Method, which is set out in Chapters 6 through 12. The defined term is particular to the intent of this compliance method and is not equivalent to the everyday meaning of this phrase. Accordingly, this proposal eliminates usage of the term "work area" in Chapters 1 and 5, where the context indicates use of the defined term is not appropriate.

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG) and the ICC Building Code Action Committee (BCAC).

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial in nature. See reason statement.

EB63-25 Part II

EB64-25

IEBC: [BS] 503.2, [BS] 701.3

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

CHAPTER 5
PRESCRIPTIVE COMPLIANCE METHOD

SECTION 503
ALTERATIONS

Revise as follows:

[BS] 503.2 Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *International Building Code*, or Section R306 of the *International Residential Code*, <u>alterations shall comply with the following, </u>as applicable~~,~~<u>:</u>

<u>1.</u> ~~any~~ <u>Any </u>*alteration* that constitutes *substantial improvement* of the *existing structure* shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

<u>2.</u> <u>New foundations, foundations raised or extended upward, and replacement foundations shall comply with Section 502.2.</u>

<u>3.</u> <u>Any</u> ~~For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable, any~~ *alterations* that do not constitute *substantial improvement* of the *existing structure* are not required to comply with the flood design requirements for new construction.

CHAPTER 7
ALTERATIONS—LEVEL 1

SECTION 701
GENERAL

[BS] 701.3 Flood hazard areas. In *flood hazard areas*, *alterations* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R306 of the *International Residential Code*, as applicable. <u>New foundations, foundations raised or extended upward, and replacement foundations shall comply with Section 1103.3.</u>

Reason: The I-Code definition for Addition is “An extension or increase in floor area, number of stories, or height of a building or structure.” The flood provisions of the IEBC for additions (Sec. 502.2 and Sec. 1103.3) include work for new foundations, replacement foundations, and foundation raised or extended upward.

In 2023, the ICC BCAC questioned whether raising an existing building in a flood hazard area less than a story could be classified an alteration, not considered an addition. We note that the definition for “addition” cites an increase in height, without parsing how much additional height is needed to classify the work as an addition. On behalf of FEMA, a dozen building officials in Florida communities with considerable floodplain construction activities were asked their opinion on whether the requirements for the described foundation work should remain under Additions or be moved to Alterations. Nearly all agreed that it should remain under Additions. However, we also want to acknowledge that code users may be looking for requirements for this foundation work under Alterations.

The code proposal is editorial in that it does not add a new requirement – it adds cross references to sections on Alterations in flood hazard areas, to refer users to the appropriate sections for Additions in flood hazard areas.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds pointers to existing requirements in the code. There is no change to the technical content of the provisions. By reminding users of existing applicable requirements there will be no cost impact when approving this proposal.

Staff Analysis: CC # EB64-25 and CC # EB32-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

EB64-25

EB65-25

IEBC: SECTION 202 (New), [BS] 503.3

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Add new definition as follows:

GRAVITY LOAD. The force exerted on structural elements created by the effects of gravity from dead, live, snow, rain, ice, soil, or static fluid loads.

Revise as follows:

[BS] 503.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design gravity load(s) ~~dead, live or snow load, including snow drift effects, of more than 5 percent~~ shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design gravity load(s) ~~dead, live and snow loads including snow drift effects~~ required by the *International Building Code* for new structures. The following exceptions shall not apply to structural elements whose gravity load carrying capacity has been decreased.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less over an existing single layer of roof covering.
3. Structural elements whose design gravity load combination is increased by not more than 5 percent. Determination of the percent increase shall account for the cumulative effects of additions or alterations since original construction and shall use design criteria required by the *International Building Code* for new construction applied to both the unaltered and altered condition.

Reason: The organization of the paragraph is changed to show the exception of allowing up to a 5% increase in load as an exception rather than the charging language. The basic code requirement is that if load is increased, the member must be structurally evaluated per the current code for new structures and replaced or altered as necessary.

The revision clarifies that the load combination is considered for the 5% increase, not individual loads. Review of documentation from the 2015 to 2018 code revision cycle indicates that the changes adopted in this cycle were made in a good-faith effort to harmonize the various chapters of the IEBC on the topic of the “5 percent rule,” and the resulting language borrowed features from each provision. There is no indication in the records that the proposed intent was to substantially deviate from the prior application of the “5 percent rule,” but was rather to provide more clarity and consistency. Therefore, reverting to load combination rather than individual loads puts the provision back to the original historic intent and practice.

The specific gravity loads enumerated in the definition, “dead, live or snow load, including snow drift effects,” are not comprehensive. Further, the use of "loads" and "effects" suggests that only capacity should be considered for dead, live, and snow, but capacity AND deflection/etc should be considered for snow drifts. While less common, other forms of gravity load, such as sliding snow, ice, rain, earth and fluids, may also be relevant to structural stability. This proposal reverts to the more general language of the 2015 IEBC (and prior editions), which leaves it to the designer to determine what gravity loads are applicable.

Within the 5% exception itself additional language was added:

- To clarify that the net load increase over the originally constructed condition should be compared to the 5% threshold. This is needed to ensure successive individual load increases at or below the 5%, do not effectively exceed the 5% allowance over time. Without this language, a member could gradually become increasingly overloaded to the point of failure, even though each separate addition or alteration would appear to be compliant.
- To clearly define the new IBC loads should be used for the 5% threshold evaluation, applied to both the original and new condition. Because this exception operates only on the load, not the capacity, the original design capacity is not relevant for this calculation. By specifying the new IBC for both the original and new condition, the percent change reflects only the physically changed condition of the addition or alteration. The percent change is not skewed by revisions in design load methodologies that may have occurred between different building code versions.

The gravity load definition was added in response to prior ICC Committee comments questioning what actually constituted a gravity load. The IEBC has used gravity load terminology for a long time, but without a specific definition. The IEBC has separate provisions dealing with the addition or alteration of gravity loads and lateral loads. As there are separate provisions, the intent of this proposal is to clarify when the load is a gravity load versus a lateral load, so that the existing provisions can be applied more correctly and consistently.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal restores the original intent of the 5% language that was added to an earlier version of the IEBC.

EB65-25

EB66-25

IEBC: [BS] 503.3, [BS] 805.2

Proponents: Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

[BS] 503.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design dead, live and snow loads including snow drift effects required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less over an existing single layer of roof covering.
3. Buildings of Group R3 occupancy with installation of rooftop-mounted *photovoltaic (PV) panel systems* weighing 4 psf (0.1915 kN/m^2) or less over an existing single layer of *roof covering*.

Exceptions 2 and 3 shall not be applied simultaneously.

[BS] 805.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design dead, live and snow loads, including snow drift effects, required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is attributable to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less over an existing single layer of roof covering.
3. Buildings of Group R3 occupancy with installation of rooftop-mounted *photovoltaic (PV) panel systems* weighing 4 psf (0.1915 kN/m^2) or less over an existing single layer of *roof covering*.

Exceptions 2 and 3 shall not be applied simultaneously.

Reason: This proposal seeks to create new exceptions in the IEBC consistent with a new exception created in the previous cycle in Appendix BO of the 2024 IRC.

Proposal RB162-22 sought to include a new Section R331 Alterations in the 2024 IRC. Originally proposed Section R331.1.2.1 Dead load increase included a proposed exception for a second layer of roof covering weighing 3 pounds per square foot or less.

During the process of the Public Comment Hearings, RB162-22 was Approved As Modified, including Exception 2 for PV and the statement "These exceptions shall not be applied simultaneously."

This proposal seeks to used the language established in Appendix BO by RB162-22, and add it to IEBC Sections 503.3 and 805.2 with the limitation that it applies to Group R3 buildings only.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only seeks to create new exceptions based on 2024 IRC Appendix BO.

EB66-25

EB67-25

IEBC: [BS] 503.4, [BS] 805.3

Proponents: Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.4 Existing structural elements carrying lateral load. Except as permitted by Section 503.13, where the *alteration* increases design lateral loads, results in a prohibited structural irregularity as defined in ASCE 7, or decreases the capacity of any existing lateral load-carrying structural element, the lateral force-resisting system of the altered building or structure shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609 of the *International Building Code* and Section 304.3.1 or 304.3.2 of this code. The same methodology shall be used for the altered and unaltered structures. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 304.3.1 or Section 304.3.2, Item 1 or 3, or the full or reduced seismic forces in effect at the time.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.
3. Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop *photovoltaic panel systems* where the additional roof dead load due to the system, including ballast where applicable, ~~does not exceed 5 pounds per square foot (psf) (0.2394 kN/m^2)~~ and does not exceed 10 percent of the dead load of the existing roof.

[BS] 805.3 Existing structural elements resisting lateral loads. Except as permitted by Section 805.4, where the *alteration* increases design lateral loads, or where the alteration results in prohibited structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the lateral force-resisting system of the altered building or structure shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609of the *International Building Code* and Section 304.3.1 or 304.3.2 of this code . The same methodology shall be used for the altered and unaltered structures.For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 304.3.1 or 304.3.2 Item 1 or 3 or the full or reduced seismic forces in effect at the time.

2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, “roof” shall mean the roof level above a particular story.

3. Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop *photovoltaic panel systems* where the additional roof dead load due to the system, including ballast where applicable, ~~does not exceed 5 pounds per square foot (psf) (0.2394 kN/m^2)~~ and does not exceed 10 percent of the dead load of the existing roof.

Reason: This proposal seeks to strike out in both Sections 503.4 and 805.3 an unnecessary second threshold in exception language that was created last cycle by Proposal EB64-22.

Proposal EB64-22 was well-intentioned in efforts to formalize existing practice in the rooftop segment of the solar industry. For PV added on roofs of existing buildings, while it is common and expected to provide a gravity analysis for existing roof members, it is not necessary to create a comprehensive structural analysis of the entire lateral force resisting system to determine the increase in DCR of individual existing structural elements carrying lateral load. As shown in the language in 2024 IBC Section 503.4 Exception 3 and Section 805.3 Exception 3, the important threshold is whether the additional roof dead load due to the PV system does not exceed 10% of the dead load of the existing roof.

Unfortunately, the proponent of EB64-22 created an additional 5 psf threshold for both of these exceptions that is both unnecessary and overly restrictive. While many attached (but not not ballasted) rooftop PV systems will be at or below the 5 psf threshold, many ballasted and unattached PV systems will exceed 5 psf, and will therefore be unnecessarily excluded from using Exception 3. It is common for ballasted rooftop PV systems to be in the range of 5 to 8 psf, and these systems should be allowed to use Exception 3.

During testimony the proponent argued that the second threshold is needed in cases where the PV is concentrated in one portion of the building roof more than another portion of the building roof. In our opinion, this distinction exceeds the intent and the precision implied in the application of "the 10 percent rule."

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed change is only intended to formalize existing practice in the rooftop solar industry, and seeks to strike an unnecessary second threshold from the language created in the prior cycle.

EB67-25

EB68-25

IEBC: [BS] 503.4, [BS] 805.3

Proponents: David Bonowitz, representing David Bonowitz, S.E. (dbonowitz@att.net); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.4 Existing structural elements carrying lateral load. ~~Except as permitted by Section 503.13, where~~ Where the *alteration* increases design lateral loads, results in a prohibited structural irregularity as defined in ASCE 7, or decreases the capacity of any existing lateral load-carrying structural element, the lateral force-resisting system of the altered building or structure shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609 of the *International Building Code* and Section 304.3.1 or 304.3.2 of this code. The same methodology shall be used for the altered and unaltered structures. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 304.3.1 or Section 304.3.2, Item 1 or 3, or the full or reduced seismic forces in effect at the time.
2. ~~Buildings in which~~ Where the increase in ~~the demand-capacity ratio~~ load is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (~~181.4 kg~~ 1.78 kN) and ~~where~~ the total ~~additional~~ weight of all rooftop equipment placed after initial construction of the building , including the intended new equipment, is less than 10 percent of the original roof dead load, compliance with this section is not required. For purposes of this exception, “roof” shall mean the roof level above a particular story. This exception shall not be applied concurrently with Exception 3.
3. ~~Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for~~ Where the intended alteration involves the installation of a rooftop *photovoltaic panel systems* ~~where~~ , the additional ~~roof~~ dead load due to the system, including ballast where applicable, does not exceed 5 pounds per square foot (psf) (0.2394 kN/m^2), and ~~does not exceed~~ the total weight of all rooftop equipment placed after initial construction of the building, including the intended new system, is less than 10 percent of the original roof dead load ~~of the existing roof~~ , compliance with this section is not required. This exception shall not be applied concurrently with Exception 2.

[BS] 805.3 Existing structural elements resisting lateral loads. ~~Except as permitted by Section 805.4, where~~ Where the *alteration* increases design lateral loads, or where the alteration results in prohibited structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the lateral force-resisting system of the altered building or structure shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609of the *International Building Code* and Section 304.3.1 or 304.3.2 of this code . The same methodology shall be used for the altered and unaltered structures.For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 304.3.1 or 304.3.2 Item 1 or 3 or the full or reduced seismic forces in effect at the time.

2. ~~Buildings in which~~ Where the increase in ~~the demand-capacity ratio~~ load is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (~~181.4 kg~~ 1.78 kN) and ~~where~~ the total ~~additional~~ weight of all rooftop equipment placed after initial construction of the building , including the intended new equipment, is less than 10 percent of the original roof dead load, compliance with this section is not required. For purposes of this exception, “roof” shall mean the roof level above a particular story. This exception shall not be applied concurrently with Exception 3.
3. ~~Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for~~ Where the intended alteration involves the installation of a rooftop *photovoltaic panel systems* ~~where~~ , the additional ~~roof~~ dead load due to the system, including ballast where applicable, does not exceed 5 pounds per square foot (psf) (0.2394 kN/m^2), and ~~does not exceed~~ the total weight of all rooftop equipment placed after initial construction of the building, including the intended new system, is less than 10 percent of the original roof dead load ~~of the existing roof~~ , compliance with this section is not required. This exception shall not be applied concurrently with Exception 2.

Reason: This proposal makes matching editorial clarifications to the Prescriptive and Work Area methods, with no substantive change. The intent is only to clarify what should be the current interpretation of this provision.

In the main provision, the proposal deletes the reference to the section that allows voluntary seismic improvement (Section 503.13 or 805.4). This reference is not needed, as Section 503.13 (or 805.4) already functions effectively as an exception to Section 503.4 (or 805.3), since it states that where applicable, other structural requirements throughout Section 503 (or Chapters 7 and 8) are waived. Further, none of the other alteration triggers throughout Section 503 (or Chapters 7 and 8) have this reference, so having it here is inconsistent and potentially confusing.

In Exceptions 2 and 3, the proposal makes various editorial corrections and clarifications:

- The exceptions are reworded to read as complete sentences, similar to Exception 1. This is consistent with ICC practice.
- The references to “demand-capacity ratio” are removed. Since the main provision does not mention DCR, mentioning it in these exceptions is misleading.
- In Exception 2, the metric equivalent is corrected from a mass to a weight. ASCE 7 (and the IEBC commentary) properly use 1.78 kN.
- In Exception 3, the reference to “10 percent” of the current roof weight is reworded to match the wording in Exception 2, which properly accounts for past increases. In both exceptions the application of this limit is clarified.
- In both Exception 2 and 3, a final sentence is added to confirm the common understanding (as stated in the IEBC commentary) that these two exceptions were developed independently and only one of them should be applied to a given alteration project.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

As explained in the reason statement, the proposal is entirely an editorial clarification, intended to improve usability, with no substantive effect.

EB69-25

IEBC: [BS] 503.7, [BS] 503.8, [BS] 906.4, [BS] 906.5

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.7 Anchorage for concrete and reinforced masonry ~~walls~~ buildings in major alterations. Where the *work area* exceeds 50 percent of the building area, the building is assigned to Seismic Design Category C, D, E or F and the building's structural system includes concrete or reinforced masonry walls with a flexible roof diaphragm, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of wall anchors at the roof line of all subject buildings.

[BS] 503.8 Anchorage for unreinforced masonry walls in major alterations. Where the *work area* exceeds 50 percent of the building area, the building is assigned to Seismic Design Category C, D, E or F and the building's structural system includes unreinforced masonry bearing walls, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of wall anchors at the floor and roof lines.

[BS] 906.4 Anchorage for concrete and reinforced masonry buildings. For any building assigned to Seismic Design Category C, D, E or F with a structural system that includes concrete or reinforced masonry walls with a flexible roof diaphragm, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of wall anchors at the roof line of all subject buildings ~~and at the floor lines of unreinforced masonry~~.

[BS] 906.5 Anchorage for unreinforced masonry walls. For any building assigned to Seismic Design Category C, D, E or F with a structural system that includes unreinforced masonry bearing walls, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of wall anchors at the floor and roof ~~line~~ lines.

Reason: This code change proposal reconciles the work area compliance method with the prescriptive compliance method for anchorage of concrete, reinforced masonry and un-reinforced masonry walls in major alterations. As written, for unreinforced masonry bearing walls, the prescriptive method requires wall anchors at the floor and roof lines in SDC-C, D, E & F. For the work area method, unreinforced masonry wall anchors are required at the roof line for SDC-C and at the floor lines for SDC-D, E & F. This code change proposal will require unreinforced masonry wall anchors at the roof and wall lines for SDC-C,D,E & F in the work area compliance method. This code change proposal adds clarifying language for consistency between the two methods and reconciles the work area method with the prescriptive method.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The provisions have always been intended to be identical between the two compliance methods.

EB69-25

EB70-25

IEBC: [BS] 503.9, [BS] 906.6

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.9 Bracing for unreinforced masonry parapets in major alterations. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category B, C, D, E or F, and the building has parapets constructed of unreinforced masonry, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of parapet bracing to resist out-of-plane seismic forces.

[BS] 906.6 Bracing for unreinforced masonry parapets. Parapets constructed of unreinforced masonry in buildings assigned to Seismic Design Category B, C, D, E or F shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of parapet bracing.

Reason: Although seismic events are not as frequent on the east coast as the west coast, there have been a few historic events of estimated magnitude 6.0 or greater.

- In the 1755 Cape Anne EQ M6.2 EQ there was substantial damage to masonry chimneys and walls with an account of bricks littering the city streets of Boston.
- In 1811 there was an estimated M7.7 EQ in New Madrid and the 1886 M7.1 Charlston SC EQ with damaging effects to URM buildings.
- In 2011 there was the M5.8 Mineral VA EQ. A 15 WCEE report on the Earthquake by J.E. Beavers, M.R. Eartherton, R.E. Gilsane, J.M. Ricles & Y.C. Lin was written with funding from the Earthquake Engineering Research Institute. They observed that many commercial buildings in downtown Mineral, Virgina have URM storefronts and parapets that were damaged. There was also extensive damage to URM veneers and chimneys. An account from a colleague who was in Mineral at the time of the earthquake was that there were bricks littering the ground everywhere. The earthquake also caused architectural and structural damage in Washington D.C., almost 90 miles away with damage to the National Cathedral, Smithsonian Institute and the Washington Monuments.

For URM buildings, the parapet at the top of the building is the most vulnerable falling hazard in consideration of low overburden stress and lack of anchorage to the roof line. FEMA considers URM buildings the most hazardous building type when subjected to earthquakes and states that URM parapets can become damaged even with just slight shaking.

In Mineral VA, based on a default soil class D, most Risk Category II buildings would be classified as SDC-B. Based on the history of damage that has occurred to URM parapets in SDC-B on the East Coast where there is a large inventory of URM buildings, including URM Parapet provisions in SDC-B is a common sense way to preserve health and safety.

Cost Impact: Increase

Estimated Immediate Cost Impact:

URM Parapets in SDC B would be required to comply with structural seismic provisions with an estimated cost of $55 per lineal foot. This cost is based on historical pricing of similar limited URM retrofits reported for Seattle, WA.

Estimated Immediate Cost Impact Justification (methodology and variables):

The estimated cost of $55 per lineal foot is based on pricing for Seattle, WA for URM parapet reinforcing as determined from information available from the Seattle Department of Construction & Inspections.

EB71-25

IEBC: [BS] 503.9, [BS] 906.6

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 503.9 Bracing for unreinforced masonry parapets in major alterations. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category C, D, E or F, and the building has parapets constructed of unreinforced masonry, the *alteration* shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of parapet bracing <u>and anchorage at the roof line</u> to resist out-of-plane seismic forces.

[BS] 906.6 Bracing for unreinforced masonry parapets. Parapets constructed of unreinforced masonry in buildings assigned to Seismic Design Category C, D, E or F shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of parapet bracing <u>and anchorage at the roof line to resist out-of-plane seismic forces</u>.

Reason: An important part of mitigating unreinforced masonry parapets is assuring that they are properly anchored at the roof line. For unreinforced masonry parapets in seismic design category C,D,E & F buildings, walls anchorage is covered in Sections 503.1 and 906.5. There is no provision for unreinforced masonry wall anchors for buildings in Seismic Design Category-B. By adding wall anchorage to sections 503.9 and 906.6, it would not un-necessarily have to be added to sections 503.1 and 906.6 where it may not be a hazard in the event there are no unreinforced masonry parapets.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This would result in a potential cost increase of $55.00 for parapets requiring remediation at the roof line. This cost is based on historical pricing of similar limited URM retrofits reported for Seattle, WA.

Estimated Immediate Cost Impact Justification (methodology and variables):

The estimated cost of $55 per lineal foot is based on pricing for Seattle, WA for URM parapet reinforcing as determined from information available from the Seattle Department of Construction & Inspections.

EB71-25

EB72-25

IEBC: SECTION 202 (New), 505.3.1, 702.5.1

Proponents: Mike Fischer, Fischer Advocacy, representing Mighton Products (mdfischer@outlook.com)

2024 International Existing Building Code

Add new definition as follows:

WINDOW OPENING CONTROL DEVICE. A window hardware device that controls the window sash opening and includes a release mechanism that allows the window to serve as an *emergency escape and rescue opening*.

Revise as follows:

505.3.1 Control devices. Window opening control devices or fall prevention devices complying with ASTM F2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings*. After operation to release the control device allowing the window to fully open, the control device shall not reduce the net clear opening area of the window unit. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools. The use of window stops, night latches or other devices that restrict the window from opening to the emergency escape and rescue opening dimensions required by this code shall not be permitted.

702.5.1 Control devices. Window opening control devices or fall prevention devices complying with ASTM F2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings.* After operation to release the control device allowing the window to fully open, the control device shall not reduce the net clear opening area of the window unit. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools. The use of window stops, night latches or other devices that restrict the window from opening to the emergency escape and rescue opening dimensions required by this code shall not be permitted.

Reason: There is confusion among child safety advocates regarding the use of devices to help reduce child window fall incidents. As an example, some public health groups recommend the use of window locks, window stops, or night latches to reduce the clear window opening. While well-intentioned, this safety messaging almost universally ignores the potential impact of window locks on the emergency escape and rescue provisions of the code.

This proposal adds a definition of window opening control device to help establish the dual role of the devices- child fall safety and home fire safety. The additional provisions regarding window locks and other devices make it clear that such devices are not permitted on windows used as emergency escape and rescue openings. With the definition, this provision will aid in code enforcement by making it crystal clear that only ASTM F20290 compliant devices can be used on windows that serve as emergency escape and rescue openings. WDMA and FGIA released a technical bulletin in 2024 (AAMA/WDMA TB-24-01) that includes the following information about window hardware:

"Vent stops and night latches are devices that may be installed on windows (typically single or double-hung windows or sliding or gliding windows) as a means of providing natural ventilation while attempting to discourage unwanted entry of an intruder. It can be confusing, as these devices can look similar to or even partially function similar to WOCDs, but do not meet the requirements of the ASTM F2090 standard and should not be mistaken as a window fall prevention device. Caution should be taken before using vent stops or night latches on any window designated or intended for emergency escape and rescue. Vent stops and night latches which cannot be released, and which restrict the sash from being fully opened should not be used on windows designated or intended for emergency escape and rescue."

And:

"Vent limiters, night latches and other limiting devices Other types of devices that limit the window sash opening include vent limiters, night latches or vent stops — none of which fall under the scope of ASTM F2090. These devices can be installed on all operable window types (hung, sliding or gliding, or casement/awning styles) to limit the sash opening to let air in or out for ventilation. Vent limiters are devices that restrict the sash opening and typically require a tool or removal of a fastener to open the sash fully. As such, these devices should not be installed on windows required for emergency escape and rescue. If a vent limiter restricts a sash to a less than a four-inch opening, it is possible that a building code official will accept it as an option to the minimum sill height code requirement provided that the vent limiter is not installed on a required emergency escape and rescue (egress) opening. Vent limiters may also be used in applications where windows are installed greater than 75 feet above grade. Vent stops or night latches are devices that may limit the sash opening but do not meet the criteria for a WOCD per ASTM F2090. Therefore, they would not be allowed as an option to the minimum sill height code requirement but may be of interest to occupants as a way of restricting the sash opening. Night latches allow the sash to open a limited distance for ventilation, while limiting the amount a window sash is open, which can help support home security. Caution should be taken before using vent stops or night latches on any window designated or intended for emergency escape and rescue. Vent stops and night latches which cannot be released, and which restrict the sash from being fully opened should not be used on windows designated or intended for emergency escape and rescue."

To download the Technical Bulletin visit: https://wdma.memberclicks.net/assets/docs/TechnicalCenter/AAMA-WDMA_TB-24-01_UL.pdf

This proposal will assist code officials with interpretation and enforcement of the window fall and emergency escape and rescue opening provisions of the code, while also providing an opportunity to improve child safety and home fire safety advocacy programs. It is critical that both fall and fire safety issues are considered when enforcing the code and educating the public.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal is a clarification of the current code and contains no mandatory provisions.

EB72-25

EB73-25

IEBC: 506.4, 1011.5.6

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

506.4 Existing emergency escape and rescue openings. Where a *change of occupancy* would require an *emergency escape and rescue opening* in accordance with Section 1031.1 of the *International Building Code*, operable windows serving as the *emergency escape and rescue opening* shall comply with ~~the following:~~Sections 505.3 and 505.4.

1. ~~An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38 m^2) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).~~
2. ~~A replacement window where such window complies with both of the following:~~
   2.1. ~~The replacement window meets the size requirements in Item 1.~~
   2.2. ~~The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.~~

1011.5.6 Existing emergency escape and rescue openings. Where a *change of occupancy* would require an *emergency escape and rescue opening* in accordance with Section 1031 of the *International Building Code*, operable windows serving as the *emergency escape and rescue opening* shall comply with ~~the following:~~Sections 702.5 and 702.6.

1. ~~An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38 m^2) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).~~
2. ~~A replacement window where such window complies with both of the following:~~
   2.1. ~~The replacement window meets the size requirements in Item 1.~~
   2.2. ~~The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.~~

Reason: There are additional clarifications/requirements for EERO in the prescriptive method in Section 505.3 and 505.4 and in the work area method in Section 702.5 and 702.6. Using a reference instead of repeating part of the requirements would help with consistency for EEROs. In addition, for the work area method, referencing this would be consistent with the reference to Chapter 8 in handrails and guards (Section 1105.4 and 1105.5).

This proposal is one of the series of changes to IEBC Chapter 10 from the BCAC. See the proposal for Chapter 10 reorganization for a clean draft.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a correlation between chapters, so there is no change in requirements.

EB74-25

IEBC: SECTION 202 (New), [BS] 506.5.5 (New), [BS] 1006.5 (New)

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Add new definition as follows:

[BS] TSUNAMI DESIGN GEODATABASE. The ASCE database (2022-1.0) of *Tsunami Design Zone* maps and associated design data for the states of Alaska, California, Hawaii, Oregon and Washington.
[BS] TSUNAMI DESIGN ZONE. An area identified on the *Tsunami Design Zone* map between the shoreline and the inundation limit, within which certain structures designated in Chapter 16 of the International Building Code are designed for or protected from inundation.

Add new text as follows:

[BS] 506.5.5 Tsunami Loads. Where a *change of occupancy* results in a structure being reassigned to Tsunami Risk Category III or IV, as defined by ASCE 7, and is located in a *Tsunami Design Zone* according to the *Tsunami Design Geodatabase*, the structure shall satisfy the requirements of Section 1615 of the International Building Code for the new tsunami *risk category*.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

[BS] 1006.5 Tsunami Loads. Where a *change of occupancy* results in a structure being reassigned to Tsunami Risk Category III or IV, as defined by ASCE 7, and is located in a *Tsunami Design Zone* according to the *Tsunami Design Geodatabase*, the structure shall satisfy the requirements of Section 1615 of the International Building Code for the new tsunami *risk category*.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

Reason: When a change of occupancy results in a higher Risk Category, additional consideration is already required for snow, wind, and seismic design. This proposal adds tsunami design zones as a hazard to be considered where the change of occupancy results in a higher Risk Category. This approach extends the same rationale used for new building design to existing buildings, which is to limit development of higher risk category structures in tsunami design zones, unless the structure is appropriately designed for the hazard. The proposal language mimics language used for snow and wind design in Sections 506.5.2 and 1006.2, and seismic design in Sections 506.5.3 and 1006.3.

The alteration or change of occupancy of a structure is still permitted for a non-conforming structure provided that there is no increase in Risk Category. A substantial improvement or substantial structural alteration is still permitted without consideration of tsunami design, provided that there is no increase in Risk Category. Therefore, the proposed language has quite limited, but important, applicability. Unless modified by a local jurisdiction tsunami design only applies to Risk Category III and IV buildings.

This proposal copies the definitions of Tsunami Design Zone and Tsunami Design Geodatabase from the IBC and requires that structures with a change of occupancy resulting in an elevated Tsunami Risk Category (as defined in ASCE 7) shall conform to the building code for tsunami design as for a new building. If not modified to achieve current code conformance, a structure can still be maintained or renovated within the pre-existing Risk Category.

The vulnerability of an existing structure should not be elevated by an increased occupant load or a change of occupancy that would elevate the Tsunami Risk Category of a Risk Category II structure to a Risk Category III structure, or Risk Category III structure to a Risk Category IV structure, when it does not conform to the building code for tsunami design.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Minimally $0.00 where a change of occupancy does not result in the structure being reassigned to a Tsunami Risk Category III or IV, there will be no change in current practice.

Estimated Immediate Cost Impact Justification (methodology and variables):

The estimated cost of $80.00 per square foot was determined by using estimated costs from Flood Mart to reinforce structural integrity of a building, and increasing those costs to account for added strength required to resist the force of flood wave impacts. The estimated cost of 100,000 square foot structure would be $8,000,000.

Staff Analysis: This proposal is simply duplicating definitions from the IBC. The definitions cannot be revised in this proposal as they are scoped to another committee.

EB74-25

EB75-25

IEBC: 506.5.5 (New), 1006.5 (New)

Proponents: Julie C. Furr, representing NCSEA Existing Building Committee (jcfurr@ssr-inc.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Add new text as follows:

506.5.5 Flood loads. Where a change of occupancy results in a structure being assigned to a higher flood design class, according to ASCE 24, and the structure is located within a flood hazard area, the structure shall satisfy the requirements of Sections 1612 of the *International Building Code* for the new flood design class.

> **Exception:** Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

1006.5 Flood loads. Where a change of occupancy results in a structure being assigned to a higher flood design class, according to ASCE 24, and the structure is located within a f*lood hazard area*, the structure shall satisfy the requirements of Sections 1612 of the *International Building Code* for the new flood design class.

> **Exception:** Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over item shall be considered.

Reason: When a change of occupancy results in a higher Risk Category, additional consideration is already required for snow, wind, and seismic design. This proposal adds flood design as a hazard to be considered where the change of occupancy results in a higher Flood Design Class. This approach extends the same rationale used for new building design to existing buildings, which is to limit increasing the hazard from occupied structures in flood hazard areas if the structure has not already been designed for that increased hazard. The proposal language mimics language used for snow and wind design in Sections 506.5.2 and 1006.2, and seismic design in Sections 506.5.3 and 1006.3.

The vulnerability of an existing structure should not be elevated by an increased occupant load or a change of occupancy that would elevate the hazard of a structure when it does not conform to the building code for flood design.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Minimally $0.00 where a change of occupancy does not result in the structure being reassigned to a higher flood design class, there will be no change in current practice.

Estimated Immediate Cost Impact Justification (methodology and variables):

An estimated cost of $40 per square foot to raise an existing structure above the base flood elevation. This cost is based on estimated costs provided by Flood Mart, December 2024. The estimated cost for a 5,000 square foot structure would be $200,000.

EB75-25

EB76-25

IEBC: [BS] 506.5.3, [BS] 1006.3

Proponents: Shahen Akelyan, Los Angeles Department of Building and Safety, representing self (shahen.akelyan@lacity.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 506.5.3 Seismic loads (seismic force-resisting system). Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the lateral force-resisting system of the building shall comply with Section 304.3.1 for the new *risk category* <u>or occupancy</u>. Where a *change of occupancy* results in a building being assigned to *Risk Category* IV and Seismic Design Category D or F, nonstructural components serving any portion of the building changed to *Risk Category* IV shall comply with the requirements of Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category* IV, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
2. Where a *change of use* results in a building being reclassified from *Risk Category* I or II to *Risk Category* III and the seismic coefficient, S_{DS}, is less than 0.33, compliance with this section is not required.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category* III and to Seismic Design Category A or B, shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of *risk category*, compliance with Section 304.3.2 shall be permitted.

[BS] 1006.3 Seismic loads. Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the lateral force-resisting system of the building shall comply with Section 304.3.1 for the new *risk category* <u>or occupancy</u>. Where a *change of occupancy* results in a building being assigned to *Risk Category* IV and Seismic Design Category D or F, nonstructural components serving any portion of the building changed to *Risk Category* IV shall comply with the requirements of Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where a *change of use* results in a building being reclassified from *Risk Category* I or II to *Risk Category* III and the seismic coefficient, S_{DS}, is less than 0.33, compliance with this section is not required.
2. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category* IV, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category* III and to Seismic Design Category A or B shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of *risk category*, compliance with Section 304.3.2 shall be permitted.

Reason: The proposal is editorial. This section lists a condition where there is a change in occupancy group, but leaves out the requirements for the compliance for the new occupancy group.

Bibliography: Shahen Akelyan, City of Los Angeles with consensus with the Existing Building Code committee of the Structural Engineering Association of Southern California and in collaboration with the Los Angeles tall Building Seismic Design Council.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal is editorial in nature.

EB76-25

EB77-25

IEBC: [BS] 506.5.3, [BS] 1006.3

Proponents: Shahen Akelyan, Los Angeles Department of Building and Safety, representing self (shahen.akelyan@lacity.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 506.5.3 Seismic loads (seismic force-resisting system). Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the lateral force-resisting system of the building shall comply with Section 304.3.1 for the new *risk category*. Where a *change of occupancy* results in a building being assigned to *Risk Category* IV and Seismic Design Category D or F, nonstructural components serving any portion of the building changed to *Risk Category* IV shall comply with the requirements of Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where the area of the new occupancy is less than 10 percent of the building area, ~~the occupancy is not changing from a Group S or Group U occupancy,~~ and the new occupancy is not assigned to *Risk Category* IV, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
2. Where a *change of use* results in a building being reclassified from *Risk Category* I or II to *Risk Category* III and the seismic coefficient, S_{DS}, is less than 0.33, compliance with this section is not required.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category* III and to Seismic Design Category A or B, shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of *risk category*, compliance with Section 304.3.2 shall be permitted.

[BS] 1006.3 Seismic loads. Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the lateral force-resisting system of the building shall comply with Section 304.3.1 for the new *risk category*. Where a *change of occupancy* results in a building being assigned to *Risk Category* IV and Seismic Design Category D or F, nonstructural components serving any portion of the building changed to *Risk Category* IV shall comply with the requirements of Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where a *change of use* results in a building being reclassified from *Risk Category* I or II to *Risk Category* III and the seismic coefficient, S_{DS}, is less than 0.33, compliance with this section is not required.
2. Where the area of the new occupancy is less than 10 percent of the building area, ~~the occupancy is not changing from a Group S or Group U occupancy,~~ and the new occupancy is not assigned to *Risk Category* IV, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category* III and to Seismic Design Category A or B shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of *risk category*, compliance with Section 304.3.2 shall be permitted.

Reason: The current language in 2024 IEBC does not allow any portions of Group U or Group S occupancies to non-Group U or Group S occupancies without having the entire building satisfy the requirement of section 1613 of CBC. This creates a hardship when only a small portion, such as 10% of the building is converted to non-Group U or Group S occupancies, and it does not drastically change the characteristics of the entire building. For example, if a small office is created within an existing parking garage or portion of an attached garage is converted to an ADU. The change to the exception will allow these small conversions without requiring expensive and unnecessary retrofit of the entire building.

Allowing small, 10% conversions, is consistent with the area limitation of the incidental use that is allowed per section 509.3 of IBC.

509.3 Area limitations. The aggregate floor area of incidental uses shall not occupy more than 10 percent of the building area of the story in which they are located.

Bibliography: Shahen Akelyan, City of Los Angeles with consensus with the Existing Building Code committee of the Structural Engineering Association of Southern California and in collaboration with the Los Angeles tall Building Seismic Design Council.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

-$50,000 to $5,000,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

The proposal will reduce the cost of contraction by not requiring retrofit of the entire building due to change of use of small portion of the building. The reduction in cost will depend on the size and type of the building in question. The reduction will be on the construction cost as well as engineering cost.

The construction cost

The construction cost of the retrofit will depend on the deficiencies of the building, materials, the existing structural systems, the method of the of retrofit.

1. For Wood Frame buildings: the retrofit cost will be between $20/sf to $50/sf
2. For Moment Frame buildings: the retrofit cost will be between $50/sf to $100/sf
3. For Concrete buildings: the retrofit cost will be between $50/sf to $150/sf

The engineering cost

The engineering cost will be the method of analysis. For example, if the engineering will require a performance based design such as non-linier time history analysis, it would require a peer review and increased cost. The cost of the engineering will vary between $5,000 to $100,000

Sources:

1. FEMA 547: Techniques for the Seismic Rehabilitation of Existing Buildings, https://nehrpsearch.nist.gov/static/files/FEMA/PB2008108236.pdf
2. FEMA 156: Typical Cost for Seismic Rehabilitations of Existing Buildings, Volume 1
3. FEMA 157: Typical Cost for Seismic Rehabilitations of Existing Buildings, Volume 12
4. FEMA Benefit Cost Calculator: https://www.fema.gov/grants/tools/benefit-cost-analysis
5. dbs.lacity.org

EB77-25

EB78-25

IEBC: [A] 106.2.3, SECTION 202 (New), SECTION 202, 601.2, 603.1, 604.1, 901.2

Proponents: Grant Ullrich, City of Chicago, representing Self (grant.ullrich@cityofchicago.org)

2024 International Existing Building Code

Revise as follows:

[A] 106.2.3 Means of egress. The construction documents for ~~*Alterations*—Level 2, *Alterations*—Level 3~~ *reconfigured spaces*, *additions* and *changes of occupancy* shall show in sufficient detail the location, construction, size and character of all portions of the means of egress in compliance with the provisions of this code. The construction documents shall designate the number of occupants to be accommodated in every ~~*work area* of every~~ floor where work is to be performed and in all affected rooms and spaces.

Add new definition as follows:

RECONFIGURED SPACE. A newly created room or space or existing room or space where any of the following occur:

1. An increase in floor area.
2. A change from non-habitable to habitable space.
3. A change from non-occupiable to occupiable space.
4. Creation or elimination of an opening connecting two or more stories.
5. An increase in exit access travel distance.
6. An increase in common path of egress travel.
7. Elimination or relocation of an *emergency escape and rescue opening*.
8. An increase in travel distance to toilet facilities.

Revise as follows:

WORK AREA. ~~That~~ The portion or portions of ~~a building~~ an *existing building* consisting of all ~~*reconfigured spaces* as indicated on the construction documents~~ *reconfigured spaces* intended as part of a project or series of related projects in an *existing building*. Work area excludes other portions of the building where incidental work ~~entailed~~ necessitated by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.

601.2 Work area. The *work area*, ~~as defined in Chapter 2,~~ including each *reconfigured space*, shall be identified on the construction documents.

603.1 Scope. Level 2 *alterations* include ~~the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment, and shall apply~~ *reconfigured space* where the total floor area of the w*ork area* is ~~equal to or~~ less than or equal to 50 percent of the ~~building area~~ total floor area of the *existing building*.

Exception: The movement or addition of nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height shall not be considered a Level 2 *alteration*.

604.1 Scope. Level 3 *alterations* ~~apply~~ include *reconfigured space* where the total floor area of the *work area* exceeds 50 percent of the ~~*building area*~~total floor area of the *existing building*.

901.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8. The requirements of Sections 802, 803, 804 and 805 shall apply ~~within all~~ throughout the *work area*~~*s*~~ whether or not ~~they~~ it includes exits and corridors shared by more than one tenant and regardless of the occupant load.

Exception: Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall not be required to comply with this chapter.

Reason: One of the greatest challenges of applying the IEBC's work area method is determining what exactly the code intends to encompass as work area. The current definition of work area turns on the meaning of the undefined term “reconfigured spaces.”

When a term is undefined in the IEBC and other I-Codes, it has its “ordinarily accepted meaning[] such as the context implies.” (2024 IEBC § 201.4).

The Merriam-Webster Online Dictionary provides the following definition for “reconfigure[d]”:

> “to rearrange (something) into an altered form, figure, shape, or layout **:** to configure (something) again or in a new way”

This dictionary definition is not particularly helpful.

The 2024 IEBC Commentary suggests that “where a new opening is cut in a wall between rooms . . . only the actual floor area occupied by the columns, beams or walls that are being modified would be included in the “work area.” The Commentary seemingly conflates “reconfigured spaces” with “reconfigured plan areas.”

After a discussion with code officials in several other large jurisdictions, I found none who accepted the IEBC Commentary’s example as a correct reading of “reconfigured space.” (I did speak with one architect who loved the narrow reading in the Commentary!)

Among the code officials I spoke with, there were two alternative readings of “work area.”

One group said that by cutting a new door opening between two existing rooms, the spaces on both sides are always reconfigured. The other group said that in their jurisdictions, the extent of “reconfigured” space was dependent on whether the new opening changed the code requirements applicable to either or both spaces.

This code change proposal is to codify the second reading and add a new definition of “reconfigured space” to the IEBC, which will make determining the “work area” much more consistent and predictable.

The proposed definition of "reconfigured space" encompasses "newly created rooms and spaces" and existing rooms and spaces that undergo one of 8 enumerated changes. The 8 enumerated changes are intended to capture the vast majority of conditions where an alteration may trigger enhanced code requirements.

The balance of this proposal makes coordinating changes to Chapters 6 and 9 to recognize that "total floor area" is an attribute of the "work area," not an equivalent term, and that there is only one "work area" in a given project, even though it may include discontinuous portions of a building.

EXAMPLE:

The following example illustrates how “work area” is to be determined if this code change is adopted (and how many jurisdictions apply it today):

There is a 50,000 square foot single-story office building that is currently subdivided into two tenant spaces: one is 30,000 square feet and one is 20,000 square feet. Both tenant spaces are open-plan professional offices and there will be no change of occupancy. The intended project is to relocate the demising wall so that the two tenant spaces will be equal in size (25,000 square feet each), with corresponding adjustments to MEP systems in both tenant spaces.

Under this proposal, only the floor area of the tenant space that has increased in floor area is counted as part of the "work area." (None of the other 7 conditions are triggered in the tenant space that is being reduced in floor area.) Because this "work area" is “equal to or less than 50 percent of the building area,” this is a Level 2 alteration. (IEBC 603.1)

Bibliography: “Reconfigure.” *Merriam-Webster.com Dictionary*, Merriam-Webster, https://www.merriam-webster.com/dictionary/reconfigure (Accessed 1/10/2025).

“Work Area.” *2024 IEBC Code and Commentary (Existing Building)*, International Code Council, Inc. (2024).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides a clearer framework for determining what is included in the "work area" for purposes of applying the work area method.

EB79-25

IEBC: 602.1, 603.1, 604.1, 801.1, 801.3, 901.1, 901.2

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

602.1 Scope. Level 1 *alterations* include the removal and replacement or the covering of existing materials, elements, *equipment or fixtures* using new materials, elements, *equipment or fixtures* that serve the same purpose.<u>Work that is limited to one or more of the following categories shall also be classified as a Level 1 *alteration*:</u>

1. <u>Installation or alteration of mechanical systems or equipment.</u>
2. <u>Installation or alteration of electrical systems or equipment.</u>
3. <u>Installation or alteration of fire protection systems or equipment.</u>
4. <u>Abatement of hazardous materials.</u>
5. <u>Installation or alteration of windows, hardware, operating controls, or signage.</u>
6. <u>The movement or addition of nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.</u>
7. <u>Work that is for the primary purpose of increasing the degree of accessibility or usability for individuals with disabilities or that is required by Section 306.7.1.</u>

603.1 Scope. Level 2 *alterations* include the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment, and shall apply where the w*ork area* is equal to or less than 50 percent of the building area.

Exception: ~~The movement or addition of nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height shall not be considered a Level 2 *alteration*.~~ <u>Work classified as a Level 1 *alteration* in accordance with Section 602.1.</u>

604.1 Scope. Level 3 *alterations* apply where the *work area* exceeds 50 percent of the *building area*.

<u>**Exception:** Work classified as a Level 1 *alteration* in accordance with Section 602.1.</u>

801.1 Scope. Level 2 *alterations* as described in Section 603 shall comply with the requirements of this chapter.

~~**Exception:** Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall be permitted to comply with Chapter 7.~~

Delete without substitution:

~~**801.3 System installations.** Requirements related to *work area* are not applicable where the Level 2 *alterations* are limited solely to one or more of the following:~~

1. ~~Mechanical systems, electrical systems, fire protection systems and abatement of hazardous materials.~~
2. ~~Windows, hardware, operating controls, electrical outlets and signs.~~
3. ~~*Alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.~~

901.1 Scope. Level 3 *alterations* as described in Section 604 shall comply with the requirements of this chapter.

Revise as follows:

901.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8. The requirements of Sections 802, 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

~~**Exception:** Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall not be required to comply with this chapter.~~

Reason: When using the IEBC Work Area Compliance Method for alterations, it is essential to correctly classify the level of alteration work being performed. Over several code development cycles, several provisions have been inserted that reduce the classification of certain types of alteration work from Level 2 or 3 to Level 1. Because of the scattered nature of these provisions, they are sometimes difficult to locate and to apply consistently. This proposal replaces the existing provisions with a single exception in Chapter 6 (the scoping chapter for the Work Area Compliance Method.)

New exception items 1 through 4 replace current Section 801.3, item 1.

New exception item 5 replaces current Section 801.3, item 2.

New exception item 6 replaces the current exception to Section 603.1.

New exception item 7 replaces the current exceptions to Sections 801.1 and 901.2.

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG) and the ICC Building Code Action Committee (BCAC)

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is editorial. It relocates related provisions to make it easier to consistently classify work when using the work area compliance method.

EB79-25

EB80-25

IEBC: CHAPTER 7, SECTION 701, 702.7, [FG] 702.7.1, SECTION 703, SECTION 702, 702.1, 702.2, 702.3, SECTION 704, 702.4, 702.5, 702.5.1, 702.6, SECTION 708, SECTION 705, SECTION 706, 707, CHAPTER 8, SECTION 801, SECTION 802, 802.6, 803.1.1, SECTION 803 (New), 802.4, 802.4.1, SECTION 803, SECTION 804, 802.5, 802.5.1, 802.5.2, SECTION 809, SECTION 805, SECTION 806, SECTION 807, SECTION 808, CHAPTER 9, SECTION 901, SECTION 902, SECTION 903, SECTION 904 (New), 903.3, SECTION 904, SECTION 908, 908.1, 908.1.1, 908.1.2, SECTION 905, SECTION 907 (New), 903.4, SECTION 907, SECTION 906

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

CHAPTER 7
ALTERATIONS—LEVEL 1

SECTION 701
GENERAL

Revise as follows:

~~702.7~~ 701.4 **Materials and methods.** New work shall comply with the materials and methods requirements in the *International Building Code*, International Energy Conservation Code, *International Mechanical Code* and *International Plumbing Code*, as applicable, that specify material standards, detail of installation and connection, joints, penetrations and continuity of any element, component or system in the building.

[FG] ~~702.7.1~~ 701.4.1 **International Fuel Gas Code.** The following sections of the *International Fuel Gas Code* shall constitute the fuel gas materials and methods requirements for Level 1 *alterations*.

1. Chapter 3, entitled "General Regulations," except Sections 303.7 and 306.
2. Chapter 4, entitled "Gas Piping Installations," except Sections 401.8 and 402.3.
   2.1. Sections 401.8 and 402.3 shall apply where the work being performed increases the load on the system such that the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.
3. Chapter 5, entitled "Chimneys and Vents."
4. Chapter 6, entitled "Specific Appliances."

SECTION ~~703~~ 702
FIRE PROTECTION SYSTEMS

SECTION ~~702~~ 703
INTERIOR FINISHES
~~BUILDING ELEMENTS AND MATERIALS~~

~~702.1~~ 703.1 **Interior finishes.** Newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the *International Building Code*.

~~702.2~~ 703.2 **Interior floor finish.** New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the *International Building Code*.

~~702.3~~ 703.3 **Interior trim.** Newly installed interior trim materials shall comply with Section 806 of the *International Building Code*.

SECTION 704
MEANS OF EGRESS

~~702.4~~ 704.4 **Window fall prevention .** In Group R-2 or R-3 buildings containing dwelling units and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices or other window fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable.
2. One of the following applies:
   2.1. The window replacement includes replacement of the sash and frame.
   2.2. The window replacement includes the sash only where the existing frame remains.
3. One of the following applies:
   3.1. In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
   3.2. In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
5. The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

Exception:

Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.

~~702.5~~ 704.5 **Replacement window for emergency escape and rescue openings.** Where windows are required to provide *emergency escape and rescue openings* in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Section 1031.3 of the *International Building Code* and Section R310.2 of the *International Residential Code*, provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. Where the replacement window is part of a *change of occupancy* it shall comply with Section 1011.5.6.

~~702.5.1~~ 704.5.1 **Control devices.** Window opening control devices or fall prevention devices complying with ASTM F2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings.* After operation to release the control device allowing the window to fully open, the control device shall not reduce the net clear opening area of the window unit. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools.

~~**702.6**~~ **704.6 Bars, grilles, covers or screens.** Bars, grilles, covers, screens or similar devices are permitted to be placed over *emergency escape and rescue openings*, bulkhead enclosure or window wells that serve such openings, provided all of the following conditions are met:

1. The minimum net clear opening size complies with the code that was in effect at the time of construction.
2. Such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening.
3. Where such devices are installed, they shall not reduce the net clear opening of the *emergency escape and rescue openings*.
4. Smoke alarms shall be installed in accordance with Section 907.2.11 of the *International Building Code*.

SECTION ~~708~~ 705 ENERGY CONSERVATION

SECTION ~~705~~ 706 REROOFING

SECTION ~~706~~ 707 STRUCTURAL

SECTION ~~707~~ 708 ELECTRICAL

CHAPTER 8 ALTERATIONS—LEVEL 2

SECTION 801 GENERAL

SECTION 802 ~~BUILDING ELEMENTS AND MATERIALS~~ FIRE AND SMOKE PROTECTION SYSTEMS

~~**802.6**~~ **802.4 Fire-resistance ratings.** Where *approved* by the *code official*, buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the *International Building Code* has been added, and the building is now sprinklered throughout, the required fire-resistance ratings of building elements and materials shall be permitted to meet the requirements of the current building code. The building is required to meet the other applicable requirements of the *International Building Code*.

Plans, investigation and evaluation reports, and other data shall be submitted indicating which building elements and materials the applicant is requesting the *code official* to review and approve for determination of applying the current building code fire-resistance ratings. Any special construction features, including fire-resistance-rated assemblies and smoke-resistive assemblies, conditions of occupancy, means-of-egress conditions, fire code deficiencies, *approved* modifications or *approved* alternative materials, design and methods of construction, and equipment applying to the building that impact required fire-resistance ratings shall be identified in the evaluation reports submitted.

~~**803.1.1**~~**802.5 Corridor ratings.** Where an *approved* automatic sprinkler system is installed throughout the story, the required fire-resistance rating for any corridor located on the story shall be permitted to be reduced in accordance with the *International Building*

Code. In order to be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the floor and the intermediate landings immediately below.

Add new text as follows:

SECTION 803 INTERIOR FINISHES

Revise as follows:

~~802.4~~ 803.1 Interior finish. The interior finish and trim of walls and ceilings in exits and corridors in any *work area* shall comply with the requirements of the *International Building Code*.

Exception: Existing materials that do not comply with the requirements of the International Building Code shall be permitted to be treated with an *approved* fire-retardant coating in accordance with the manufacturer's instructions to achieve the required classification. Compliance with this section shall be demonstrated by testing the fire-retardant coating on the same material and achieving the required performance. Where the same material is not available, testing on a similar material shall be permitted.

~~802.4.1~~ 803.2 Supplemental interior finish requirements. Where the *work area* on any floor exceeds 50 percent of the floor area, Section ~~802.4~~ 803.1 shall apply to the interior finish and trim in exits and corridors serving the *work area* throughout the floor.

Exception: Interior finish within tenant spaces that are entirely outside the *work area*.

SECTION ~~803~~ 804 ~~FIRE PROTECTION~~AUTOMATIC SPRINKLER SYSTEMS AND FIRE ALARM AND DETECTION SYSTEMS

SECTION ~~804~~ 805 MEANS OF EGRESS

~~802.5~~ 805.14 Guards. The requirements of Sections ~~802.5.1~~ 805.14.3.1 and ~~802.5.2~~ 805.14.3.2 shall apply in all *work areas*.

~~802.5.1~~ 805.14.3.1 Minimum requirement. Every portion of a floor, such as a balcony or a loading dock, that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those in which the existing guards are judged to be in danger of collapsing, shall be provided with guards.

~~802.5.2~~ 805.14.3.2 Design. Where there are no guards or where existing guards must be replaced, the guards shall be designed and installed in accordance with the *International Building Code*.

SECTION ~~809~~ 806 ENERGY CONSERVATION

SECTION ~~805~~ 807 STRUCTURAL

SECTION ~~806~~ 808 ELECTRICAL

SECTION ~~807~~ 809
MECHANICAL

SECTION ~~808~~ 810
PLUMBING

CHAPTER 9
ALTERATIONS—LEVEL 3

SECTION 901
GENERAL

SECTION 902
SPECIAL USE AND OCCUPANCY

SECTION 903
~~BUILDING ELEMENTS AND MATERIALS~~ FIRE PROTECTION SYSTEMS

Add new text as follows:

SECTION 904
INTERIOR FINISHES

Revise as follows:

~~903.3~~ 904.1 Interior finish. Interior finish in exits serving the *work area* shall comply with Section 802.4 between the highest floor on which there is a *work area* to the floor of exit discharge.

SECTION ~~904~~ 905
~~FIRE PROTECTION~~ AUTOMATIC SPRINKLER SYSTEMS AND FIRE ALARM AND DETECTION SYSTEMS

Delete without substitution:

~~SECTION 908~~
~~EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM COVERAGE~~

Revise as follows:

~~908.1~~ 904.3 Emergency responder communication enhancement system coverage. The *existing building* shall undergo an evaluation of the emergency responder communication signal strength and coverage area within the entire building in accordance with Sections ~~908.1.1~~ 904.3.1 and ~~908.1.2~~ 904.3.2.

Exception: Where it is determined by the fire *code official* that the emergency responder communication enhancement system

(ERCES) is not needed.

~~908.1.1~~ 904.3.1 **Evaluation.** The evaluation shall determine the current signal strength and coverage capabilities of the public safety communication systems utilized by the jurisdiction, measured at the exterior of the building.

~~908.1.2~~ 904.3.2 **Compliance.** The evaluation report shall be submitted for approval by the fire code official and the frequency license holder. Where the coverage area, signal strength or DAQ does not comply with Section 510 of the *International Fire Code*, the *existing building* shall be provided with ERCES coverage. The fire code official is authorized to establish the timeframe for such installation or modification.

SECTION ~~905~~ 906 MEANS OF EGRESS

Add new text as follows:

SECTION 907 INTERIOR ENVIRONMENTS

Revise as follows:

~~903.4~~ 907.1 **Enhanced classroom acoustics.** In Group E occupancies, where the *work area* is a Level 3 *alteration*, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.

SECTION ~~907~~ 908 ENERGY CONSERVATION

SECTION ~~906~~ 909 STRUCTURAL

Reason: The itent of this proposal is similar to the more extensive reordering proposed for Chapter 3 and 10. This follows the order of the IBC with the idea that this order is familiar and it will be easier for people to find requirements and use the IEBC.

Not all sections are shown. If the main section is renumbered, it is assumed the the sections underneath will also be renumbered. The subsections shown are those proposed to be relocated. Over time it appears that many proposals were dropped into the first section or dropped in at the end. Nothing requirements have been deleted - just regrouped.

Fire protection systems are the requirements for a fire-resistance rating. If smoke protections systems are listed, that is also included in the title. This is related to IBC Chapter 7.

Interior finishes is Chapter 8.

Automatic sprinklers and fire alarm and detections systems are Chapter 9 related

Means of egress - including EERO and guards (including window fall devices) are IBC Chapter 10.

Energy conservation is IBC Chapter 13, so this is moved up in front of the structural provisions.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a reorganization of sections. There are no changes to requirements.

EB80-25

EB81-25

IEBC: SECTION 707 (New), 707.1 (New), [FG] 702.7.1

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Add new text as follows:

SECTION 707
PLUMBING, MECHANICAL AND FUEL GAS

707.1 Materials and methods. New work shall comply with the materials and methods requirements in the *International Residential Code*, *International Mechanical Code*, *International Plumbing Code* and the *International Fuel Gas Code*, as applicable, that specify material standards, detail of installation and connection, joints, penetrations and continuity of any element, component or system in the building.

Revise as follows:

[FG] ~~702.7.1~~ 707.2 International Fuel Gas Code. The following sections of the *International Fuel Gas Code* shall constitute the fuel gas materials and methods requirements for Level 1 *alterations*.

1. Chapter 3, entitled “General Regulations,” except Sections 303.7 and 306.
2. Chapter 4, entitled “Gas Piping Installations,” except Sections 401.8 and 402.3.
   2.1. Sections 401.8 and 402.3 shall apply where the work being performed increases the load on the system such that the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.
3. Chapter 5, entitled “Chimneys and Vents.”
4. Chapter 6, entitled “Specific Appliances.”

Reason: Plumbing, mechanical, and fuel gas requirements get lost when placed in the building elements and materials section of Section 702. These requirements should fall under the general requirements to ensure that the PMG requirements are not missed by the user of the code.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is not a technical change as this simple relocates sections in the same chapter.

EB82-25

IEBC: [BS] 706.1, [BS] 805.1, [BS] 706.2, [BS] 805.2, [BS] 805.3, [BS] 805.4, [BS] 706.3, [BS] 706.3.1, [BS] 706.3.2, SECTION 805

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Delete without substitution:

~~**[BS] 706.1 General.** Where *alteration* work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the provisions of this section shall apply.~~

Revise as follows:

[BS] ~~805.1~~ 706.1 General. Structural elements and systems within buildings undergoing ~~Level 2~~ *alterations* shall comply with this section.

Delete without substitution:

~~**[BS] 706.2 Addition or replacement of roofing or replacement of equipment.** Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures.~~

~~**Exceptions:**~~

1. ~~Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.~~
2. ~~Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less over an existing single layer of roof covering.~~

Revise as follows:

[BS] ~~805.2~~ 706.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design dead, live and snow loads, including snow drift effects, required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is attributable to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less over an existing single layer of roof covering.

[BS] ~~805.3~~ 706.3 Existing structural elements resisting lateral loads. Except as permitted by Section ~~805.4~~ 706.4, where the *alteration* increases design lateral loads, or where the alteration results in prohibited structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the lateral force-resisting system of the altered building or structure shall meet the requirements of Section 1609 of the *International Building Code* and Section 304.3.2 of this code.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Section 1609 of the *International Building Code* and Section 304.3.1 or 304.3.2 of this code. The same methodology shall be used for the altered and unaltered structures. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 1609 of the *International Building Code* or the code wind forces in effect at the time. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior *addition*, *alteration* or *repair* in compliance with Section 304.3.1 or 304.3.2 Item 1 or 3 or the full or reduced seismic forces in effect at the time.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, “roof” shall mean the roof level above a particular story.
3. Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop *photovoltaic panel systems* where the additional roof dead load due to the system, including ballast where applicable, does not exceed 5 pounds per square foot (psf) (0.2394 kN/m^2) and does not exceed 10 percent of the dead load of the existing roof.

[BS] ~~805.4~~ <u>706.4</u> Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be subject to the structural requirements of this chapter ~~or Chapter 7~~, provided that the following conditions are met:

1. With the *alteration* complete, the capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

   Exception: New lateral force-resisting systems designed in accordance with the *International Building Code* are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.
3. Supports and attachments for nonstructural elements removed and reinstalled to facilitate the work comply with the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

   Exception: Condition 4 need not be satisfied where the work complies with Section 304.3.2 Item 3.

[BS] ~~706.3~~ <u>706.5</u> Additional requirements for ~~reroof permits~~ <u>reroofing</u>. The requirements of this section shall apply to ~~alteration~~ <u>*reroofing*</u> work ~~requiring reroof permits~~ <u>not classified as a *repair*</u>.

[BS] ~~706.3.1~~ <u>706.5.1</u> Bracing for unreinforced masonry bearing wall parapets. Where a permit is issued for *reroofing* for more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F that has parapets constructed of unreinforced masonry, the work shall comply with Section 304.3.2 by evaluation of the existing condition or by installation of parapet bracing.

[BS] ~~706.3.2~~ <u>706.5.2</u> Roof diaphragms resisting wind loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the basic wind speed, *V*, is greater than 130 mph (58 m/s), in accordance with Figure 1609.3(2) of the *International Building Code*, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code.*

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

Delete without substitution:

~~SECTION 805~~ ~~STRUCTURAL~~

Reason: According to Section 602.1, “Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment or fixtures using new materials, elements, equipment or fixtures that serve the same purpose.” Based on this scope, many but not all Level 1 alterations will have negligible structural impact. In some cases, however, new elements “serving the same purpose” may have a significant structural impact if they do not match the weight and structural performance of the elements they replace.

Currently, Chapter 7 does not address what to do if elements replaced as part of a Level 1 alteration have a reduced gravity- or lateral-load-carrying capacity relative to what previously existed. This code change addresses this gap by relocating the language that addresses these circumstances from Chapter 8 to Chapter 7. This proposal also recognizes that some voluntary improvements to lateral force resisting systems do not clearly fit within the scope of Level 2 alterations and similarly relocates the provision on this topic from Chapter 8 to Chapter 7. Finally, this provision renumbers the subsection addressing reroofing, and eliminates any confusion about whether structural requirements are triggered (or avoided) by a jurisdiction's roof permitting requirements and exceptions.

This proposal was developed based on feedback received in response to proposal 10997 (CC #EB79-25), which clarifies the types of work that are classified as Level 1 alterations, however the two proposals are independent.

This proposal is submitted with the ICC Adaptive Reuse Working Group (ARWG).

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change provides clarification and additional guidance on how structural requirements apply to Level 1 alteration work.

EB82-25

EB83-25

IEBC: 802.1, 803.1, 804.1

Proponents: Grant Ullrich, City of Chicago, representing Self (grant.ullrich@cityofchicago.org)

2024 International Existing Building Code

Revise as follows:

802.1 Scope. The requirements of this section are limited to ~~*work areas* in which Level 2 *alterations* are being performed~~ the *work area* except where specifically scoped to apply ~~and shall apply~~ beyond the *work area* ~~where specified~~.

803.1 Scope. The requirements of this section ~~shall be~~ are limited to the *work area* except where specifically scoped to apply ~~*work areas* in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise~~ beyond the *work area*.

804.1 Scope. The requirements of this section ~~shall be~~ are limited to *work areas* that include exits or corridors shared by more than one tenant ~~within the *work area* in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise~~ except where specifically scoped to apply beyond the *work area*.

Reason: One of the key principles of the work area compliance method is focusing requirements to upgrade existing conditions to the area where work is performed, with limited and specific exceptions. The scoping language for three sections of Chapter 8 (802, 803, and 804) provides that the requirements of these sections apply beyond the work area "where specified." This proposal standardizes the wording across the three scoping provisions, and also clarifies that requirements will only apply "beyond the work area" when "specifically scoped" in a subsection.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change improves the clarity of three related provisions in Chapter 8 and makes the language consistent across the 3 sections. There is no substantive change in requirements.

EB83-25

EB84-25

IEBC: [A] 106.2.3, SECTION 202 (New), 802.2.1, 802.2.2, 802.2.3, 802.4.1, 803.1, 803.1.1, 803.2.1, 803.2.1.1, 803.2.2, 803.2.5, 803.3, 803.4.2, 804.1, 804.5.1.1, TABLE 804.5.1.1(1), 804.6.2.1, 804.6.3, 804.6.3.1, 804.6.4.1, 804.7.3.1, 804.7.4, 804.8, 804.9.2, 804.10.2, 804.13, 804.14, 902.1, 902.1.1, 902.1.2, 903.1, 903.3, 904.2.1, 905.2, 905.3, 1009.1, 1011.7.3, 1011.8.2, 1201.3, 1305.2.2.2, 1305.2.3.2, 1305.2.5, TABLE 1305.2.5, 1305.2.6, TABLE 1305.2.6(1), 1305.2.8.1, 1305.2.10.1, 1305.2.14, 1305.2.14.1, 1305.2.19, TABLE 1306.1

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

[A] 106.2.3 Means of egress. The construction documents for *Alterations*—Level 2, *Alterations*—Level 3, *additions* and *changes of occupancy* shall show in sufficient detail the location, construction, size and character of all portions of the means of egress in compliance with the provisions of this code. The construction documents shall designate the number of occupants to be accommodated in every *work area* of every ~~floor~~ <u>*story*</u> and in all affected rooms and spaces.

Add new definition as follows:

<u>**EXIT DISCHARGE, LEVEL OF.** The *story* at the point at which an exit terminates and an exit discharge begins.</u>
<u>**GRADE PLANE.** A reference plane representing the average of finished ground level adjoining the building at exterior walls. Where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the lot line or, where the lot line is more than 6 feet (1829 mm) from the building, between the building and a point 6 feet (1829 mm) from the building.</u>
<u>**STORY.** That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above. A story is measured as the vertical distance from top to top of two successive tiers of beams or finished floor surfaces and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.</u>
<u>**STORY ABOVE GRADE PLANE.** Any *story* having its finished floor surface entirely above *grade plane*, or in which the finished surface of the floor next above is:</u>

1. <u>More than 6 feet (1829 mm) above *grade plane*; or</u>
2. <u>More than 12 feet (3658 mm) above the finished ground level at any point.</u>

Revise as follows:

802.2.1 Existing vertical openings. Existing interior vertical openings connecting two or more ~~floors~~ <u>*stories*</u> shall be enclosed with *approved* assemblies having a fire-resistance rating of not less than 1 hour with *approved* opening protectives.

Exceptions:

1. Where vertical opening enclosure is not required by the *International Building Code* or the *International Fire Code*.
2. Interior vertical openings other than stairways may be blocked at the floor and ceiling of the *work area* by installation of not less than 2 inches (51 mm) of solid wood or equivalent construction.

3. The enclosure shall not be required where~~:~~

~~3.1.~~ ~~Connecting the main floor and mezzanines; or~~

~~3.2.~~ ~~All~~ all of the following conditions are met:

3.~~2.~~1. The communicating area has a low-hazard occupancy or has a moderate-hazard occupancy that is protected throughout by an automatic sprinkler system.

3.~~2.~~2. The lowest or next-to-the-lowest ~~level~~ *story* is a ~~street floor~~ *level of exit discharge*.

3.~~2.~~3. The entire area is open and unobstructed in a manner such that it is reasonable to assume that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants.

3.~~2.~~4. Exit capacity is sufficient to provide egress simultaneously for all occupants of all levels by considering all areas to be a single ~~floor area~~ *story* for the determination of required exit capacity.

3.~~2.~~5. Each ~~floor level~~ *story*, considered separately, has not less than one-half of its individual required exit capacity provided by an exit or exits leading directly out of that ~~level~~ *story* without having to traverse another communicating ~~floor level~~ *story* or be exposed to the smoke or fire spreading from another communicating ~~floor level~~ *story* .

4. In Group A occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings ~~not exceeding~~ connecting no more than three stories.

5. In Group B occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings ~~not exceeding~~ connecting no more than three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:

5.1. Buildings not exceeding 3,000 square feet (279 m^2) per ~~floor~~ *story*.

5.2. Buildings protected throughout by an *approved* automatic fire sprinkler system.

6. In Group E occupancies, the enclosure shall not be required for vertical openings ~~not exceeding~~ connecting no more than three stories where the building is protected throughout by an *approved* automatic fire sprinkler system.

7. In Group F occupancies, the enclosure shall not be required in the following locations:

7.1. Vertical openings ~~not exceeding~~ connecting no more than three stories.

7.2. Special-purpose occupancies where necessary for manufacturing operations and direct access is provided to not fewer than one protected stairway.

7.3. Buildings protected throughout by an *approved* automatic sprinkler system.

8. In Group H occupancies, the enclosure shall not be required for vertical openings ~~not exceeding~~ connecting no more than three stories where necessary for manufacturing operations and every ~~floor level~~ *story* has direct access to not fewer than two remote enclosed stairways or other *approved* exits.

9. In Group M occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings ~~not exceeding~~ connecting no more than three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:

9.1. Openings connecting only two ~~floor levels~~ *stories*.

9.2. Occupancies protected throughout by an *approved* automatic sprinkler system.

10. In Group R-1 occupancies, the enclosure shall not be required for vertical openings~~not exceeding~~ connecting no more than three stories in the following locations:
    10.1. Buildings protected throughout by an *approved* automatic sprinkler system.
    10.2. Buildings with less than 25 dwelling units or sleeping units where every sleeping room above the second ~~floor~~ *story above grade plane* is provided with direct access to a fire escape or other *approved* second exit by means of an *approved* exterior door or window having a sill height of not greater than 44 inches (1118 mm) and where both of the following conditions are met:
        10.2.1. Any exit access corridor exceeding 8 feet (2438 mm) in length that serves two means of egress, one of which is an unprotected vertical opening, shall have not fewer than one of the means of egress separated from the vertical opening by a 1-hour fire barrier.
        10.2.2. The building is protected throughout by an automatic fire alarm system, installed and supervised in accordance with the *International Building Code*.

11. In Group R-2 occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings ~~not exceeding~~ connecting no more than three stories. This enclosure, or the enclosure specified in Section 802.2.1, shall not be required in the following locations:
    11.1. Vertical openings not exceeding two stories with not more than four dwelling units per ~~floor~~ *story*.
    11.2. Buildings protected throughout by an *approved* automatic sprinkler system.
    11.3. Buildings with not more than four dwelling units per ~~floor~~ *story* where every sleeping room above the second ~~floor~~ *story above grade plane* is provided with direct access to a fire escape or other *approved* second exit by means of an *approved* exterior door or window having a sill height of not greater than 44 inches (1118 mm) and the building is protected throughout by an automatic fire alarm system complying with Section 803.4.
12. One- and two-family dwellings.
13. Group S occupancies where connecting ~~not~~ no more than two ~~floor levels~~ *stories* or where connecting ~~not~~ no more than three ~~floor levels~~ *stories* and the structure is equipped throughout with an *approved* automatic sprinkler system.
14. Group S occupancies where vertical opening protection is not required for open parking garages and ramps.

802.2.2 Supplemental shaft and floor opening enclosure requirements. Where the *work area* on ~~any floor~~ a *story* exceeds 50 percent of ~~that~~ the floor area of that *story*, the enclosure requirements of Section 802.2 shall apply to vertical openings other than stairways throughout the ~~floor~~ *story*.

Exception: Vertical openings located in tenant spaces that are entirely outside the *work area*.

802.2.3 Supplemental stairway enclosure requirements. Where the *work area* on ~~any floor~~ a *story* exceeds 50 percent of ~~that~~ the floor area of the *story*, stairways that are part of the means of egress serving the *work area* shall, at a minimum, be enclosed with smoketight construction on the highest *story* in the *work area* ~~floor~~ and all ~~floors~~ *stories* below.

Exception: Where stairway enclosure is not required by the *International Building Code* or the *International Fire Code*.

802.4.1 Supplemental interior finish requirements. Where the *work area* on ~~any floor~~ a *story* exceeds 50 percent of the floor area of the *story*, Section 802.4 shall apply to the interior finish and trim in exits and corridors serving the *work area* throughout the ~~floor~~ *story*.

Exception: Interior finish within tenant spaces that are entirely outside the *work area*.

803.1 Scope. The requirements of this section shall be limited to *work areas* in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the ~~floor~~ *story* on which the *work areas* are located or otherwise beyond the *work area*.

803.1.1 Corridor ratings. Where an *approved* automatic sprinkler system is installed throughout the story, the required fire-resistance rating for any corridor located on the story shall be permitted to be reduced in accordance with the *International Building Code*. In order to be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the ~~floor~~ *story* and the intermediate landings immediately below.

803.2.1 High-rise buildings. In high-rise buildings, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection in the entire *work area* where the *work area* is located on a ~~floor~~ *story* that has a sufficient sprinkler water supply system from an existing standpipe or a sprinkler riser serving that ~~floor~~ *story*.

803.2.1.1 Supplemental automatic sprinkler system requirements. Where the *work area* on ~~any floor~~ a *story* exceeds 50 percent of ~~that~~ the floor area of that *story*, Section 803.2.1 shall apply to the entire ~~floor~~ *story* on which the *work area* is located.

Exception: Occupied tenant spaces that are entirely outside the *work area*.

803.2.2 Groups A, B, E, F-1, H, I-1, I-3, I-4, M, R-1, R-2, R-4, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I-1, I-3, I-4, M, R-1, R-2, R-4, S-1 and S-2, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where both of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction.
2. The *work area* exceeds 50 percent of the floor area of the *story*.

Exception: If the building does not have an existing water supply present at the ~~floor~~ *story* of the proposed *work area* with sufficient pressure and flow for the design of a fire sprinkler system and without installation of a new fire pump, the *work areas* shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

803.2.5 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the *International Building Code*, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions:

1. The *work area* is required to be provided with an automatic sprinkler system in accordance with the International Building Code applicable to new construction; and
2. The building has an existing water supply present at the ~~floor~~ *story* of the proposed *work area* with sufficient pressure and flow for the design of an automatic sprinkler system and without installation of a new fire pump.

803.3 Standpipes. Where the *work area* includes exits or corridors shared by more than one tenant and is located more than 50 feet (15 240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an *approved* fire department connection with hose connections at each ~~floor level~~ *story* above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the *International Building Code*.

Exceptions:

1. A pump shall not be required provided that the standpipes are capable of accepting delivery by fire department apparatus of not less than 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448 KPa) to the topmost ~~floor~~ *story* in buildings equipped throughout with an automatic sprinkler system or not less than 500 gpm at 65 psi (1892 L/m at 448 KPa) to the topmost ~~floor~~ *story* in all other buildings. Where the standpipe terminates below the topmost ~~floor~~ *story*, the standpipe shall be designed to meet (gpm/psi) (L/m/KPa) requirements of this exception for possible future extension of the standpipe.
2. The interconnection of multiple standpipe risers shall not be required.

803.4.2 Supplemental fire alarm system requirements. Where the *work area* on ~~any floor~~ a *story* exceeds 50 percent of ~~that~~ the floor area of the *story*, Section 803.4.1 shall apply throughout the ~~floor~~ *story*.

Exception: Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the *work area*.

804.1 Scope. The requirements of this section shall be limited to *work areas* that include exits or corridors shared by more than one tenant within the *work area* in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the ~~floor~~ *story* on which the *work areas* are located or otherwise beyond the *work area*.

804.5.1.1 Single-exit buildings. A single exit or access to a single exit shall be permitted from spaces, any story or any occupiable roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and exit access travel distance do not exceed the values in Table 804.5.1.1(1) or 804.5.1.1(2).
2. In Group R-1 or R-2, buildings without an *approved* automatic sprinkler system, individual single-story or multiple-story dwelling or sleeping units shall be permitted to have a single exit or access to a single exit from the dwelling or sleeping unit provided one of the following criteria are met:
   - 2.1. The occupant load is not greater than 10 and the exit access travel distance within the unit does not exceed 75 feet (22 860 mm).
   - 2.2. The building ~~is not~~ has no more than three stories ~~in height~~ above grade plane; all third-story space is part of a dwelling unit with an exit access doorway on the second story above grade plane; and the portion of the ~~exit access~~ travel distance from the door to any habitable room within any such unit to the unit entrance doors does not exceed 50 feet (15 240 mm).
3. In buildings of Group R-2 occupancy of any number of stories with not more than four dwelling units per ~~floor~~ *story* served by an interior exit stairway; with a smokeproof enclosure in accordance with Sections 909.20 and 1023.12 of the *International Building Code* or an exterior stairway as an exit; and where the portion of the exit access travel distance from the dwelling unit entrance door to the exit is not greater than 20 feet (6096 mm).

TABLE 804.5.1.1(1) STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second ~~floor~~ story above grade plane	R-2[a,b,c]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2, equipped without an approved automatic sprinkler system in accordance with Section 903.3.1.1 and 903.3.1.2 of the *International Fire Code* and provided with *emergency escape and rescue openings* in accordance with Section 1031 of the *International Building Code*.

b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2) of the *International Building Code*.

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use Table 804.5.1.1(2).

804.6.2.1 Supplemental requirements for door swing. Where the *work area* on a *story* exceeds 50 percent of the floor area of the *story*, door swing shall comply with Section 804.6.2 throughout the ~~floor~~ *story*.

Exception: Means of egress within or serving only a tenant space that is entirely outside the *work area*.

804.6.3 Door closing. In any *work area*, all doors opening onto an exit passageway ~~at grade~~ or an exit stairway shall be self-closing or automatic-closing by *listed* closing devices.

Exceptions:

1. Where exit enclosure is not required by the *International Building Code*.
2. Means of egress within or serving only a tenant space that is entirely outside the *work area*.

804.6.3.1 Supplemental requirements for door closing. Where the *work area* <u>on a *story*</u> exceeds 50 percent of the floor area <u>of the *story*</u>, doors shall comply with Section 804.6.3 throughout the exit stairway from ~~the *work area*~~ <u>that *story*</u> to, and including, the level of exit discharge.

804.6.4.1 Supplemental requirements for panic hardware. Where the *work area* <u>on a *story*</u> exceeds 50 percent of the floor area <u>of the *story*</u>, panic hardware shall comply with Section 804.6.4 throughout the ~~floor~~ <u>*story*</u>.

Exception: Means of egress within a tenant space that is entirely outside the *work area*.

804.7.3.1 Supplemental requirements for other corridor opening. Where the *work area* <u>on a *story*</u> exceeds 50 percent of the floor area <u>of the story</u>, Section 804.7.3 shall be applicable to all corridor windows, ~~grills~~ <u>grilles</u>, sashes and other openings on the ~~floor~~ <u>story</u>.

Exception: Means of egress within or serving only a tenant space that is entirely outside the *work area*.

804.7.4 Supplemental requirements for corridor openings. Where the *work area* on ~~any floor~~ <u>a *story*</u> exceeds 50 percent of the floor area <u>of the *story*</u>, the requirements of Sections 804.7.1 through 804.7.3 shall apply throughout the ~~floor~~ <u>*story*</u>.

804.8 Dead-end corridors. Dead-end corridors in any *work area* shall not exceed 35 feet (10 670 mm). In Group I-2 occupancies, dead-end corridors shall not exceed 30 feet (9144 mm).

Exceptions:

1. Where dead-end corridors of greater length are permitted by the *International Building Code*.
2. In other than Group A, I-2 and H occupancies, the maximum length of an existing dead-end corridor shall be 50 feet (15 240 mm) in buildings equipped throughout with an automatic fire alarm system installed in accordance with the *International Building Code*.
3. In other than Group A, I-2 and H occupancies, the maximum length of an existing dead-end corridor shall be 70 feet (21 356 mm) in buildings equipped throughout with an automatic sprinkler system installed in accordance with the *International Building Code*.
4. In other than Group A, I-2 and H occupancies, the maximum length of an existing, newly constructed, or extended dead-end corridor shall not exceed 50 feet (15 240 mm) on ~~floors~~ <u>*stories*</u>equipped with an automatic sprinkler system installed in accordance with the *International Building Code*.

804.9.2 Supplemental requirements for means-of-egress lighting. Where the *work area* on ~~any floor~~ <u>a *story*</u> exceeds 50 percent of that floor area <u>of the *story*</u>, means of egress throughout the ~~floor~~ <u>*story*</u> shall comply with Section 804.9.1.

Exception: Means of egress within or serving only a tenant space that is entirely outside the *work area*.

804.10.2 Supplemental requirements for exit signs. Where the *work area* on ~~any floor~~ <u>a *story*</u> exceeds 50 percent of ~~that~~ <u>the</u> floor area <u>of the *story*</u>, means of egress throughout the ~~floor~~ <u>*story*</u> shall comply with Section 804.10.1.

Exception: Means of egress within a tenant space that is entirely outside the *work area*.

804.13 Handrails. The requirements of Sections 804.13.1 and 804.13.2 shall apply to handrails from the <u>highest *story* in the</u> *work area* ~~floor~~ to, and including, the level of exit discharge.

804.14 Guards. The requirements of 804.14.1 and 804.14.2 shall apply to guards from the <u>highest *story* in the</u> *work area* ~~floor~~ to, and including, the level of exit discharge but shall be confined to the egress path of any *work area*.

902.1 High-rise buildings. Any building having an occupied ~~floors~~ floor or ~~an~~ *occupiable roof* more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall comply with the requirements of Sections 902.1.1 and 902.1.2.

902.1.1 Recirculating air or exhaust systems. Where a ~~floor~~ *story* is served by a recirculating air or exhaust system with a capacity greater than 15,000 cubic feet per minute (701 m^3/s), that system shall be equipped with *approved* smoke and heat detection devices installed in accordance with the *International Mechanical Code*.

902.1.2 Elevators. Where there is an elevator or elevators for public use, not fewer than one elevator serving the *work area* shall comply with this section. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the ~~main floor or other level of a building and intended to serve the needs of emergency personnel for fire-fighting or rescue purposes~~ lowest level of fire department vehicle access shall be provided with emergency operation in accordance with ASME A17.3. New elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1/CSA B44.1.

903.1 Existing shafts and vertical openings. Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 802.2.1 from the highest *story* in the *work area* ~~floor~~ to, and including, the level of exit discharge and all ~~floors~~ *stories* below.

903.3 Interior finish. Interior finish in exits serving the *work area* shall comply with Section 802.4 between the highest ~~floor on which there is a~~ *story* in the *work area* to the ~~floor~~ level of exit discharge.

904.2.1 Manual fire alarm systems. Where required by the *International Building Code*, a manual fire alarm system shall be provided throughout the *work area*. Alarm notification appliances shall be provided on ~~such floors~~ all *stories* in the *work area* and shall be automatically activated as required by the *International Building Code*.

Exceptions:

1. Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the *work area*.
2. Visual alarm notification appliances are not required, except where an existing alarm system is upgraded or replaced or where a new fire alarm system is installed.

905.2 Means-of-egress lighting. Means of egress from the highest *story* in the *work area* ~~floor~~ to the ~~floor~~ level of exit discharge shall be provided with artificial lighting within the exit enclosure in accordance with the requirements of the *International Building Code*.

905.3 Exit signs. Means of egress from the highest *story* in the *work area* ~~floor~~ to the ~~floor~~ level of exit discharge shall be provided with exit signs in accordance with the requirements of the *International Building Code*.

1009.1 Increased demand. Where the occupancy of an *existing building* or part of an *existing building* is changed such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the *International Plumbing Code*, the new occupancy shall comply with the intent of the respective *International Plumbing Code* provisions.

Exception: Only where the occupant load of ~~the~~ a story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the *International Plumbing Code* based on the increased occupant load.

1011.7.3 Opening protectives. Openings in exterior walls shall be protected as required by the *International Building Code*. Where openings in the exterior walls are required to be protected because of their distance from the lot line, the sum of the area of such openings shall not exceed 50 percent of the total area of the wall in each story.

Exceptions:

1. Where the *International Building Code* permits openings in excess of 50 percent.
2. Protected openings shall not be required in exterior walls of buildings of Group R occupancy ~~that do not exceed~~ with no more than three stories above grade plane ~~in height~~ and that are located ~~not less than~~ at least 3 feet (914 mm) from the lot line.
3. Exterior opening protectives are not required where an automatic sprinkler system has been installed throughout.

4. Exterior opening protectives are not required where the *change of occupancy* group is to an equal or lower hazard classification in accordance with Table 1011.7.

1011.8.2 Stairways. Where a change of occupancy classification is made to a higher-hazard category as shown in Table 1011.5, interior stairways shall be enclosed as required by the *International Building Code*.

Exceptions:

1. In other than Group I occupancies, an enclosure shall not be required for openings serving only one adjacent ~~floor~~ _story_ and that are not connected with corridors or stairways serving other ~~floors~~ _stories_.
2. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by 1-hour fire-resistance-rated construction or *approved* wired glass set in steel frames and all exit corridors are sprinklered in accordance with the *International Building Code* . The openings between the corridor and the tenant space shall have not fewer than one sprinkler above the openings on the tenant side.
3. Existing penetrations of stairway enclosures shall be accepted if they are protected in accordance with the *International Building Code*.

1201.3 Special occupancy exceptions—museums. Where a building in Group R-3 is used for Group A, B or M purposes such as museum tours, exhibits and other public assembly activities, or for museums less than 3,000 square feet (279 m^2) per ~~floor~~ _story_ and a maximum of three ~~stories~~ _stories above grade plane_, the occupancy shall be classified as Group B where life safety conditions are *approved* by the *code official* in accordance with Section 1201.2. Adequate means of egress in such buildings, including, but not limited to, a means of maintaining doors in an unlocked position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or ~~floors~~ _stories_, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

1305.2.2.2 Area formula. The following formulas shall be used in computing the area value. Equation 13-4 shall be used for a single occupancy building~~s~~ and Equation 13-5 shall be used for _a_ multiple occupancy building~~s~~. Determine the area value for each occupancy ~~floor~~ area on a ~~floor-by-floor~~ _story_-by-_story_ basis. For multiple occupancy buildings the minimum area value of the set of values obtained for the particular occupancy shall be used as the area value for that occupancy.For single occupancy buildings:

$$\text{Area value}_i = (\text{Allowable area} - \text{Actual area})/1200 \text{ square feet}$$

Equation 13-4

For multiple occupancy buildings:

$$\text{Area value}_i = \frac{\text{Allowable area}_i}{1200\text{square feet}}\left[1 - \left(\frac{\text{Actual area}_i}{\text{Allowable area}_i} + \ldots + \frac{\text{Actual area}_n}{\text{Allowable area}_n}\right)\right]$$

Equation 13-5

where:

i = Value for an individual separated occupancy on a ~~floor~~ _story_. n = Number of separated occupancies on a ~~floor~~ _story_.

1305.2.3.2 Wall construction. A wall used to create separate compartments shall be a fire barrier conforming to Section 707 of the *International Building Code* with a fire-resistance rating of not less than 2 hours. Where the building is not divided into more than one compartment, the compartment size shall be taken as the total floor area on all ~~floors~~ _stories_. Where there is more than one compartment within a story, each compartmented area on such story shall be provided with a horizontal exit conforming to Section 1026 of the *International Building Code*. The fire door serving as the horizontal exit between compartments shall be so installed, fitted and gasketed that such fire door will provide a substantial barrier to the passage of smoke.

1305.2.5 Corridor walls. Evaluate the fire-resistance rating and degree of completeness of walls which create corridors serving the ~~floor~~ _story_ and that are constructed in accordance with Section 1020 of the *International Building Code*. This evaluation shall not include the wall elements considered under Sections 1305.2.3 and 1305.2.4. Under the categories and groups in Table 1305.2.5, determine the appropriate value and enter that value into Table 1306.1 under Safety Parameter 1305.2.5, Corridor Walls, for fire safety, means of egress and general safety.

TABLE 1305.2.5 CORRIDOR WALL VALUES

OCCUPANCY	CATEGORIES			
	a	b	c[a]	d[a]
A-1	-10	-4	0	2
A-2	-30	-12	0	2
A-3, F, M, R, S-1	-7	-3	0	2
A-4, B, E, S-2	-5	-2	0	5
I-2	-10	0	1	2

a. Corridors not providing at least one-half the exit access travel distance for all occupants on a ~~floor~~ story shall use Category b.

1305.2.6 Vertical openings. Evaluate the fire-resistance rating of interior exit stairways or ramps, hoistways, escalator openings and other shaft enclosures within the building, and openings between two or more ~~floors~~ *stories*. Table 1305.2.6(1) contains the appropriate protection values. Multiply that value by the construction-type factor found in Table 1305.2.6(2). Enter the vertical opening value and its sign (positive or negative) in Table 1306.1 under Safety Parameter 1305.2.6, Vertical Openings, for fire safety, means of egress and general safety. If the structure is a one-story building or if all the unenclosed vertical openings within the building conform to the requirements of Section 712 of the *International Building Code*, enter a value of 2. The maximum positive value for this requirement (VO) shall be 2.

TABLE 1305.2.6(1) VERTICAL OPENING PROTECTION VALUE

PROTECTION	VALUE
None (unprotected opening)	-2 times number of ~~floors~~ stories connected
Less than 1 hour	-1 times number of ~~floors~~ storiesconnected
1 to less than 2 hours	1
2 hours or more	2

1305.2.8.1 Categories. The categories for automatic fire detection are:

1. Category a—None.
2. Category b—Existing smoke detectors in HVAC systems and maintained in accordance with the *International Fire Code*.
3. Category c—Smoke detectors in HVAC systems. The detectors are installed in accordance with the requirements for new buildings in the *International Mechanical Code*.
4. Category d—Smoke detectors throughout ~~all floor areas~~ the area of work other than individual sleeping units, tenant spaces and dwelling units.
5. Category e—Smoke detectors installed throughout the ~~floor area~~ area of work.
6. Category f—Smoke detectors in corridors only.

1305.2.10.1 Categories. The categories for smoke control are:

1. Category a—None.
2. Category b—The building is equipped throughout with an automatic sprinkler system. Openings are provided in exterior walls at the rate of 20 square feet (1.86 m^2) per 50 linear feet (15 240 mm) of exterior wall in each story and distributed around the building perimeter at intervals not exceeding 50 feet (15 240 mm). Such openings shall be readily openable from the inside without a key or separate tool and shall be provided with ready access thereto. In lieu of operable openings, clearly and permanently marked tempered glass panels shall be used.
3. Category c—One enclosed exit stairway, with ready access thereto, from each occupied ~~floor~~ *story*of the building. The stairway has operable exterior windows, and the building has openings in accordance with Category b.
4. Category d—One smokeproof enclosure and the building has openings in accordance with Category b.

5. Category e—The building is equipped throughout with an automatic sprinkler system. Each ~~floor~~ area is provided with a mechanical air-handling system designed to accomplish smoke containment. Return and exhaust air shall be moved directly to the outside without recirculation to other ~~floor~~ areas of the building under fire conditions. The system shall exhaust not less than six air changes per hour from ~~the floor~~ each area. Supply air by mechanical means ~~to the floor area~~ is not required. Containment of smoke shall be considered as confining smoke to the ~~floor~~ area involved without migration to other ~~floor~~ areas. Any other tested and *approved* design that will adequately accomplish smoke containment is permitted.
6. Category f—Each stairway shall be one of the following: a smokeproof enclosure in accordance with Section 1023.12 of the *International Building Code*; pressurized in accordance with Section 909.20.4 of the *International Building Code*; or shall have operable exterior windows.

1305.2.14 Elevator control. Evaluate the passenger elevator equipment and controls that are available to the fire department to reach all occupied ~~floors~~ *stories*. Emergency recall and in-car operation of elevators shall be provided in accordance with the *International Fire Code*. Under the categories and occupancies in Table 1305.2.14, determine the appropriate value and enter that value into Table 1306.1 under Safety Parameter 1305.2.14, Elevator Control, for fire safety, means of egress and general safety. The values shall be zero for a single-story building.

1305.2.14.1 Categories. The categories for elevator controls are:

1. Category a—No elevator.
2. Category b—Any elevator without Phase I emergency recall operation and Phase II emergency in-car operation.
3. Category c—All elevators with Phase I emergency recall operation and Phase II emergency in-car operation as required by the *International Fire Code*.
4. Category d—All meet Category c; or Category b where permitted to be without Phase I emergency recall operation and Phase II emergency in-car operation; and at least one elevator that complies with new construction requirements serves all occupied ~~floors~~ *stories*.

1305.2.19 Incidental uses. Evaluate the protection of incidental uses in accordance with Section 509.4.2 of the *International Building Code*. Do not include those where this code requires automatic sprinkler systems throughout the building including covered and open mall buildings, high-rise buildings, public garages and unlimited area buildings. Assign the lowest score from Table 1305.2.19 for the building or ~~floor~~ area being evaluated and enter that value into Table 1306.1 under Safety Parameter 1305.2.19, Incidental Use, for fire safety, means of egress and general safety. If there are no specific occupancy areas in the building or ~~floor~~ area being evaluated, the value shall be zero.

TABLE 1306.1 SUMMARY SHEET—BUILDING CODE

Existing occupancy: ______________________________		Proposed occupancy: ______________________________	
Year building was constructed: ________________________		Number of stories: _________ Height in feet: ____________	
Type of construction: ______________________________		Area per ~~floor~~ story: ____________________________________	
Percentage of open perimeter increase: _______ %			
Completely suppressed:	Yes______ No_____	Corridor wall rating:__________________________________	
		Type:____	
Compartmentation:	Yes _____ No ______	Required door closers:	Yes_________ No__________
Fire-resistance rating of vertical opening enclosures: ____			
Type of HVAC system:____________________________________, serving number of ~~floors~~ stories: _________________________			
Automatic fire detection:	Yes______ No______	Type and location: ___________________________________	
Fire alarm system:	Yes______ No______	Type: ____	
Smoke control:	Yes______ No______	Type: ____	
Adequate exit routes:	Yes ______ No______	Dead ends: ____________	Yes _______ No _________
Maximum exit access travel distance: ___________________		Elevator controls:	Yes _______ No _________
Means of egress emergency lighting:	Yes ______ No ______	Mixed occupancies:	Yes _______ No _________
Standpipes:	Yes______ No______	Care recipients ability for self-preservation: _______________________	
Incidental use:	Yes______ No______	Care recipients concentration: ______________________________	
Smoke compartmentation less than 22,500 ft^2 (2092 m^2):	Yes______ No______	Attendant-to-care recipients ratio: ___________________________	

SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS (ME)	GENERAL SAFETY (GS)
1305.2.1 Building height			
1305.2.2 Building area			

1305.2.3 Compartmentation		
1305.2.4 Tenant and dwelling unit separations		
1305.2.5 Corridor walls		
1305.2.6 Vertical openings		
1305.2.7 HVAC systems		
1305.2.8 Automatic fire detection		
1305.2.9 Fire alarm system		
1305.2.10 Smoke control	* * * *	
1305.2.11 Means of egress	* * * *	
1305.2.12 Dead ends	* * * *	
1305.2.13 Maximum exit access travel distance	* * * *	
1305.2.14 Elevator control		
1305.2.15 Means of egress emergency lighting	* * * *	
1305.2.16 Mixed occupancies		* * * *
1305.2.17 Automatic sprinklers		÷ 2 =
1305.2.18 Standpipes		
1305.2.19 Incidental use		
1305.2.20 Smoke compartmentation		
1305.2.21.1 Care recipients ability for self-preservation[a]	* * * *	
1305.2.21.2 Care recipients concentration[a]	* * * *	
1305.2.21.3 Attendant-to-care recipients ratio[a]	* * * *	
Building score–total value		

* * * *No applicable value to be inserted.

a. Only applicable to Group I-2 occupancies.

Reason: In the IBC, "story" and "story above grade plane" are key defined terms. Currently, the IEBC uses an assortment of undefined terms (story, floor, level, etc.) to refer to levels in a building. This proposal adds IBC-based definitions and makes conforming changes to language throughout the IEBC, excluding Section 306 and Chapter 15. A companion proposal makes corresponding changes in Section 306 ("Accessibility for Existing Buildings") to allow for adequate input on accessibility-related implications of the proposed changes. Chapter 15 ("Construction Safeguards") is excluded as many provisions are scoped to Group A committees and may require further coordination with similar language in Chapter 34 of the IBC.

This proposal is submitted with the ICC Adaptive Reuse Working Group (ARWG).

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is editorial and intended to use consistently-defined terms to refer to levels in a building.

Staff Analysis: This proposal is simply duplicating a definition from the IBC, IFC, and IMC. The definition cannot be revised in this proposal as it is scoped to another committee.

EB84-25

EB85-25

IEBC: 802.2.2, 802.2.3, 802.4.1, 803.2.2, 803.2.3, 803.4.2, 804.6.2.1, 804.6.3.1, 804.6.4.1, 804.7.3.1, 804.7.4, 804.9.2, 804.10.2

Proponents: Grant Ullrich, City of Chicago, representing Self (grant.ullrich@cityofchicago.org)

2024 International Existing Building Code

Revise as follows:

802.2.2 Supplemental shaft and floor opening enclosure requirements. Where the ~~*work area* on any floor exceeds 50 percent of that floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, the enclosure requirements of Section 802.2 shall apply to vertical openings other than stairways throughout the ~~floor~~ *story*.

Exception: Vertical openings ~~located in~~ within a tenant space~~s~~ that ~~are~~ is entirely outside the *work area*.

802.2.3 Supplemental stairway enclosure requirements. Where the ~~*work area* on any floor exceeds 50 percent of that floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, stairways that are part of the means of egress serving the *work area* shall, at a minimum, be enclosed with smoketight construction on the highest *story* within the *work area* ~~floor~~ and all ~~floors~~ *stories* below.

Exception: Where stairway enclosure is not required by the *International Building Code* ~~or the *International Fire Code*~~.

802.4.1 Supplemental interior finish requirements. Where the ~~*work area* on any floor exceeds 50 percent of the floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, Section 802.4 shall apply to ~~the~~ interior ~~finish~~ finishes and trim in ~~exits and~~ corridors and other exit access components serving the *work area* throughout the ~~floor~~ *story*.

Exception: Interior ~~finish~~ finishes and trim within a tenant space~~s~~ that ~~are~~ is entirely outside the *work area*.

803.2.2 Groups A, B, E, F-1, H, I-1, I-3, I-4, M, R-1, R-2, R-4, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I-1, I-3, I-4, M, R-1, R-2, R-4, S-1 and S-2, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection on *stories* where both of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction.
2. The ~~*work area* exceeds 50 percent of the floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*.

Exception: If the building does not have an existing water supply present at the ~~floor~~ story of the proposed *work area* with sufficient pressure and flow for the design of a fire sprinkler system and without installation of a new fire pump, the *work areas* shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

803.2.3 Group I-2. In Group I-2 occupancies, an automatic sprinkler system installed in accordance with Section 903.3.1.1 of the *International* ~~*Fire*~~ Building *Code* shall be provided in the following:

1. In Group I-2, Condition 1, throughout the *work area*.
2. In Group I-2, Condition 2, throughout ~~the *work area*~~ *reconfigured spaces* where the ~~*work area*~~ aggregate floor area of *reconfigured spaces* within a smoke compartment is 50 percent or less of the floor area of the smoke compartment.
3. In Group I-2, Condition 2, throughout ~~the~~ a smoke compartment in which the ~~work occurs where the *work area*~~ aggregate floor area of *reconfigured spaces* exceeds 50 percent of the floor area of the smoke compartment.

803.4.2 Supplemental fire alarm system requirements. Where the ~~*work area* on any floor exceeds 50 percent of that floor area~~

aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, Section 803.4.1 shall apply throughout the ~~floor~~ *story*.

Exception: Alarm-initiating and notification appliances shall not be required to be installed ~~in~~ within tenant spaces that are entirely outside of the *work area*.

804.6.2.1 Supplemental requirements for door swing. Where the ~~*work area* exceeds 50 percent of the floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, door swing shall comply with Section 804.6.2 throughout the ~~floor~~ *story*.

Exception: ~~Means of egress~~ Doors within or serving only a tenant space that is entirely outside the *work area*.

804.6.3.1 Supplemental requirements for door closing. Where the ~~*work area* exceeds 50 percent of the floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, doors in exit stairways serving the *work area* shall comply with Section 804.6.3 ~~throughout the exit stairway~~ from the highest *story* in the *work area* to, and including, the level of exit discharge.

804.6.4.1 Supplemental requirements for panic hardware. Where the ~~*work area* exceeds 50 percent of the floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, panic hardware shall comply with Section 804.6.4 throughout the ~~floor~~ *story*.

Exception: ~~Means of egress~~ Hardware on doors within a tenant space that is entirely outside the *work area*.

Delete without substitution:

~~**804.7.3.1 Supplemental requirements for other corridor opening.** Where the *work area* exceeds 50 percent of the floor area, Section 804.7.3 shall be applicable to all corridor windows, grills, sashes and other openings on the floor.~~

~~**Exception:** Means of egress within or serving only a tenant space that is entirely outside the *work area*.~~

Revise as follows:

804.7.4 Supplemental requirements for corridor openings. Where the ~~*work area* on any floor exceeds 50 percent of the floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, the requirements of Sections 804.7.1 through 804.7.3 shall apply throughout the ~~floor~~ *story*.

Exception: Openings in corridors within or serving only a tenant space that is entirely outside the *work area*.

804.9.2 Supplemental requirements for means-of-egress lighting. Where the ~~*work area* on any floor exceeds 50 percent of that floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, means of egress throughout the ~~floor~~ *story* shall comply with Section 804.9.1.

Exception: Means of egress within or serving only a tenant space that is entirely outside the *work area*.

804.10.2 Supplemental requirements for exit signs. Where the ~~*work area* on any floor exceeds 50 percent of that floor area~~ aggregate floor area of *reconfigured spaces* on a *story* exceeds 50 percent of the floor area of the *story*, means of egress throughout the ~~floor~~ *story* shall comply with Section 804.10.1.

Exception: Means of egress within or serving only a tenant space that is entirely outside the *work area*.

Reason: This proposal cleans up several provisions in Chapter 8 that are triggered where the floor area being reconfigured on a story exceeds 50 percent of the floor area of that story. Unfortunately, the existing wording of these provisions is somewhat unclear and conflates an attribute of the work area (floor area) with the defined term.

The proposal also deletes Section 804.7.3.1 as duplicative of Section 804.7.4; the current exception to 804.7.3.1 is relocated to the remaining section.

This proposal is intended to build upon the definition of "reconfigured space" that is included in Proposal 10993, however it can also be adopted independently. If this proposal is adopted without the companion proposal, the term "reconfigured space" should not be italicized as shown.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the application of existing provisions.

EB85-25

EB86-25

IEBC: 803.1.1, 803.1.2 (New), 1011.2.1 (New), 1011.2.2 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

803.1.1 Corridor ratings. For other than Group I-1, Condition 2, Group I-2 and I-3, where ~~Where~~ an *approved* automatic sprinkler system is installed throughout the story, the required fire-resistance rating for ~~any corridor~~ corridors located on the story shall be permitted to be reduced in accordance with the *International Building Code*. ~~In order to~~ To be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the ~~floor~~ story and the intermediate landings immediately below.

Add new text as follows:

803.1.2 Corridor ratings in Group I-1 Condition 2, I-2 and I-3. Where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for corridors located on the story shall be permitted to be reduced in accordance with the International Building Code for a building equipped throughout with an automatic sprinkler system. To be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the story and the intermediate landings immediately below.

1011.2.1 Corridor ratings. For other than Group I-1, Condition 2, Group I-2 and I-3, where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for corridors located on the story shall be permitted to be reduced in accordance with the International Building Code for a building equipped throughout with an automatic sprinkler system. To be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the story and the intermediate landings immediately below.

1011.2.2 Corridor ratings in Group I-1 Condition 2, I-2 and I-3. Where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for corridors located on the story shall be permitted to be reduced in accordance with the International Building Code for a building equipped throughout with an automatic sprinkler system. To be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the story and the intermediate landings immediately below.

Reason: The intent is to coordinate the COO with the alteration requirements for corridors.

The reduction in corridor ratings is in Section 803.1.1. This option should be allowed in COO to encourage sprinklers.
Hospitals are in the process of becoming fully sprinklered. Once a smoke compartment is sprinklered, then the corridors should be able to permitted to be reduced.

IFC **1105.5 Corridor construction.** In Group I-2, in areas housing patient sleeping or care rooms, *corridor* walls and the opening protectives therein shall provide a barrier designed to resist the passage of smoke in accordance with Sections 1105.5.1 through 1105.5.7.

1105.5.2 Fire-resistance rating. Unless required elsewhere in this code, *corridor* walls are not required to have a *fire-resistance rating*. *Corridor* walls that were installed as *fire-resistance-rated* assemblies in accordance with the applicable codes under which the building was constructed, remodeled or altered shall be maintained unless modified in accordance with the *International Existing Building Code*.

This proposal is one of the series of changes to IEBC Chapter 10 from the BCAC. See the proposal for Chapter 10 reorganization for a clean draft.

This proposal is submitted by the ICC Committee for Healthcare (CHC) and ICC Building Code Action Committee (BCAC)

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is coordinating COO corridor requirements with alterations and IFC.

EB86-25

EB87-25

IEBC: 804.5.1, 804.5.1.1, TABLE 804.5.1.1(1), TABLE 804.5.1.1(2)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

804.5.1 Minimum number. Every story utilized for human occupancy on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 804.5.1.1 and 804.5.1.2.

804.5.1.1 Single-exit buildings. A single exit or access to a single exit shall be permitted from spaces, any story or any occupiable roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and exit access travel distance do not exceed the values in Table 804.5.1.1(1) or 804.5.1.1(2).
2. In Group R-1 or R-2, buildings without an *approved* automatic sprinkler system, individual single-story or multiple-story dwelling or sleeping units shall be permitted to have a single exit or access to a single exit from the dwelling or sleeping unit provided one of the following criteria are met:
   - 2.1. The occupant load is not greater than 10 and the exit access travel distance within the unit does not exceed 75 feet (22 860 mm).
   - 2.2. The building is not more than three stories in height; all third-story space is part of dwelling with an exit access doorway on the second story; and the portion of the exit access travel distance from the door to any habitable room within any such unit to the unit entrance doors does not exceed 50 feet (15 240 mm).
3. In buildings of Group R-2 occupancy of any number of stories with not more than four dwelling units per floor served by an interior exit stairway; with a smokeproof enclosure in accordance with Sections 909.20 and 1023.12 of the *International Building Code* or an exterior stairway as an exit; and where the portion of the exit access travel distance from the dwelling unit entrance door to the exit is not greater than 20 feet (6096 mm).

Revise as follows:

TABLE 804.5.1.1(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY AND OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second floor above grade plane	R-2[d]	4 dwelling units	50 feet
Basement, first, second or third story above grade plane and occupiable roofs over the first or second floor above grade plane	R-2[a,b,c]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2, equipped ~~without~~ throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, ~~and~~ 903.3.1.2 and 903.3.1.3 of the *International Fire Code* and provided with *emergency escape and rescue openings* in accordance with Section 1031 of the *International Building Code*.

b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2) of the *International Building Code*.

c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not accessed through and serving individual units, use ~~Table 804.5.1.1(2)~~ Table 1006.3.4(2) of the International Building Code.

d. Buildings classified as Group R-2 without an automatic sprinkler system and provided with emergency escape and rescue opening in accordance with Section 1031 of the International Building Code.

TABLE 804.5.1.1(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane or occupiable roofs over the first story above grade plane	B[b], F-2[b]	49	75
	S-2[a, b]	35	75
Second story above grade plane	B, F-2, S-2[a]	35	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Fire Code* or on the roof of such buildings shall have a maximum exit access travel distance of 100 feet.

Reason: This proposal is focused solely on the maximum exit travel distance in R-2 occupancies and attempts to address an error that occurred during the previous code cycle with the approval of EB83-22. The purpose of EB83-22 attempted to clarify the requirements for occupiable roofs when they are within an R-2 with a single exit by modifying the language and values in Table 804.1.1(1). However, it inadvertently made a technical change that increased the maximum travel distance without providing additional protection.

To coordinate the requirements between the IEBC and the IBC, Footnote A and the maximum exit access travel distance for an R-2 with a maximum number of 4 dwelling units were modified. The travel distance was increased from 50 feet to 125 and the footnote was revised to state the increase was only permissible if the R-2 was equipped with an approved automatic sprinkler and emergency escape and rescue openings. However, there was an error in the original proposal, as the word “without” should have been deleted in footnote A.

If you compare the values and footnote A of the 2024 table 804.1.1.(1) to the revised 2027 Table 804.5.1.1(1), it appears that the overall maximum exit access travel distance has increase by 75 feet for an unsprinklered R-2 occupancy.

This proposed change is being submitted to correct the table, by removing the footnote altogether and making it clear within the table what the maximum allowed exit travel distances is for an R-2 with and without the automatic suppression and emergency escape and rescue opening.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is correcting an error in the single exit tables. This should restore the original intent, so there are no new requirements for construction.

EB87-25

EB88-25

IEBC: 804.14.2, 1011.5.1, 1011.5.2

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Existing Building Code

Revise as follows:

804.14.2 Design. Guards required in accordance with Section 804.14.1 shall be designed and installed in accordance with the *International Building Code*.

~~**Exception:** In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.~~

1011.5.1 Means of egress for change to a higher-hazard category. Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table 1011.5, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 903.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 shall be permitted for continued use subject to approval of the *code official*.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or $^1/_2$-inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 804.7.1, 804.7.2 and 804.7.3.
6. Existing dead-end corridors shall comply with the requirements in Section 804.8.
7. An operable window complying with Section 1011.5.6 shall be accepted as an *emergency escape and rescue opening*.
8. ~~In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.~~

1011.5.2 Means of egress for change of use to an equal or lower-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category (higher number) as shown in Table 1011.5, existing elements of the means of egress shall comply with the requirements of Section 905 for the new occupancy classification. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
2. ~~In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.~~

Reason: The three sections in this proposal require means of egress (including guards) to comply with Chapter 10 of the IBC. These sections also include an exception that allows guards at occupiable roofs to exceed 48" in height above the roof. However, the base requirement in these sections is to comply with Chapter 10 of the IBC, which only gives a minimum height for guards with no maximum height. In other words, Chapter 10 of the IBC already allows guards to exceed 48" so the exceptions are moot and are essentially exceptions to requirements that doesn't exist. Because of this, this proposal is to delete these exceptions.

It is believed that these exceptions are trying to address the maximum 48" height for enclosures around occupied roofs that is in IBC Section 503.1.4.1, but the exceptions don't change this requirement. Also, the allowance to exceed 48" in I-1 and I-2 facilities isn't included in the IBC for new buildings, so it doesn't make sense to allow this in existing buildings that are being altered or are going through a change of occupancy.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply deletes exceptions that currently have no impact on the code (they are exceptions to requirements that don't exist), so there is no cost impact.

EB88-25

EB89-25

IEBC: 804.6.5

Proponents: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2024 International Existing Building Code

Revise as follows:

804.6.5 Emergency power source in Group I-3. In Group I-3, ~~Power~~power-operated sliding doors ~~or~~ and power-operated locks for swinging doors shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks in accordance with Section 2702 of the *International Building Code*.

Exceptions:

1. Emergency power is not required in *facilities* with 10 or fewer locks complying with the exception to Section 408.4.1 of the *International Building Code*.
2. Emergency power is not required where remote mechanical operating releases are provided.

Reason: The title of this section indicates the requirements in this section apply only to Group I-3. However, the current text, as written, technically would apply to all occupancy groups. The proposed revision aligns the requirements with the scope of the title. Also, "and" is more appropriate than "or" in the first sentence.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Editorial. The proposed revisions align the intended scope of the requirements.

EB89-25

EB90-25

IEBC: 804.7.1, 804.7.2, NFPA Chapter 16 (New), UL Chapter 16 (New)

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Existing Building Code

804.7 Openings in corridor walls. Openings in corridor walls in any *work area* shall comply with Sections 804.7.1 through 804.7.4.

Exception: Openings in corridors where such corridors are not required to be rated in accordance with the *International Building Code*.

Revise as follows:

804.7.1 Corridor doors. Corridor doors in the *work area* shall not be constructed of hollow core wood and shall not contain louvers. Dwelling unit or sleeping unit corridor doors in *work areas* in buildings of Groups R-1, R-2 and I-1 shall be not less than $1^{3}/_{8}$-inch (35 mm) solid core wood or *approved* equivalent and shall not have any glass panels, other than *approved* wired glass or other *approved* glazing material in metal frames. Dwelling unit or sleeping unit corridor doors in *work areas* in buildings of Groups R-1, R-2 and I-1 shall be equipped with *approved* door closers. Replacement doors shall be $1^{3}/_{4}$-inch (44 mm) solid bonded wood core or *approved* equivalent, unless the existing frame will accommodate only a $1^{3}/_{8}$-inch (35 mm) door.

Exceptions:

1. Corridor doors within a dwelling unit or sleeping unit.
2. Existing doors meeting the requirements of *Guidelines on Fire Ratings of Archaic Materials and Assemblies* (Resource A) for a rating of 15 minutes or more shall be accepted as meeting the provisions of this requirement.
3. Existing doors in buildings protected throughout with an *approved* automatic sprinkler system shall be required only to resist smoke, be reasonably tight fitting and shall not contain louvers.
4. In group homes with not more than 15 occupants and that are protected with an *approved* automatic detection system, closing devices are not required.
5. Door assemblies having a fire protection rating of not less than 20 minutes, when tested, without the hose stream test, in accordance with NFPA 252, UL 10B, or UL 10C..

804.7.2 Transoms. In all buildings of Group I-1, I-2, R-1 and R-2 occupancies, all transoms in corridor walls in *work areas* shall be either glazed with $^{1}/_{4}$-inch (6.4 mm) wired glass set in metal frames or other glazing assemblies having a fire protection rating as required for the door, by Section 804.7.1, and permanently secured in the closed position or sealed with materials consistent with the corridor construction.

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

252 (2022)	Standard Methods of Fire Tests of Door Assemblies
10B--2008	Fire Tests of Door Assemblies--with Revisions through May 2020
10C--2016	Positive Pressure Fire Tests of Door Assemblies--with Revisions through May 2021

Reason: Whenever fire testing is required it is important to state which test standard is to be used. These standards are all already referenced in the IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

clarification as to which test standards to use

Staff Analysis: Staff Analysis: The proposed referenced standards are currently referenced in the IBC:

- NFPA 252--2022, Standard Methods of Fire Test of Door Assemblies
- UL 10B--2008, Fire Tests of Door Assemblies--with Revisions through May 2020
- UL 10C--2016, Positive Pressure Fire Tests of Door Assemblies--with Revisions through May 2021

EB90-25

EB91-25

IEBC: 807.1, 807.4 (New), ASHRAE Chapter 16 (New)

Proponents: Jonathan Flannery, representing Pandemic Task Force Code Development Working Group, PTF CDWG (jflannery@aha.org)

2024 International Existing Building Code

Revise as follows:

807.1 Reconfigured or converted spaces. Reconfigured spaces intended for occupancy and spaces converted to habitable or occupiable space in any *work area* shall be provided with natural or mechanical ventilation in accordance with the *International Mechanical Code*.

Exception: Existing mechanical ventilation systems shall comply with the requirements of Section 807.2 and 807.4

Add new text as follows:

807.4 Airflow for increased filtration. In group A, B, E, and I occupancies, ducted mechanical systems that are altered shall be sized to accommodate a design airflow at a total static pressure drop that assumes the utilization of a supply air filter with a Minimum Efficiency Reporting Value of not less than 13 (MERV 13).

Exception: Ventilation for ambulatory care facilities, Group I-1 and Group I-2 occupancies shall be designed and installed in accordance with this code, ASHRAE/ASHE 170 and NFPA 99.

Add new standard(s) as follows:

ASHRAE

ASHRAE
180 Technology Parkway
Peachtree Corners, GA 30092

170--2021 Ventilation of Health Care Facilities

Reason: According to the World Health Organization, 3.2 million people die from household air pollution worldwide[1]. As we spend 90% of our time indoors (inclusive of any occupancy types), this is where we absorb most of the pollutants. There is currently no requirement for filtration in the International Code. MERV 13 is critical to fight both particulate matter and airborne biological contaminants. Since the pandemic, we have seen numerous events of wildfire affecting a large percentage of the population.

- ASHRAE 241 document that MERV-13 filters are 77% efficient at removing infectious aerosol.
- ASHRAE GPC 44 documents that filters with a MERV rating lower than 11 are not effective to at removing PM2.5The choice of filtration level efficiency is made by the person who originally selected and engineered the HVAC system. It is frequently not feasible to upgrade to a MERV-13 in equipment that has not been sized for it.

California Title 24 requires MERV-13 for high-rise residential buildings, nonresidential and hotel/motel buildings.

Washington State legislature in the State Building Code Adoption and Amendment of the 2021 Edition of the International Mechanical Code WAC 51-52-0605 requires MERV13 for ducted air handlers and ventilation systems serving occupiable spaces in Groups A, B, E, M, R and I.

The Pandemic Task force exclude Group I-1 and I-2 where ventilation and filtration are driven by ASHRAE/ASHE 170 and NFPA 99. The ICC/NEHA Pandemic Task Force (PTF) was organized and tasked with researching the effects of the COVID-19 pandemic on the built environment and developing a roadmap and proposing needed resources – including guidelines, recommended practices, publications and updates to the International Codes® (I-Codes®) – that are necessary to overcome the numerous challenges that may be faced during future pandemics and to construct and manage safe, sustainable and affordable occupancy of the built environment.

The ICC Pandemic Task Force Code Development Work Group (PTF CDWG) has conducted a comprehensive review of current code requirements as they relate to the prevention of the transmission of diseases and other serious health concerns and suggested revisions to current code requirements based on this assessment.

[1] https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health

Cost Impact: Increase

Estimated Immediate Cost Impact:

Commercial ducted system equipment are typically able to accommodate MERV13 filters

Estimated installation cost increase on a 7.5-ton rooftop air conditioning unit (serves ~3,000 ft space) with MERV13 is about 2% or < $0.20 per square foot.

Estimated Immediate Cost Impact Justification (methodology and variables):

As we spend 90% of our time indoors (inclusive of any occupancy types), this is where we absorb most of the pollutants. MERV 13 is critical to fight both particulate matter and airborne biological contaminants.

Staff Analysis: The proposed referenced standards are currently referenced in the IBC:

- ASHRAE 170--2021, Ventilation of Health Care Facilities
- NFPA 99--2024, Health Care Facilities Code

EB91-25

EB92-25

IEBC: 807.3

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

807.3 Local exhaust. Newly introduced devices, equipment or operations that produce airborne particulate matter, odors, fumes, vapor, combustion products, gaseous contaminants, pathogenic and allergenic organisms, and microbial contaminants in such quantities as to affect adversely or impair health or cause discomfort to occupants shall be provided with local exhaust <u>in accordance with the International Mechanical Code</u>.

Reason: This section requires "local exhaust" to be provided but does not identify to what criteria. Logically, the exhaust requirements in the family of I-Codes are in the International Mechanical Code (IMC), so the IMC should be specifically referenced to be clear as to what the requirements actually are. There are several requirements in Chapters 4 and 5 of the IMC for local exhaust and thus should meet the requirements of those specific devices, equipment or operations.

The PMGCAC recommends that the Code Correlation Committee assign a [M] scoping to this section because the mechanical committee has oversight on exhaust system requirements. Having the same committee responsible for exhaust requirements in the I-Codes will help ensure consistency.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change simply clarifies where the requirements for "local exhaust" are located.

EB92-25

EB93-25

IEBC: 901.2, 801.2, 803.2.1, 803.2.2, 803.2.5, 803.3, 804.1, 804.5.1

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

901.2 Compliance. In addition to the ~~provisions~~ requirements of this chapter, Level 3 *alteration* work shall also comply with ~~all of~~ the requirements of Chapters 7 and 8. ~~The requirements of Sections 802, 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.~~ Level 3 *alteration* work shall not be entitled to claim any exception in Chapter 8 that is limited to Level 2 *alterations*.

Exception: Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 306.7.1 shall not be required to comply with this chapter.

801.2 ~~Alteration Level 1 compliance~~ Compliance. In addition to the requirements of this chapter, ~~all~~ Level 2 *alteration* work shall also comply with the requirements of Chapter 7.

803.2.1 High-rise buildings. In high-rise buildings, ~~*work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with~~ automatic sprinkler protection shall be provided in the entire *work area* where the *work area* is located on a floor that has a sufficient sprinkler water supply system from an existing standpipe or a sprinkler riser serving that floor.

Exception: For Level 2 *alterations*, Section 803.2.1 shall not apply to a *work area* that does not contain either:

1. Exits or corridors shared by more than one tenant.
2. Exits or corridors serving an occupant load greater than 30.

803.2.2 Groups A, B, E, F-1, H, I-1, I-3, I-4, M, R-1, R-2, R-4, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I-1, I-3, I-4, M, R-1, R-2, R-4, S-1 and S-2, ~~*work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30~~ the *work area* shall be provided with automatic sprinkler protection where both of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction.
2. The *work area* exceeds 50 percent of the floor area.

Exceptions:

1. For Level 2 *alterations*, Section 803.2.2 shall not apply to a *work area* that does not contain either:
   1.1. Exits or corridors shared by more than one tenant.
   1.2 Exits or corridors serving an occupant load greater than 30.
2. If the building does not have an existing water supply present at the floor of the proposed *work area* with sufficient pressure and flow for the design of a fire sprinkler system and without installation of a new fire pump, the *work areas* shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

803.2.5 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the *International Building*

Code, ~~*work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30~~ the *work area* shall be provided with an automatic sprinkler system under the following conditions:

1. The *work area* is required to be provided with an automatic sprinkler system in accordance with the International Building Code applicable to new construction; and
2. The building has an existing water supply present at the floor of the proposed *work area* with sufficient pressure and flow for the design of an automatic sprinkler system and without installation of a new fire pump.

Exception: For Level 2 *alterations*, Section 803.2.5 shall not apply to a *work area* that does not contain either:

1. Exits or corridors shared by more than one tenant.
2. Exits or corridors serving an occupant load greater than 30.

803.3 Standpipes. Where the *work area* ~~includes exits or corridors shared by more than one tenant and~~ is located more than 50 feet (15 240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an *approved* fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the *International Building Code*.

Exceptions:

1. For Level 2 *alterations*, Section 803.3 shall not apply to a *work area* that does not contain exits or corridors shared by more than one tenant.

~~1~~ 2. A pump shall not be required provided that the standpipes are capable of accepting delivery by fire department apparatus of not less than 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448 KPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or not less than 500 gpm at 65 psi (1892 L/m at 448 KPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/KPa) requirements of this exception for possible future extension of the standpipe.

~~2~~ 3. The interconnection of multiple standpipe risers shall not be required.

804.1 Scope. The requirements of this section shall be limited to ~~*work areas* that include exits or corridors shared by more than one tenant within the *work area* in which Level 2 *alterations* are being performed~~ the *work area*, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise beyond the *work area*.

Exception: For Level 2 *alterations*, Section 804 shall not apply to a *work area* that does not contain exits or corridors shared by more than one tenant.

804.5.1 Minimum number. Every story utilized for human occupancy ~~on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area*~~ shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 804.5.1.1 and 804.5.1.2.

Reason: As currently written, Section 901.2 of the IEBC, regarding requirements for Level 3 alteration work, requires a very careful re-reading of provisions in Chapter 8. It also references provisions of Chapter 8 (Sections 802 and 805) that are no longer relevant to the provision. This proposal will clarify that the existing language is intended to expand the scope of 5 specific subsections in Chapter 8 when the scope of work is Level 3: 803.2.1 (sprinkler protection in high-rise buildings); 803.2.2 (sprinkler protection in certain occupancies); 803.2.5 (sprinkler protection for other conditions); 803.3 (standpipes); and 804.1 (minimum number of exits).

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG) and the ICC Building Code Action Committee (BCAC)

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change will make it easier to follow existing provisions of the work area method. It does not substantively change the code requirements applicable to any work.

EB93-25

EB94-25

IEBC: CHAPTER 10, SECTION 1001, 1001.1, 1011.1, 1001.2, 1001.2.1, 1001.2.2, 1001.2.2.1, 1001.3, SECTION 1002, 1002.1, 1002.3, 1002.4, SECTION 1003, 1003.1, 1011.6, TABLE 1011.6, 1011.6.1, 1011.6.1.1, 1011.6.2, 1002.2, SECTION 1004 (New), 1004.1 (New), 1011.7, TABLE 1011.7, 1011.7.1, 1011.7.3, 1011.7.2, 1011.6.3, 1011.8, 1011.8.1, 1011.8.2, 1011.8.3, 1011.8.4, SECTION 1005 (New), 1011.3, SECTION 1004, 1004.1, 1011.2, 1011.2.1, 1011.2.1.1, 1011.2.1.1.1, 1011.2.2, SECTION 1005, 1005.1, 1011.5, TABLE 1011.5, 1011.5.1, 1011.5.2, 1011.5.3, 1011.5.4, 1011.5.5, 1011.5.6, SECTION 1010, 1008.1 (New), 1010.1, 1011.4, SECTION 1006, 1009.1 (New), [BS] 1006.1, [BS] 1006.2, [BS] 1006.3, [BS] 1006.4, SECTION 1007, 1010.1 (New), 1007.1, 1007.2, 1007.3, 1007.4, SECTION 1008, 1011.1 (New), 1008.1, SECTION 1009, 1012.1 (New), 1009.1, 1009.2, 1009.3, 1009.4, 1009.5, SECTION 1011

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

CHAPTER 10
CHANGE OF OCCUPANCY

SECTION 1001
GENERAL

Revise as follows:

1001.1 Scope. ~~The provisions of this chapter shall apply where a~~ A *change of occupancy* ~~occurs, as defined in Section 202.~~ shall comply with this chapter.

~~**1011.1**~~ **1001.2** ~~**General**~~ **Applicability.** The provisions of this ~~section~~ chapter shall apply to buildings or portions thereof undergoing a change of occupancy classification. This includes a change of occupancy classification within a group as well as a change of occupancy classification from one group to a different group. The provisions of this section shall also apply where there is a *change of occupancy* within a building or portion thereof and there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space. ~~Such buildings shall also comply with Sections 1002 through 1010 of this code.~~

~~**1001.2**~~ **1001.3** **Certificate of occupancy.** A *change of occupancy* or a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space shall not be made to any structure without the approval of the *code official*. A certificate of occupancy shall be issued where it has been determined that the requirements for the *change of occupancy* have been met.

~~**1001.2.1**~~ **1001.3.1** **Change of use.** Any work undertaken in connection with a change in use shall conform to the applicable requirements for the work as classified in Chapter 6 and to the requirements of Sections 1002 through 1010.

Exception: As modified in Section 1204 for *historic buildings*.

~~**1001.2.2**~~ **1001.3.2** **Change of occupancy classification.** Where ~~a~~ an existing building or a portion of an existing building, undergoes a change of occupancy classification, the provisions of Sections 1002 through ~~1011~~ 1010 shall apply.

Delete without substitution:

~~**1001.2.2.1 Partial change of occupancy.** Where a portion of an *existing building* undergoes a change of occupancy classification, Section 1011 shall apply.~~

Revise as follows:

~~**1001.3**~~ **1001.4** **Certificate of occupancy required.** A certificate of occupancy shall be issued where a *change of occupancy* occurs that results in a different occupancy classification as determined by the *International Building Code*.

SECTION 1002
SPECIAL USE AND OCCUPANCY

1002.1 Compliance with the building code. Where an *existing building* or part of an *existing building* undergoes a *change of occupancy* to one of the special use or occupancy categories as described in Chapter 4 in the *International Building Code*, the building shall comply with all of the requirements of Chapter 4 of the *International Building Code* for the new occupancy classifications applicable to the special use or occupancy.

~~**1002.3**~~ **1002.2 Change of occupancy in health care.** Where a *change of occupancy* occurs to a Group I-2 or I-1 *facility*, the *work area* with the *change of occupancy* shall comply with the International Building Code.

Exceptions:

1. A *change in use* or occupancy in the following cases shall not be required to meet the *International Building Code*:
   1.1. Group I-2, Condition 2 to Group I-2, Condition 1.
   1.2. Group I-2 to ambulatory health care.
   1.3. Group I-2 to Group I-1.
   1.4. Group I-1, Condition 2 to Group I-1, Condition 1.
2. In a Group I-1 occupancy, where a *change of use* is not in conjunction with a Level 3 *alteration*, a smoke barrier in accordance with Section 420.6 of the *International Building Code* is not required to be added.

~~**1002.4**~~ **1002.2.1 Storage.** In Group I-2 occupancies, equipped throughout with an automatic sprinkler in accordance with Section 903.3.1.1 of the *International Building Code*, where a room 250 square feet (23.2 m^2) or less undergoes a change in occupancy to a storage room, the room shall be separated from the remainder of the building by construction capable of resisting the passage of smoke in accordance with Section 509.4.2 of the *International Building Code*.

SECTION 1003
BUILDING ~~ELEMENTS AND MATERIALS~~ HEIGHT AND AREA

1003.1 General. Building ~~elements and materials~~ height and area for buildings where buildings or ~~in~~ portions of buildings undergoing a change of occupancy classification shall comply with Section ~~1011~~ 1003.2 through 1003.5.

~~**1011.6**~~ **1003.2 Heights and areas.** Hazard categories in regard to height and area shall be in accordance with Table ~~1011.6~~ 1003.2.

TABLE ~~1011.6~~ 1003.2 HEIGHTS AND AREAS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	A-1; A-2; A-3; A-4; I; R-1; R-2; R-4, Condition 2
3	E; F-1; S-1; M
4 (Lowest Hazard)	B; F-2; S-2; A-5; R-3; R-4, Condition 1; U

~~**1011.6.1**~~ **1003.3 Height and area for change to a higher-hazard category.** Where a change of occupancy classification is made to a higher-hazard category as shown in Table ~~1011.6~~ 1003.2 , heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the *International Building Code* for the new occupancy classification.

Exceptions:

1. For high-rise buildings constructed in compliance with a previously issued permit, the type of construction reduction specified in Section 403.2.1 of the *International Building Code* is permitted. This shall include the reduction for columns. The high-rise building is required to be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the *International ~~Building~~ Fire Code*.
2. Buildings that were constructed in compliance with a previously issued permit that have floor assemblies with a 1-1/2-hour fire resistance rating shall not be required to comply with Chapter 5 of the *International Building Code* where all of the following apply:
   2.1. Chapter 5 of the *International Building Code* requires Type IB construction.
   2.2. The building does not include Group H occupancies.
   2.3. The building is protected throughout with an automatic sprinkler system in accordance Section 903.3.1.1 of the *International ~~Building~~ FireCode.*

~~1011.6.1.1~~ 1003.3.1 Fire wall alternative. In other than Groups H, F-1 and S-1, fire barriers and horizontal assemblies constructed in accordance with Sections 707 and 711, respectively, of the *International Building Code* shall be permitted to be used in lieu of fire walls to subdivide the building into separate buildings for the purpose of complying with the area limitations required for the new occupancy where all of the following conditions are met:

1. The buildings are protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Fire Code*.
2. The maximum allowable area between fire barriers, horizontal assemblies or any combination thereof shall not exceed the maximum allowable area determined in accordance with Chapter 5 of the *International Building Code* without an increase allowed for an automatic sprinkler system in accordance with Section 506 of the *International Building Code*.
3. The fire-resistance rating of the fire barriers and horizontal assemblies shall be not less than that specified for fire walls in Table 706.4 of the *International Building Code*.

Exception: Where horizontal assemblies are used to limit the maximum allowable area, the required fire-resistance rating of the horizontal assemblies shall be permitted to be reduced by 1 hour provided that the height and number of stories increases allowed for an automatic sprinkler system by Section 504 of the *International Building Code* are not used for the buildings.

~~1011.6.2~~ 1003.4 Height and area for change to an equal or lesser-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category as shown in Table ~~1011.6~~ 1003.2, the height and area of the *existing building*shall be deemed acceptable.

~~1002.2~~ 1003.5 Incidental uses. Where a portion of a building undergoes a *change of occupancy* to one of the incidental uses listed in Table 509.1 of the *International Building Code*, the incidental use shall comply with Section 509 of the *International Building Code* applicable to the incidental use.

Add new text as follows:

SECTION 1004
FIRE AND PROTECTION FEATURES

1004.1 General. Building fire and smoke protection features for buildings where buildings or portions of buildings undergoing a change of occupancy classification shall comply with Section 1004.2 through 1004.5.

Revise as follows:

~~1011.7~~ 1004.2 Exterior wall fire-resistance ratings. Hazard categories in regard to fire-resistance ratings of exterior walls shall be in accordance with Table ~~1011.7~~ 1004.2.

TABLE ~~1011.7~~ 1004.2 EXPOSURE OF EXTERIOR WALLS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATION
1 (Highest Hazard)	H
2	F-1; M; S-1
3	A; B; E; I; R
4 (Lowest Hazard)	F-2; S-2; U

~~1011.7.1~~ 1004.3 Exterior wall rating for change of occupancy classification to a higher-hazard category. Where a change of occupancy classification is made to a higher hazard category as shown in Table~~1011.7~~ 1004.2, exterior walls shall have fire-resistance, exterior opening areas and opening protectives as required by the *International Building Code*.

Exception: A 2-hour fire-resistance rating shall be allowed where the building does not exceed three stories in height and is classified as one of the following groups: A-2 and A-3 with an occupant load of less than 300, B, F, M or S.

~~1011.7.3~~ 1004.3.1 Opening protectives. Openings in exterior walls shall be protected as required by the *International Building Code*. Where openings in the exterior walls are required to be protected because of their distance from the lot line, the sum of the area of such openings shall not exceed 50 percent of the total area of the wall in each story.

Exceptions:

1. Where the *International Building Code* permits openings in excess of 50 percent.
2. Protected openings shall not be required in buildings of Group R occupancy that do not exceed three stories in height and that are located not less than 3 feet (914 mm) from the lot line.
3. Exterior opening protectives are not required where an automatic sprinkler system has been installed throughout.
4. Exterior opening protectives are not required where the *change of occupancy* group is to an equal or lower hazard classification in accordance with Table ~~1011.7~~ 1004.2 .

~~1011.7.2~~ 1004.4 Exterior wall rating for change of occupancy classification to an equal or lesser-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category as shown in Table 1~~1011.7~~ 1004.2, existing exterior walls, including openings, shall be accepted.

~~1011.6.3~~ 1004.5 Fire barriers. Where a *change of occupancy* classification is made to a higher-hazard category as shown in Table ~~1011.7~~ 1004.2 , fire barriers in separated mixed use buildings shall comply with the fire-resistance requirements of the *International Building Code*.

Exception: Where the fire barriers are required to have a 1-hour fire-resistance rating, existing wood lath and plaster in good condition or existing $^{1}/_{2}$-inch-thick (12.7 mm) gypsum wallboard shall be permitted.

~~1011.8~~ 1004.6 Enclosure of vertical shafts. Enclosure of vertical shafts shall be in accordance with Sections ~~1011.8.1~~ 1004.6.1 through ~~1011.8.4~~ 1004.6.4.

~~1011.8.1~~ 1004.6.1 Minimum requirements. Vertical shafts shall be designed to meet the *International Building Code* requirements for atriums or the requirements of this section.

~~1011.8.2~~ 1004.6.2 Stairways. Where a change of occupancy classification is made to a higher-hazard category as shown in Table 1011.5, interior stairways shall be enclosed as required by the *International Building Code*.

Exceptions:

1. In other than Group I occupancies, an enclosure shall not be required for openings serving only one adjacent floor and that are not connected with corridors or stairways serving other floors.
2. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by 1-hour fire-resistance-rated construction or *approved* wired glass set in steel frames and all exit corridors are sprinklered in accordance with the *International Building Code* . The openings between the corridor and the tenant space shall have not fewer than one sprinkler above the openings on the tenant side.

3. Existing penetrations of stairway enclosures shall be accepted if they are protected in accordance with the *International Building Code*.

~~1011.8.3~~ 1004.6.3 Other vertical shafts. Interior vertical shafts other than stairways, including but not limited to elevator hoistways and service and utility shafts, shall be enclosed as required by the *International Building Code* where there is a *change of use* to a higher-hazard category as specified in Table ~~1011.5~~ 1007.2.

Exceptions:

1. Existing 1-hour interior shaft enclosures shall be accepted where a higher rating is required.
2. Vertical openings, other than stairways, in buildings of other than Group I occupancy and connecting less than six stories shall not be required to be enclosed if the entire building is provided with an *approved* automatic sprinkler system.

~~1011.8.4~~ 1004.6.4 Openings. Openings into existing vertical shaft enclosures shall be protected by fire assemblies having a fire protection rating of not less than 1 hour and shall be maintained self-closing or shall be automatic-closing by actuation of a smoke detector. Other openings shall be fire protected in an *approved* manner. Existing fusible link-type automatic door-closing devices shall be permitted in all shafts except stairways if the fusible link rating does not exceed 135°F (57°C).

Add new text as follows:

SECTION 1005
INTERIOR FINISHES

Revise as follows:

~~1011.3~~ 1005.1 Interior finish. In ~~areas~~ portions of the building undergoing the change of occupancy classification, the interior finish of walls and ceilings shall comply with the requirements of the *International Building Code* for the new occupancy classification.

SECTION ~~1004~~ 1006
~~FIRE PROTECTION~~ AUTOMATIC SPRINKLER SYSTEMS AND FIRE ALARM AND DETECTONS SYSTEMS

~~1004.1~~ 1006.1 General. Fire protection requirements in ~~Section 1011~~ Sections 1006.2 and 1006.3 shall apply where either of the following occur:

1. A building or portion thereof undergoes a *change of occupancy*.
2. A building or portion thereof undergoes a *change of occupancy* and there is a different fire protection system threshold requirement in Chapter 9 of the current *International ~~Building~~ Fire Code* than exists in the current building or portion thereof.

Delete without substitution:

~~**1011.2 Fire protection systems.** Fire protection systems shall be provided in accordance with Sections 1011.2.1 and 1011.2.2.~~

Revise as follows:

~~1011.2.1~~ 1006.2 Automatic sprinkler system. The installation of an automatic sprinkler system shall be required where there is a *change of occupancy* classification and Chapter 9 of the current *International ~~Building~~ Fire Code* requires an automatic sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International ~~Building~~ Fire Code* than exists in the current building or space . The installation of the automatic sprinkler system shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the change of occupancy by a nonrated permanent partition and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall.

Exceptions:

1. An automatic sprinkler system shall not be required in a one- or two-family dwelling constructed in accordance with the International Residential Code.
2. Automatic sprinkler system shall not be required in a townhouse constructed in accordance with the International Residential Code.
3. The townhouse shall be separated from adjoining units in accordance with Section R302.2 of the *International Residential Code*.

~~**1011.2.1.1**~~ **1006.2.1** **Nonrequired automatic sprinkler systems.** The *code official* is authorized to permit the removal of an existing automatic sprinkler system where all of the following conditions exist:

1. The system is not required for new construction.
2. Portions of the system that are exposed to the public are removed.
3. The system was not installed as part of any special construction features, including fire-resistance-rated assemblies and smoke-resistive assemblies, conditions of occupancy, means of egress conditions, fire code deficiencies, *approved* modifications or *approved* alternative materials, design and methods of construction, and equipment applying to the building.

~~**1011.2.1.1.1**~~ **1006.2.1.1** **Approval.** Plans, investigation and evaluation reports, and other data shall be submitted documenting compliance with Section ~~1011.2.1.1~~ 1006.2.1 for review and approval in support of a determination authorizing the removal of the automatic sprinkler system by the *code official*.

~~**1011.2.2**~~ **1006.2** **Fire alarm and detection system.** Where a change in occupancy classification occurs or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International ~~Building~~ Fire Code* than exists in the current building or space that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the *International ~~Building~~ Fire Code*, such system shall be provided throughout the area where the *change of occupancy* occurs. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances shall be provided throughout the area where the *change of occupancy* occurs in accordance with Section 907 of the *International Building Code* as required for new construction.

SECTION ~~1005~~ 1007
MEANS OF EGRESS

~~**1005.1**~~ **1007.1** **General.** Means of egress in a building or in portions of buildings undergoing a change of occupancy classification shall comply with ~~Section 1011~~ Sections 1107.2 through 1107.8.

~~**1011.5**~~ **1007.2** **Means of egress, general.** Hazard categories in regard to life safety and means of egress shall be in accordance with Table ~~1011.5~~ 1007.2.

TABLE ~~1011.5~~ 1007.2 MEANS OF EGRESS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	I-2; I-3; I-4
3	A; E; I-1; M; R-1; R-2; R-4, Condition 2
4	B; F-1; R-3; R-4, Condition 1; S-1
5 (Lowest Hazard)	F-2; S-2; U

~~**1011.5.1**~~ **1007.3** **Means of egress for change to a higher-hazard category.** Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table ~~1011.5~~ 1007.2 , the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 903.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 shall be permitted for continued use subject to approval of the *code official*.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or $^1/_2$-inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 804.7.1, 804.7.2 and 804.7.3.
6. Existing dead-end corridors shall comply with the requirements in Section 804.8.
7. An operable window complying with Section ~~1011.5.6~~ 1007.8 shall be accepted as an *emergency escape and rescue opening*.
8. In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.

~~1011.5.2~~ 1007.4 Means of egress for change of use to an equal or lower-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category (higher number) as shown in Table ~~1011.5~~ 1007.2 , existing elements of the means of egress shall comply with the requirements of Section 905 for the new occupancy classification. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions :

1. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
2. In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.

~~1011.5.3~~ 1007.5 Egress capacity. Egress capacity shall meet or exceed the occupant load as specified in the *International Building Code* for the new occupancy.

~~1011.5.4~~ 1007.6 Handrails. Existing stairways shall comply with the handrail requirements of Section 804.13 in the area of the change of occupancy classification.

~~1011.5.5~~ 1007.7 Guards. Existing guards shall comply with the requirements in Section 804.12 in the area of the change of occupancy classification.

~~1011.5.6~~ 1007.8 Existing emergency escape and rescue openings. Where a *change of occupancy* would require an *emergency escape and rescue opening* in accordance with Section 1031 of the *International Building Code*, operable windows serving as the *emergency escape and rescue opening* shall comply with the following:

1. An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38 m^2) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).

2. A replacement window where such window complies with both of the following:
    2.1. The replacement window meets the size requirements in Item 1.
    2.2. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

SECTION ~~1010~~ 1008 ~~OTHER REQUIREMENTS~~ INTERIOR ENVIRONMENTS

Add new text as follows:

1008.1 General. Interior environments in a building or portions of buildings undergoing a change of occupancy classification shall comply with Sections 1108.2 and 1108.3.

Revise as follows:

~~1010.1~~ 1008.2 Light and ventilation. Light and ventilation shall comply with the requirements of the *International Building Code* for the new occupancy.

~~1011.4~~ 1008.3 Enhanced classroom acoustics. In Group E occupancies, where the *work area* is a Level 3 *alteration*, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (565 m^3) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.

SECTION ~~1006~~ 1009 STRUCTURAL

Add new text as follows:

1009.1 General. Load in a building or portions of buildings undergoing a change of occupancy classification shall comply with Sections 1109.2 and 1109.5.

Revise as follows:

[BS] ~~1006.1~~ 1009.2 Live loads. Structural elements carrying tributary live loads from ~~an area~~ the portion of the building with a *change of occupancy* shall satisfy the requirements of Section 1607 of the *International Building Code*. Design live loads for ~~areas of new~~ portion of the building with a change of occupancy shall be based on Section 1607 of the *International Building Code*. Design live loads for other areas shall be permitted to use previously *approved* design live loads.

Exception: Structural elements whose demand-capacity ratio considering the *change of occupancy* is not more than 5 percent greater than the demand-capacity ratio based on previously *approved* live loads.

[BS] ~~1006.2~~ 1009.3 Snow and wind loads. Where a *change of occupancy* results in a structure being assigned to a higher *risk category* in accordance with Section 1604.5 of the International Building Code , the structure shall satisfy the requirements of Sections 1608 and 1609 of the *International Building Code* for the new *risk category*.

Exception: Where the area of the new occupancy is less than 10 percent of the building area. The cumulative effect of occupancy changes over time shall be considered.

[BS] ~~1006.3~~ 1009.4 Seismic loads. Where a *change of occupancy* results in a building being assigned to a higher *risk category* in accordance with Section 1604.5 of the International Building Code , or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the lateral force-resisting system of the building shall comply with Section 304.3.1 for the new *risk category*. Where a *change of occupancy* results in a building being assigned to *Risk Category* IV and Seismic Design Category D or F, nonstructural components serving any portion of the building changed to *Risk Category* IV shall comply with the requirements of Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where a *change of use* results in a building being reclassified from *Risk Category* I or II to *Risk Category* III and the seismic coefficient, S_{DS}, is less than 0.33, compliance with this section is not required.
2. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category* IV, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category* III and to Seismic Design Category A or B shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of *risk category*, compliance with Section 304.3.2 shall be permitted.

[BS] ~~1006.4~~ 1009.5 Access to Risk Category IV. Any structure that provides operational access to an adjacent structure assigned to *Risk Category* IV as the result of a change of occupancy shall itself comply with Sections 1608 and 1609 of the *International Building Code* and Section 304.3.1 of this code. Where operational access to *Risk Category* IV is less than 10 feet (3048 mm) from either an interior lot line or from another structure, access protection from potential falling debris shall be provided.

SECTION ~~1007~~ 1010
ELECTRICAL

Add new text as follows:

1010.1 General. Electrical systems in a building or portions of buildings undergoing a change of occupancy classification shall comply with Sections 1010.2 through 1010.5.

Revise as follows:

~~1007.1~~ 1010.2 Special occupancies. Where the ~~occupancy of an *existing*~~ a *building* or ~~part~~ portion of an ~~*existing*~~ *building* ~~is changed~~ undergoes a change of occupancy to one of the following special occupancies as described in NFPA 70, the electrical wiring and equipment of the building or portion thereof that contains the proposed occupancy shall comply with the applicable requirements of NFPA 70. Health care *facilities*, including Group I-2, ambulatory health care *facilities* and outpatient clinics, shall also comply with the applicable requirements of NFPA 99:

1. Hazardous locations.
2. Commercial garages, repair and storage.
3. Aircraft hangars.
4. Gasoline dispensing and service stations.
5. Bulk storage plants.
6. Spray application, dipping and coating processes.
7. Health care *facilities*, including Group I-2, ambulatory health care *facilities* and outpatient clinics.
8. Places of assembly.
9. Theaters, audience areas of motion picture and television studios, and similar locations.
10. Motion picture and television studios and similar locations.

11. Motion picture projectors.
12. Agricultural buildings.

~~1007.2~~ 1010.3 **Unsafe conditions.** Where ~~the occupancy of an *existing*~~ a *building* or ~~part~~ portion of an ~~*existing*~~ *building* ~~is changed~~ undergoes a change of occupancy, all *unsafe* conditions shall be corrected without requiring that all parts of the electrical system comply with NFPA 70.

~~1007.3~~ 1010.4 **Service upgrade.** Where ~~the occupancy of an *existing*~~ a *building* or ~~part~~ portion of an ~~*existing*~~ *building* ~~is changed~~ undergoes a change of occupancy, electrical service shall be upgraded to meet the requirements of NFPA 70 for the new occupancy.

~~1007.4~~ 1010.5 **Number of electrical outlets.** Where ~~the occupancy of an *existing*~~ a *building* or ~~part~~ portion of an ~~*existing*~~ *building* ~~is changed~~ undergoes a change of occupancy, the number of electrical outlets shall comply with NFPA 70 for the new occupancy.

SECTION ~~1008~~ 1011 MECHANICAL

Add new text as follows:

1011.1 General. Mechanical systems in a building or portions of buildings undergoing a change of occupancy classification shall comply with Section 1011.2.

Revise as follows:

~~1008.1~~ 1011.2 **Mechanical requirements.** Where ~~the occupancy of an~~ a *existing building* or ~~part~~ portion of an ~~*existing*~~ *building* ~~is changed~~ undergoes a change of occupancy such that the new occupancy is subject to different kitchen exhaust requirements or to increased mechanical ventilation requirements in accordance with the *International Mechanical Code*, the new occupancy shall comply with the respective *International Mechanical Code* provisions.

SECTION ~~1009~~ 1012 PLUMBING

Add new text as follows:

1012.1 General. Mechanical systems in a building or portions of buildings undergoing a change of occupancy classification shall comply with Sections 1012.2 through 1012.6.

Revise as follows:

~~1009.1~~ 1012.2 **Increased demand.** Where the ~~occupancy of an *existing*~~ a *building* or ~~part~~ portion of an ~~*existing*~~ *building* ~~is changed~~ undergoes a change of occupancy such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the *International Plumbing Code*, the new occupancy shall comply with the intent of the respective *International Plumbing Code* provisions.

> **Exception:** Only where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the International Plumbing Code based on the increased occupant load.

~~1009.2~~ 1012.3 **Food-handling occupancies.** If the new occupancy is a food-handling establishment, all existing sanitary waste lines above the food or drink preparation or storage areas shall be panned or otherwise protected to prevent leaking pipes or condensation on pipes from contaminating food or drink. New drainage lines shall not be installed above such areas and shall be protected in accordance with the *International Plumbing Code*.

~~1009.3~~ 1012.4 **Interceptor required.** If the new occupancy will produce grease or oil-laden wastes, interceptors shall be provided as required in the *International Plumbing Code*.

~~1009.4~~ 1012.5 **Chemical wastes.** If the new occupancy will produce chemical wastes, the following shall apply:

1. If the existing piping is not compatible with the chemical waste, the waste shall be neutralized prior to entering the drainage system or the piping shall be changed to a compatible material.
2. Chemical waste shall not discharge to a public sewer system without the approval of the sewage authority.

~~1009.5~~ 1012.6 **Group I-2.** If the occupancy group is changed to Group I-2, the plumbing system and medical gas system shall comply with the applicable requirements of the *International Plumbing Code*.

Delete without substitution:

~~SECTION 1011~~
~~CHANGE OF OCCUPANCY CLASSIFICATION~~

Reason: The intent is to provide a more cohesive organization in Chapter 10 along the line of the chapters in the IBC. Currently Chapter 10 is a series of requirements that all send you to Section 1011. There is no real coordination with the organization in section 1011. This change also attempts to provide consistent language throughout the chapter.

All the sections in the chapter are included in this revision, just relocated.

1001.1 and 1011.1 – Both sections provide scoping. 1011.1 was more extensive.

1001.2.2 and 1001.2.2.1 are combined for consistency with the rest of the chapter.

1003 – the criteria in this section is specific to height and area (IBC Chapter 5 and 6)

1003.5 – incidental areas in in IBC Chapter 5, so incidental use is better with height and area instead of special occupancies.

1003.3 – the chapter is inconsistent on the reference for the IBC or IFC for sprinkle requirements

1004 is now specific to items related to rating of exterior walls, fire barriers and vertical shafts (IBC Chapter 7)

1005.1 – consistent terminology (IBC Chapter 8)

1006 is not specific to automatic sprinklers and fire alarm and detection system (IBC Chapter 9)

1007.1 – consistent terminology (IBC Chapter 10)

1008 provides criteria for interior environments. Instead of 'other'.

1008.1 – general scoping for the section

1009.1 – general scoping for the section

1009.2 – consistent use of phrase

1009.3 and 1009.4 – need to indicate where 'risk category' comes from, do that people are not looking for a table like you find in other sections.

1010.1 – general scoping for the section

1010.2 to 1010.5 – consistent use of phrase

1011.1 – general scoping for the section

1011.2 – consistent use of phrase

1012.1 – general scoping for the section

1012.2 – consistent use of phrase

Existing 1011 – no criteria is left in the end section – they are all now in the related sections.

This proposal is one of the series of changes to IEBC Chapter 10 from the BCAC. Attached is a clean draft of Chapter 10 if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

- **IEBC Chapter 10 Clean Draft.pdf**
  https://www.cdpaccess.com/proposal/11172/33953/documentation/172936/attachments/download/8720/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a reorganization of the chapter. There are no additional construction requirements.

EB94-25

EB95-25

IEBC: 1002.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

1002.1 Compliance with the building code. Where an *existing building* or part of an *existing building* undergoes a *change of occupancy* to one of the special use or occupancy categories as described in Chapter 4 in the *International Building Code*, the building shall comply with all of the requirements of Chapter 4 of the *International Building Code* applicable to the following special use or occupancy~~.~~:

1. Covered and open mall buildings
2. Atriums
3. Underground buildings
4. Motor vehicle-related occupancies
5. Group I-2 occupancies
6. Motion picture projection rooms
7. Stages, platforms and technical production areas
8. Special amusement buildings
9. Aircraft-related occupancies
10. Ambulatory care facilities

Reason: Code change EB96-19 removed the list of items where Chapter 4 applies to existing buildings. The proposal said that this would not increase the cost of construction. Underground building was not in the list, but was addressed by 1002.2. The intent of this proposal is to restore the list. The title of 'stages, platforms and technical production areas' was updated to match Section 410.

However, would asking for a building with a partial change of occupancy to have to add the highrise requirement be reasonable? Another example, the ICC 500 committee did not intent for the storm shelter requirements to apply to existing construction – only new. The structural and impact requirements would be extremely difficult for an existing room to meet. In addition, people add to IBC Chapter 4 without consideration of the IEBC. Each of these sections should be considered carefully.

The following are items that were added to the requirements by EB96-19 with a reference to Chapter 4. We respectively ask for comment on what is reasonable to ask for compliance by the experts in each of these areas. In this particular case, a list is relevant.

High-rise building (403)

Group I-3 (408)

Combustible storage (413)

Hazardous materials(414)

Groups H-1, H-2, H-3, H-4 and H-5(415)

Spray application of flammable finishes (416)

Drying rooms (417)

Organic coatings (418)

Artificial decorative vegetation(419)

Groups I-1, R-1, R-2, R-3 and R-4 (420)

Hydrogen fuel rooms (421)

Storm shelters (423)

Play structures (424)

Hyperbaric Facilities (424)

Combustible dusts, grain processing and storage (426)

Medical gas systems (425)

Higher educations laboratories (428)

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This is just one example of what was added by EB96-19. We are providing a cost estimate for adding a new storm shelter. A search on the web stated the cost was between $100 and $350 a square foot depending on the materials used. With an average school size of about 525 plus a staff of 75, and ICC 500 requiring 5 sq.ft. per person - that is a cost between $300,000 and $1,050,000 for an average grade school.

Estimated Immediate Cost Impact Justification (methodology and variables):

Since an existing room or space would be almost impossible to retrofit to meet ICC 500, it is assumed that the a change of occupancy would have to construct a new building, or a shelter within an existing larger volume. Removing this as a requirement for a change of occupancy would remove that additional cost.

EB95-25

EB96-25

IEBC: 1002.4

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

1002.4 Storage. In Group I-2 occupancies, where the smoke compartment is equipped throughout with an automatic sprinkler in accordance with Section 903.3.1.1 of the *International Building Code*, where a room 250 square feet (23.2 m^2) or less undergoes a change in occupancy to a storage room, the room shall be separated from the remainder of the building by construction capable of resisting the passage of smoke in accordance with Section 509.4.2 of the *International Building Code*.

Reason: Group I-2 are becoming fully sprinklered as the are altered and at a rapid pace due to licensure requirements. This allows for improvements as the building is sprinklered. This allowance for smoke compartments is consistent with other allowances for rated corridors and the IFC Chapter 11.

This proposal is one of the series of changes to IEBC Chapter 10 from the BCAC. See the proposal for Chapter 10 reorganization for a clean draft.

This proposal is submitted by the ICC Committee for Healthcare (CHC) and the ICC Building Code Action Committee (BCAC).

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This allowance is coordinating this small change of occupancy with other provisions in the IEBC.

EB96-25

EB97-25

IEBC: 1009.2

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Delete without substitution:

~~**1009.2 Food-handling occupancies.** If the new occupancy is a food-handling establishment, all existing sanitary waste lines above the food or drink preparation or storage areas shall be panned or otherwise protected to prevent leaking pipes or condensation on pipes from contaminating food or drink. New drainage lines shall not be installed above such areas and shall be protected in accordance with the *International Plumbing Code*.~~

Reason: The IPC does not specifically address the protection of drainage lines in food handling occupancies. Section 701.8 of the IPC was removed in the 2018 IPC that covered drainage lines in food handling occupancies. Thus, this section should have been removed as well. This requirement may be covered in other codes or standards such as the Model Food Code and other local health codes. Additionally, Section 302.2 states that all work within the scope of the IEBC is required to meet the requirements of the other respective I-Codes.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This will not increase the cost of construction. This change is just the clarification of the requirements of the I-codes.

EB97-25

EB98-25

IEBC: 1009.4

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

1009.4 Chemical wastes. Where ~~If~~ the new occupancy will produce chemical wastes,not previously approved for the building, the chemical waste system shall comply with the International Plumbing Code. ~~the following shall apply:~~

1. ~~If the existing piping is not compatible with the chemical waste, the waste shall be neutralized prior to entering the drainage system or the piping shall be changed to a compatible material.~~
2. ~~Chemical waste shall not discharge to a public sewer system without the approval of the sewage authority.~~

Reason: The current text is inconsistent with the IPC, so it is being revised incorporate reference to the IPC and ensure that all requirements for chemical waste systems are followed. The PMGCAC recommends that the Code Correlation Committee assign a [P] scoping to this section because the plumbing code committee has oversight on chemical waste requirements. Having the same committee responsible for chemical waste in the I-Codes will help ensure consistency.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is just the clarification of what the I-Codes already require thus there is no impact to the cost of construction.

EB98-25

EB99-25

IEBC: 1011.2.1

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org); Kota Wharton, representing Self (kwharton@grovecityohio.gov)

2024 International Existing Building Code

Revise as follows:

1011.2.1 Automatic sprinkler system. The installation of an automatic sprinkler system shall be required where there is a *change of occupancy* classification and Chapter 9 of the current *International Building Code* requires an automatic sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space . The installation of the automatic sprinkler system shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the change of occupancy by a nonrated permanent partition and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall.

Exceptions:

1. An automatic sprinkler system shall not be required in a one- or two-family dwelling constructed in accordance with the International Residential Code.
2. Automatic sprinkler system shall not be required in a townhouse constructed in accordance with the International Residential Code.
3. The townhouse shall be separated from adjoining units in accordance with Section R302.2 of the *International Residential Code*.
4. <u>An automatic sprinkler system shall not be required to be installed in a one- or two-family dwelling or townhouse unit where the change of occupancy is to a Group R-4 occupancy, provided smoke alarms and carbon monoxide alarms are provided in accordance with Sections 307 and 308.</u>

Reason: This is one of several proposals up for Group R-4 occupancies.

The intent of this proposal is to not require a group home that is moving into a single family home to add a sprinkler system. The smoke detectors and carbon monoxide detectors are already required in Chapter 3, so the pointer is both to reinforce that requirement, and to improve the safety or the occupants if they home is old enough to not have these warning devices. Cost of adding these are minimal and they have been proven to greatly improve life safety. You would not ask a family that bought an existing home to add a sprinkler system, so this would be consistent with that requirement.

There is a series issue with homelessness in the United States. Many of these individuals would benefit from the opportunity to live in a supervised environment, either on a permanent basis, or a temporary basis to help them get back on their feet. The ADA includes an 'integration mandate' that requires state and local governments the provide services in a residential setting - not just in institutions - Community Integration | ADA.gov. The Fair Housing Act specified that families cannot be determined only by 'blood or marriage', therefor, a people that live in a group home should be treated equally as a family. Fair Housing and Related Law | HUD.gov / U.S. Department of Housing and Urban Development (HUD)

The Department of Justice is suing the state of Pennsylvania over discrimination that restricts community-based housing.

Middle District of Pennsylvania | Justice Department Sues Pennsylvania Over Discriminatory Code Requirements That Restrict Community-Based Housing for People with Disabilities | United States Department of JusticeThere are reports from other states over similar lawsuits.

This proposal is submitted by the ICC Committee for Healthcare (CHC)

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Averge cost for an NFPA13D sprinkler system for new construction is $1.35 per square foot.

Estimated Immediate Cost Impact Justification (methodology and variables):

There are additional expenses with adding a sprinkler system in an existing home, such as removal and replacement of ceiling materials to run sprinkler pipes.

EB99-25

EB100-25

IEBC: 1011.2.1

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com)

2024 International Existing Building Code

Revise as follows:

1011.2.1 Automatic sprinkler system. The installation of an automatic sprinkler system shall be required where there is a *change of occupancy* classification and Chapter 9 of the current *International Building Code* requires an automatic sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space . The installation of the automatic sprinkler system shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the change of occupancy by a nonrated permanent partition and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall.

Exceptions:

1. An automatic sprinkler system shall not be required in a one- or two-family dwelling constructed in accordance with the International Residential Code.
2. Automatic sprinkler system shall not be required in a townhouse constructed in accordance with the International Residential Code.
3. The townhouse shall be separated from adjoining units in accordance with Section R302.2 of the *International Residential Code*.
4. <u>In building 3 stories or less above grade plane in height, where the building site does not have sufficient municipal water supply for design of an automatic sprinkler system, the areas with a change of occupancy shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*</u>
5. <u>In building with more than 3 stories above grade plane in height, where the building does not have an existing water supply present at the floor of the area with sufficient pressure and flow for the design of a fire sprinkler system and without installation of a new fire pump, the *areas with a change of occupancy* shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code.*</u>

Reason: The intent of these exceptions is to allow for situations with insufficient municipal water where a change of occupancy would require sprinklers. This is similar to the language in Section 803.2.2 and 904.1.4. This will assist in the reuse of existing buildings.

This proposal is one of the series of changes to IEBC Chapter 10 from the BCAC. See the proposal for Chapter 10 reorganization for a clean draft.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This coordination of the COO with Chapter 8 and 9. See reason statement.

EB100-25

EB101-25

IEBC: 1011.2.1

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org)

2024 International Existing Building Code

Revise as follows:

1011.2.1 Automatic sprinkler system. The installation of an automatic sprinkler system shall be required where there is a *change of occupancy* classification and Chapter 9 of the current *International Building Code* requires an automatic sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space. The installation of the automatic sprinkler system shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the *change of occupancy* by ~~a~~horizontal assemblies and fire partitions, smoke partitions, smoke barriers, fire barriers, fire walls ornonrated permanent partitions ~~and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall~~.

Exceptions:

1. An automatic sprinkler system shall not be required in a one- or two-family dwelling constructed in accordance with the International Residential Code.
2. Automatic sprinkler system shall not be required in a townhouse constructed in accordance with the International Residential Code.
3. The townhouse shall be separated from adjoining units in accordance with Section R302.2 of the *International Residential Code*.
4. In buildings with 4 or fewer stories above grade plane and no more than 12,000 square feet (1115 m^2) gross floor area per story, if the building site does not have sufficient municipal water supply for design of an automatic sprinkler system, the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the area of the *change of occupancy* by horizontal assemblies and fire partitions, smoke partitions, smoke barriers, fire barriers, fire walls or nonrated permanent partitions shall be protected by an automatic smoke detection system throughout all occupiable spaces that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code.*

Reason: The intent of this code change is to facilitate adaptive reuse of existing buildings by reducing one barrier to changes of occupancy classification. The proposed exception is applicable to changes of occupancy classification in part or all of an existing building where:

- the existing building has no more than 4 stories above grade plane
- the existing building has no more than 12,000 square feet of gross floor area per story
- the building site does not have sufficient municipal water supply for design of an automatic sprinkler system.

This exception is modeled on the existing exception to Section 904.1.4 for Level 3 alterations, with the addition of the 4-story and 12,000 square foot per story limitations and removal of the limitation on installing smoke detection within dwelling units and sleeping units. Buildings using this exception will be required to install an automatic smoke detection system that triggers occupant notification throughout occupiable areas that are part of the change of occupancy or open to the area where the change of occupancy occurs.

This exception, like the exception to Section 904.1.4 on which it is modeled, would only apply if a sprinkler system cannot be installed based on the insufficiency of existing water service to the site. If installation of a fire pump or storage tank would allow installation of an automatic sprinkler system without upgrading the existing water service, this exception would not be applicable.

The height in stories and gross floor area per story limitations are intended to facilitate the reuse of "main street" type buildings and prevent this new exception from being used for excessively tall or large existing buildings. (For recent research on how more flexibility in code requirements can promote the adaptive reuse of this type of building, see the bibliography.)

Unlike Section 904.1.4, this provision will also require automatic smoke detection that would trigger occupant notification within any dwelling units or sleeping units that are part of the change of occupancy.

This proposal also makes an editorial change to the main section to clarify that "nonrated" is only intended to modify "permanent partition." The editorially-adjusted phrase is then repeated in the exception.

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG).

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

Bibliography: Marilyn E. Kaplan & Mike Jackson, *Hiding in Plain Sight: How Reconsideration of Codes for Existing and Historic Buildings Can Expand Affordable Housing*, 25 Cityscape: A Journal of Policy Development and Research no. 2 (Industrial Revolution) 403 (2023), available at: https://www.huduser.gov/portal/periodicals/cityscape/vol25num2/ch18.pdf.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Where installation of a sprinkler system would be required as part of a change of occupancy, but the existing water supply to the site is insufficient (with or without installation of a fire pump on site), this code change would eliminate the expense of upgrading the existing water supply. This avoided expense could range from tens to hundreds of thousands of dollars, based on the nearest available municipal water infrastructure and the extent of upgrade required to secure sufficient water supply.

Estimated Immediate Cost Impact Justification (methodology and variables):

In most cases, installing a new water service line costs at least $10,000, assuming there is a sufficiently sized water main adjacent to the site.

In cases where securing sufficient municipal water service to a site requires upgrading or extending municipal infrastructure in public right of ways, based on the cost recovery policies of the water utility and municipality, this work can easily cost over $100,000.

EB101-25

EB102-25

IEBC: 1011.2.1

Proponents: Grant Ullrich, City of Chicago, representing Self (grant.ullrich@cityofchicago.org)

2024 International Existing Building Code

Revise as follows:

1011.2.1 Automatic sprinkler system. The installation of an automatic sprinkler system shall be required where there is a *change of occupancy* classification and Chapter 9 of the current *International Building Code* requires an automatic sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space . The installation of the automatic sprinkler system shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the change of occupancy by a nonrated permanent partition and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall.

Exceptions:

1. An automatic sprinkler system shall not be required in ~~a one- or two-family dwelling~~ the following building types where constructed in accordance with the *International Residential* ~~*Code.*~~ *Code:*
   - 1.1. A one- or two-family dwelling.
   - ~~3~~ 1.2. ~~The~~ A townhouse ~~shall be~~ that is separated from adjoining units in accordance with Section R302.2 of the *International Residential Code*.

~~2. Automatic sprinkler system shall not be required in a townhouse constructed in accordance with the International Residential Code.~~

Reason: Section 1011.2.1, which requires installation of a sprinkler system as part of a change of occupancy if required for the new occupancy, currently has what appears to be 3 exceptions. On closer reading what is numbered as exception 3 appears to really be reiterating a requirement of item 2. This code change proposal recognizes that it is really a single exception with slightly different rules for the two types of buildings that can be built under the IRC: dwellings and townhouses.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is editorial. See reason statement.

EB102-25

EB103-25

IEBC: 1011.2.1

Proponents: Kirk Nagle, City of Aurora Colorado, representing Colorado Chapter of the ICC

2024 International Existing Building Code

Revise as follows:

1011.2.1 Automatic sprinkler system. The installation of an automatic sprinkler system shall be required where there is a *change of occupancy* classification and Chapter 9 of the current *International Building Code* requires an automatic sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space . The installation of the automatic sprinkler system shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the change of occupancy by a nonrated permanent partition and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall. For one and two single family dwellings or townhouses go to the IRC for sprinkler requirements.

~~**Exceptions:**~~

1. ~~An automatic sprinkler system shall not be required in a one- or two-family dwelling constructed in accordance with the International Residential Code.~~
2. ~~Automatic sprinkler system shall not be required in a townhouse constructed in accordance with the International Residential Code.~~
3. ~~The townhouse shall be separated from adjoining units in accordance with Section R302.2 of the *International Residential Code*.~~

Reason: The reason for deleting the exceptions is simple and should not be difficult to approve. This section sends people to Chapter 9 of the IBC which has no reference to the IRC and thus an exception here will not be of any use. The reason to have exceptions is when they are called out in a section, are specifically required or listed in the referenced sections. These exceptions send you to the IRC, which is not a problem, but should not be exceptions. This proposal removes unneeded language in the code and poses no hazard or life safety issues.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a code language cleanup so no justification for cost is needed.

EB103-25

EB104-25

IEBC: 1011.2.1, 1011.2.2, 1001.2, 1011.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

1011.2.1 Automatic sprinkler system. The installation of an automatic sprinkler system shall be required where there is a *change of occupancy* classification and Chapter 9 of the current *International Building Code* requires an automatic sprinkler system <u>for new buildings</u> based on the new occupancy ~~or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space~~ . The installation of the automatic sprinkler system shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the change of occupancy by a nonrated permanent partition and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall.

Exceptions:

1. An automatic sprinkler system shall not be required in a one- or two-family dwelling constructed in accordance with the International Residential Code.
2. Automatic sprinkler system shall not be required in a townhouse constructed in accordance with the International Residential Code.
3. The townhouse shall be separated from adjoining units in accordance with Section R302.2 of the *International Residential Code*.

1011.2.2 Fire alarm and detection system. ~~Where a change in occupancy classification occurs or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the *International Building Code*, such~~ <u>The installation of an fire alarm and detection system shall be required where there is a *change of occupancy* classification and Chapter 9 of the current *International Building Code* requires an fire alarm and detection system for new buildings based on the new occupancy. Such</u> system shall be provided throughout the area where the *change of occupancy* occurs. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances shall be provided throughout the area where the *change of occupancy* occurs in accordance with Section 907 of the *International Building Code* as required for new construction.

1001.2 Certificate of occupancy. ~~A *change of occupancy* or a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space shall not be made to any structure without the approval of the *code official*.~~ A certificate of occupancy shall be issued where it has been determined that the requirements for the *change of occupancy* have been met.

1011.1 General. The provisions of this section shall apply to buildings or portions thereof undergoing a change of occupancy classification. This includes a change of occupancy classification within a group as well as a change of occupancy classification from one group to a different group. ~~The provisions of this section shall also apply where there is a *change of occupancy* within a building or portion thereof and there is a different fire protection system threshold requirement in Chapter 9 of the current *International Building Code* than exists in the current building or space.~~ Such buildings shall also comply with Sections 1002 through 1010 of this code.

Reason: 1011.2.1 deals with sprinkler systems and 1022.2.2 deals with fire alarm and detection systems. By the removal of duplicate language, this will make these requirements clearer.

1002.1 and 1011.1 – Fire is one of the items listed in the definition for COO (greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation)– we don't need to call this out separately or repeat it in these multiple locations.

The definitions are provided here for convenience -
[A]**CHANGE OF OCCUPANCY.** Any of the following shall be considered as a change of occupancy where the current *International Building Code* requires a greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current building or structure:

1. Any change in the occupancy classification of a building or structure.
2. Any change in the purpose of, or a change in the level of activity within, a building or structure.
3. A change of use.

[A] CHANGE OF USE. A change in the use of a building or a portion of a building, within the same group classification, for which there is a change in application of the code requirements.

This proposal is one of the series of changes to IEBC Chapter 10 from the BCAC. See the proposal for Chapter 10 reorganization for a clean draft.
This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial. Please refer to the reason statement.

EB104-25

EB105-25

IEBC: 1011.5, TABLE 1011.5, 1011.6, TABLE 1011.6

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org); Kota Wharton, representing Self (kwharton@grovecityohio.gov)

2024 International Existing Building Code

Revise as follows:

1011.5 Means of egress, general. Hazard categories in regard to life safety and means of egress shall be in accordance with Table 1011.5.

TABLE 1011.5 MEANS OF EGRESS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	I-2; I-3; I-4
3	A; E; I-1; M; R-1; R-2~~; R-4, Condition 2~~
4	B; F-1; R-3; R-4~~, Condition 1~~; S-1
5 (Lowest Hazard)	F-2; S-2; U

1011.6 Heights and areas. Hazard categories in regard to height and area shall be in accordance with Table 1011.6.

TABLE 1011.6 HEIGHTS AND AREAS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	A-1; A-2; A-3; A-4; I; R-1; R-2~~; R-4, Condition 2~~
3	E; F-1; S-1; M
4 (Lowest Hazard)	B; F-2; S-2; A-5; R-3; R-4~~, Condition 1~~; U

Reason: This is one of several proposals up for Group R-4 occupancies. First, consider the increase of one step for means of egress. The requirments for means of egress between an existing Group R-3 and a Group home has no differences, so what is the intent of indicating an increased hazard? Second, consider an the increase of 2 steps in hazard from an Group R-3 to a Group home. Given the limits for R-3 and R-4, assuming an NFPA13D sprinkler system - Table 504.3 for height, no difference; Table 506.2 of area; R-3 is unlimited, but the smallest R-4 is 7,000 sq.ft. - almost all of the homes in the US are not that large. So what is this really supposed to gain? These increases have no direct requirments for these small facilities, so placing a Group R-4 Condition 2 at higher levels actually is an impediment that requires nothing.

Occupant of R-4 Conditions 2 buildings are required to be capable of self preservation. They are limited in height and area to the same as a Group R-3 building. There is no reason to say these are equivalent hazard to large assembly space, hotels and apartments which can be much larger in area, taller in size and with a much larger occupant load. While residents might be receiving the same level of custodial care (not medical care) as a Group I-2, Condition 2, those facilities can be up to 10 stories with an unlimited number of residents. There facilities are limited to 2-4 stories and 16 residents. In addition, Group R-4 is required to have emergency escape and rescue opening in every bedroom. The Group R-3 and R-4 are treated the same in new construction for height and area and means of egress. There is no justification to consider this a higher hazard than a Group R-3 for a change of occupancy.

There is a series issue with homelessness in the United States. Many of these individuals would benefit from the opportunity to live in a supervised environment, either on a permanent basis, or a temporary basis to help them get back on their feet. The ADA includes an 'integration mandate' that requires state and local goverments the provide services in a residential setting - not just in institutions - Community Integration | ADA.gov. The Fair Housing Act specified that families cannot be determined only by 'blood or marriage', therefor, a people that live in a group home should be treated equally as a family. Fair Housing and Related Law | HUD.gov / U.S. Department of Housing and Urban Development (HUD)

The Department of Justice is suing the state of Pennsylvania over discrimination that restricts community-based housing.Middle District of Pennsylvania | Justice Department Sues Pennsylvania Over Discriminatory Code Requirements That Restrict Community-Based Housing for People with Disabilities | United States Department of Justice

There are reports from other states over similar lawsuits.

This proposal is submitted by the ICC Committee for Healthcare (CHC).

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no effective increase, so there is no cost in construction.

EB105-25

EB106-25

IEBC: TABLE 1011.5

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Michael Malinowski, representing American Institute of Architects California (mfm@appliedarts.net); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

TABLE 1011.5 MEANS OF EGRESS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	I-2; I-3; I-4
3	A; E; I-1; M; R-1; R-2[a]; R-4, Condition 2
4	B; F-1; R-3; R-4, Condition 1; S-1
5 (Lowest Hazard)	F-2; S-2; U

a. A building or portion of a building undergoing a change of occupancy classification to a Group R-2 occupancy shall be classified as category 4 where the building is protected throughout with an automatic sprinkler system in accordance Section 903.3.1.1 or 903.3.1.2 of the *International Building Code*.

Reason: For a Group B, F-1 or S-1 to Group R-2 change of occupancy classification, this proposed code change will reduce requirements to upgrade elements of the existing means of egress to new construction standards where either: (1) the existing building is protected throughout by an NFPA 13 or 13R-compliant automatic sprinkler system, or (2) a full-building NFPA 13 or 13R automatic sprinkler system is installed as part of the project.

Because a full-building automatic sprinkler system (either NFPA 13 or 13R) provides significant life safety benefits to residential occupants, it is appropriate to require fewer upgrades to existing non-conforming means of egress components compared to the requirements for a building with only a partial sprinkler system.

This proposal does not change requirements for means of egress components that are newly built or newly configured as part of an alteration undertaken along with the change of occupancy classification.

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG) and the ICC Building Code Action Committee (BCAC)

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Bibliography: American Institute of Architects, *The Business of Architecture 2024: Firm Survey Report* (2024).

Deltek, Inc., *Clarity: Architecture and Engineering Industry Study (2024).*

National Fire Sprinkler Association, *Fire Sprinkler Retrofit Guide: Automatic Sprinklers in Existing Buildings, What You Need to Know* (3rd ed., 2019)

Michael A. Webber, *High Performing Firms: By the Numbers*, American Institute of Architects Practice Management Digest (2014).

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This code change will reduce architectural and engineering (A&E) costs for a small project in an already-fully-sprinkled building by several thousand dollars and for mid-sized and larger projects by tens or hundreds of thousands of dollars by reducing the scope and complexity of professional services required.

This code change will also allow a developer to decide, on a project-specific basis for partial change of occupancy work, whether it is more cost effective to install a sprinkler system in areas other than the new residential occupancy (estimated $2.44 to $10.22 a square foot) or undertake improvements.

Estimated Immediate Cost Impact Justification (methodology and variables):

Assumptions

This proposed change will decrease the cost of construction in the following situations:

1. When converting from an occupancy classified as a Category 4 hazard (Group B, F-1, R-3, R-4, Condition 1, or S-1) to a Group R-2 occupancy in a building that is already equipped throughout with an automatic sprinkler system, fewer aspects of the existing means of egress system will require evaluation (and potentially upgrades) to comply with new construction egress requirements because the change will no longer be consisted to be increasing the hazard category.

2. When undertaking a similar conversion in a building that is not already equipped throughout with an automatic sprinkler system (either no system or a partial system), the owner/designer may elect to either evaluate and upgrade the means of egress to new construction standards or install a full-building sprinkler system. (If the full building is being converted to a Group R-2 occupancy, installation of a full sprinkler system is already required by Sec. 1011.2.1.)

This proposed change will have a significant impact on office-to-residential conversions (Group B to Group R) in buildings that already have a full sprinkler system or are required to install a full sprinkler system as part of the conversion, by reducing the means of egress evaluation and upgrade requirements applicable to this type of work.

Variables

According to an industry study published by Deltek, Inc., in 2023 architecture and engineering firms in the US and Canada collected total revenue per employee of $205,951. Based on a 2014 article published in the AIA Practice Management Digest, architecture firm employees bill for approximately 1,300 hours per year (direct labor hours per employee). This means that, on average employees of A&E firms are billed out at approximately $160 per hour. In many cases, additional reimbursable costs are required for travel and testing.

According to a 2019 publication from the National Fire Sprinkler Association, the cost per square foot to retrofit an existing building with an automatic sprinkler system “ranges from $2.44 to $10.22 depending on whether the water supply infrastructure needs to be upgraded.”

Further Justification

Members of the ICC Adaptive Reuse Working Group, including both code officials and design professionals, believe, based on their significant professional experience in numerous US jurisdictions, that this code change will reduce the cost of adaptive reuse projects of the types described above. In many cases, these savings will be substantial and may make an otherwise unfeasible project feasible.

EB106-25

EB107-25

IEBC: 1011.5.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

1011.5.1 Means of egress for change to a higher-hazard category. Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table 1011.5, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section ~~903.1~~ <u>1011.8</u>.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 shall be permitted for continued use subject to approval of the *code official*.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or $^1/_2$-inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 804.7.1, 804.7.2 and 804.7.3.
6. Existing dead-end corridors shall comply with the requirements in Section 804.8.
7. An operable window complying with Section 1011.5.6 shall be accepted as an *emergency escape and rescue opening*.
8. In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.

Reason: IEBC 2024 s. 1011.5.1, Exception 1 refers to IEBC 2024 s 903.1. That section stipulates that: “Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 802.2.1 from the highest work area floor to, and including, the level of exit discharge and all floors below.” Section 802.2.1 requires that: “Existing interior vertical openings connecting two or more floors shall be enclosed with approved assemblies having a fire-resistance rating of not less than 1 hour with approved opening protectives”. That section then provides several exceptions based on certain Occupancy Classifications.
IEBC 2024 s. 1011.8 is more restrictive than the requirements of Section 802.2.1.
IEBC 2024 s. 102.1 stipulates: “Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.”
It is unnecessary to have code users be directed to Section 903.1 and, subsequently, Section 802.2.1 when Section 1011.8 is the most restrictive and governs.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not add any additional requirements beyond those currently required.

EB107-25

EB108-25

IEBC: 1011.5.1, 1011.6.3, 1011.6.4 (New), 1203.7, 1204.10

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

1011.5.1 Means of egress for change to a higher-hazard category. Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table 1011.5, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 903.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 shall be permitted for continued use subject to approval of the *code official*.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed on both sides of ~~wood~~ lath and plaster in good condition or ~~1/2-inch-thick (12.7 mm)~~ gypsum wallboard <u>with a thickness of at least 1/2 inch (12.7 mm)</u> shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 804.7.1, 804.7.2 and 804.7.3.
6. Existing dead-end corridors shall comply with the requirements in Section 804.8.
7. An operable window complying with Section 1011.5.6 shall be accepted as an *emergency escape and rescue opening*.
8. In Group I-1 and I-2 facilities, required guards enclosing the *occupiable roof* areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the *occupiable roof* where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.

1011.6.3 Fire barriers. Where a *change of occupancy* classification is made to a higher-hazard category as shown in Table 1011.6, fire barriers in separated mixed use buildings shall comply with the fire-resistance requirements of the *International Building Code*.

Exception: Where the fire barriers are required to have a 1-hour fire-resistance rating, existing ~~wood~~ lath and plaster in good condition or existing ~~1/2-inch-thick (12.7 mm)~~ gypsum wallboard <u>with a thickness of at least 1/2 inch (12.7 mm)</u> shall be permitted.

Add new text as follows:

<u>**1011.6.4 Fire partitions.** Fire partitions shall comply with the fire-resistance requirements of the *International Building Code.*</u>

<u>**Exception:** Where the fire partitions are required to have a 1/2-hour or 1-hour fire-resistance rating, existing lath and plaster in good condition or existing gypsum wallboard with a thickness of at least 1/2 inch (12.7 mm) shall be permitted.</u>

Revise as follows:

1203.7 ~~One-hour fire-resistant~~ <u>Fire-resistant</u> assemblies. Where <u>1/2-hour or</u> 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling ~~finish~~ <u>surface</u> is ~~wood or metal~~ lath and plaster <u>in good condition or gypsum wallboard with a thickness of at least 1/2 inch (12.7 mm)</u>.

1204.10 ~~One-hour fire-resistant~~ Fire-resistant assemblies. Where 1/2-hour or 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling ~~finish~~ surface is ~~wood~~ lath and plaster in good condition or gypsum wallboard with a thickness of at least 1/2 inch (12.7 mm).

Reason: Several provisions of the IEBC allow existing plaster or gypsum wallboard surfaces to be accepted in lieu of a 1-hour fire-resistance rating. The current provisions, however, are unnecessarily limited to *wood* lath and plaster and 1/2-inch gypsum wallboard. This proposal will expand the current recognition to other lath materials (notably metal lath) and also greater thicknesses of gypsum wallboard. It will also clarify this recognition also extends to conditions where a fire-resistance rating of less than 1-hour is required. This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG) and the ICC Building Code Action Committee (BCAC).

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal will clarify additional common existing interior wall surface materials, such as metal lath and plaster or 3/4" gypsum wallboard, are entitled to the same treatment as the currently listed materials.

EB108-25

EB109-25

IEBC: 1011.6.4 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org)

2024 International Existing Building Code

Add new text as follows:

1011.6.4 Fire partitions. Where a *change of occupancy* classification is made to an occupancy that would require a higher fire resistance rating for corridors in accordance with Section 1020.2 of the *International Building Code*, the fire partitions in corridors shall comply with the fire-resistance and corridor requirements of the *International Building Code*.

> **Exception:** Where the fire partitions are required to have a 1-hour or 1/2-hour fire-resistance rating, existing lath and plaster in good condition or existing gypsum wallboard with a thinkness of at least 1/2 inch (12.7 mm) shall be permitted.

Reason: Groups H, I-1, I-3 and R are required to have rated corridors in sprinklered buildings. Group A, B and E are not required to have rated corridors in sprinklered buildings. If an A, B or E occupancy changes to a Group I-1, I-3 or R, this important passive fire protection system should be provided. The exception is currently permitted in Section 1011.6.3 for fire partitions. It seems reasonable to also allow that for fire partitions.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: Increase

Estimated Immediate Cost Impact:

If the corridor is rated, there will be no additional costs. If the corridors is unrated, this is a match to the passive fire protection requirements for new construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

1/2 hour walls are typically provided by standard walls. The cost would be if opening protectives needed to be added.

EB109-25

EB110-25

IEBC: TABLE 1011.6

Proponents: Grant Ullrich, Chair, representing ICC Adaptive Reuse Working Group (grant.ullrich@cityofchicago.org); Michael Malinowski, representing American Institute of Architects California (mfm@appliedarts.net); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

TABLE 1011.6 HEIGHTS AND AREAS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	A-1; A-2; A-3; A-4; I; R-1; R-2[a]; R-4, Condition 2
3	E; F-1; S-1; M
4 (Lowest Hazard)	B; F-2; S-2; A-5; R-3; R-4, Condition 1; U

a. <u>A building or portion of a building undergoing a change of occupancy classification to a Group R-2 occupancy shall be classified as category 3 where the building is protected throughout with an automatic sprinkler system in accordance Section 903.3.1.1 of the *International Building Code*.</u>

Reason: For a Group E, F-1, M, or S-1 to Group R-2 change of occupancy classification, this proposed code change will reduce requirements to evaluate the existing building height, building area, and construction type where either: (1) the existing building is protected throughout by an NFPA 13-compliant automatic sprinkler system, or (2) a full-building NFPA 13 automatic sprinkler system is installed as part of the project.

Because a full-building NFPA 13 automatic sprinkler system provides significant life safety benefits to residential occupants, it is appropriate to allow greater non-conformity with new construction limits on building height and building area compared to the requirements for the same change of occupancy classification in a building with only a partial sprinkler system.Unlike related proposal 11053, this proposal only refers to NFPA 13 sprinkler systems. The difference is intentional based on the fact that IBC Table 506.2 only provides an area increase for full NFPA 13 sprinkler systems, while IBC Section 1005 allows increased occupant load per egress width in buildings with either NFPA 13 or NFPA 13R systems.

This proposal is submitted by the ICC Adaptive Reuse Working Group (ARWG) and the ICC Building Code Action Committee (BCAC)

ARWG was convened in 2024 by ICC Government Relations to explore opportunities to facilitate the reuse of existing nonresidential buildings for multi-family residential uses through better training on use of the International Codes for adaptive reuse work and potential amendments to the International Codes. ARWG held numerous virtual meetings in 2024 and met in person at the 2024 annual business meeting in Long Beach. ARWG consists of code officials, design professionals, and other interested parties.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

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Deltek, Inc., *Clarity: Architecture and Engineering Industry Study (2024).*

National Fire Sprinkler Association, *Fire Sprinkler Retrofit Guide: Automatic Sprinklers in Existing Buildings, What You Need to Know* 3d ed. (2019)

Michael A. Webber, *High Performing Firms: By the Numbers*, American Institute of Architects Practice Management Digest (2014).

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This code change will reduce architectural and engineering (A&E) costs for a small project in an already-fully-sprinkled building by several thousand dollars and for mid-sized and larger projects by tens or hundreds of thousands of dollars by reducing the scope and complexity of professional services required.

This code change will allow a developer to decide, on a project-specific basis for partial change of occupancy work, whether it is more cost effective to install a sprinkler system in areas other than the new residential occupancy (estimated $2.44 to $10.22 a square foot) or undertake other improvements.

Estimated Immediate Cost Impact Justification (methodology and variables):

Assumptions

This proposed change will decrease the cost of construction in the following situations:

1. When converting from an occupancy classified as a Category 3 hazard (Group E, F-1, M or S-1) to a Group R-2 occupancy in a building that is already equipped throughout with an automatic sprinkler system, the owner will not be required to evaluate and potentially upgrade the construction type of the existing building or separate the existing building into separate buildings with fire walls to meet height and area limitations.

2. When undertaking a similar conversion in a building that is not already equipped throughout with an automatic sprinkler system (either no system or a partial system), the owner/designer may elect to either evaluate and potentially upgrade the existing construction type or to install a full-building sprinkler a system. (If the full building is being converted to a Group R-2 occupancy, installation of a full sprinkler system is already required by Sec. 1011.2.1.)

In many cases, determining the construction type classification of an existing building requires extensive evaluation of existing conditions. In some cases destructive testing is required. Since construction type is determined on a full-building basis, this may require evaluating all areas of a large structure for only a partial change of occupancy.

This proposed change will have a significant impact on school-, industrial- or mercantile-to-residential conversions (Group E, F, M or S to Group R) in buildings that already have a full sprinkler system or are required to install a full sprinkler system as part of the conversion, by reducing the construction type evaluation and upgrade requirements applicable to this type of work.

Variables

According to an industry study published by Deltek, Inc., in 2023 architecture and engineering firms in the US and Canada collected total revenue per employee of $205,951. Based on a 2014 article published in the AIA Practice Management Digest, architecture firm employees bill for approximately 1,300 hours per year (direct labor hours per employee). This means that, on average employees of A&E firms are billed out at approximately $160 per hour. In many cases, additional reimbursable costs are required for travel and testing.

According to a 2019 publication from the National Fire Sprinkler Association, the cost per square foot to retrofit an existing building with an automatic sprinkler system “ranges from $2.44 to $10.22 depending on whether the water supply infrastructure needs to be upgraded.”

Further Justification

Members of the ICC Adaptive Reuse Working Group, including both code officials and design professionals, believe, based on their significant professional experience in numerous US jurisdictions, that this code change will reduce the cost of adaptive reuse projects of the types described above. In many cases, these savings will be substantial and may make an otherwise unfeasible project feasible.

EB110-25

EB111-25

IEBC: 1101.8 (New)

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com)

2024 International Existing Building Code

Add new text as follows:

1101.8 Roof additions to existing buildings. Materials and methods of application used for roof covering on an addition to an existing building shall comply with the requirements of Chapter 15 of the *International Building Code*.

Exception: *Roof coverings* of additions to existing low-slope roof coverings shall not be required to meet the minimum design slope requirement of $^{1}/_{4}$ unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the *International Building Code* for roofs that provide positive roof drainage and meet the requirements of Sections 1608.3 and 1611.2 of the *International Building Code* .

Reason: The requirement to meet ¼" per foot roof slope is primarily an attempt at eliminating progressive deflection failures for low slope roofs due to ponding. Prior to the code change requiring the ¼" per foot slope, many buildings were constructed between 1/8" per foot and 3/16" per foot. When expanding these existing buildings using the new required ¼" per foot slope is often not feasible. The most common issue encountered is the slope differences creating different roof planes. This differential creates a discontinuation of the roof diaphragm which is a critical piece in the lateral stability of the potential buildings. These discontinuations often do not have a structural solution that is feasible to construct, making the expansions infeasible. In addition to the structural issues there are multiple architectural issues that the ¼" per foot requirement causes. These can include (but are not limited to) having to raise parapets significantly to maintain screening requirements, creating areas in the building that are too low for use, and drainage conditions that are very difficult to design. All structural and architectural concerns can be easily mitigated by allowing the expansion to match the existing roof slope, provided adequate structural stiffness is designed for the new expansion areas. This both has a positive impact on the project cost, as well as avoids the complete infeasibility of some potential expansion projects. Allowing the expansions areas to match the existing slope will expand the useful lifespan of many existing buildings.

Cost Impact: Increase

Estimated Immediate Cost Impact:

If a building addition is not permitted to be provided with the lower sloped roof option to match the existing building, the costs will increase. The costs associated with this increase would be increased parapet heights as well as the costs associated with maintaining the roof diaphragm across two different roof heights. If the building addition is permitted to be provided with the lower sloped roof option, then there may still be an increase in construction costs as the structural elements will need to be modified to allow for the anticipated ponding, but those costs may be negligible as the increased parapets and challenges with the diaphragm would not be required.

Estimated Immediate Cost Impact Justification (methodology and variables):

At the current requirements, which will not allow for the reduction in slope, the costs associated with an existing single story building that is 125,000 square feet with a proposed single story addition of 40,000 square feet can range between $1.5 and $2 million dollars.

EB111-25

EB112-25

IEBC: SECTION 1201, 1201.1, 1201.2 (New), SECTION 1202, 1202.1, 1202.2 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

SECTION 1201 GENERAL

Revise as follows:

1201.1 Scope. ~~This chapter is intended to provide means for the preservation of *historic buildings*.~~ *Historic buildings* shall comply with ~~the provisions of~~ this chapter ~~relating to their *repair*, *alteration*, relocation and *change of occupancy*.~~

Add new text as follows:

1201.2 Conformance. The building shall be safe for human occupancy as determined by the *International Fire Code* and the *International Property Maintenance Code*. Any *repair*, *alteration* or *change of occupancy* undertaken within the historic building shall comply with the requirements of this code applicable to the work being performed except as permitted otherwise in this chapter.

SECTION 1202 REPAIRS

Revise as follows:

1202.1 General. Repairs to any portion of a *historic building* or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location. The work shall not make the building less complying than it was before the *repair* was undertaken. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to requirements for alterations.

Add new text as follows:

1202.2 Conformance. The work shall not make the building less complying than it was before the *repair* was undertaken. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to requirements for alterations.

Reason: The intent of this proposal is to allow historic buildings to have the same options as permitted for existing buildings elsewhere in the IEBC. While technically this would be applicable as a chapter or the work area method, this may not be interpreted the same for a stand alone chapter. Currently, this is not clear even as a chapter within the work area method. One example is an existing stairway to remain as is unless it is unsafe.

1201.1 - This change matches the proposal for the proposals to change the scoping requirements consistently throughout the codes.

1201.2 - This new text follows the same format as the other stand alone chapters - Repairs and Relocated buildings. The text is copied from Relocated buildings.

1202.2 - The text is copied from Section 401.2 under Repairs.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of the intent of the requirements for historic buildings. There is no change to construction requirement.

EB112-25

EB113-25

IEBC: [BS] 1201.2

Proponents: Jonathan Humble, Jonathan Humble, FAIA, LLC, representing Himself (festeel@att.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 1201.2 Report. A *historic building* undergoing *alteration* or *change of occupancy* shall be investigated and evaluated, and a written report shall be prepared and filed with the *code official* by a *registered design professional* where required by the *code official*. The report shall identify ~~all~~ *unsafe* conditions as defined in Section 115 that are clearly visible and able to be accessed by the registered design professional. For buildings assigned to Seismic Design Category D, E or F, a description of the vertical and horizontal elements of the lateral force-resisting system and strengths or weaknesses therein shall be included. Additionally, the report shall describe the components of the building that provide a level of safety substantially below that required of existing nonhistoric buildings.

> **Exception:** An investigation, evaluation and report shall not be required where the *alteration* is scoped by Section 602 as a Level 1 *alteration* and does not make the building or structure less compliant with the provisions of the *International Building Code*.

Reason: The proposal deletes the word "all" in sentence number two. Merriam-Webster dictionary defines "all" as *"whole, entire, total, all mean including everything or everyone without exception."* (Merriam-Webster, Inc. Copyright © 2024) The problem is that by inserting the word "all" in this requirement is that:

- It assumes that the design professional has access to all parts or portions of an existing building prior to developing construction documents, and
- The current language assumes that the design professional will be performing both a historic alteration, restoration, or repair project and a whole building unsafe building review concurrently.

Frequently design professionals may be restricted from accessing all portions of a building simply because the project may be minor in nature, or the building owner does not wish to have a whole building unsafe analysis, or the building owner may not permit exploratory demolition, or the building owner and/or tenant does not wish to have their operations interrupted, or for whatever other reason. This is why in many cases a contingency ($) is recommended by the design professional as a line item in the project cost as an emergency fund for unknown issues when they arise during the alterations or repairs construction process.

By removing the word "all" will allow the design professional to practice their trade without fear of potential litigation for not finding each and every unsafe condition within a building and allow the design professional to focus their attention on the owner's project requirements and those unsafe conditions within that project scope.

Further, by adding the phrase "that are clearly visible and able to be accessed by the registered design professional" also allows the design professional to execute their job on the same level playing field as the code official is allowed in Sections 109 Inspections. This also permits the design professional to perform their services without having to provide a guarantee or warrant their services to work that they cannot perform.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The cost for performing a survey for unsafe conditions, versus a survey of "all" unsafe conditions, should be less cost to the building owner of the historic property as this will mean that only those conditions that are clearly or visually identifiable and accessible will be assessed as part of the survey. Excluded from the services by the design professional will be areas of the building that require exploratory demolition and restoration, the additional services of specialists to perform tests, the services of a general, mechanical, plumbing, electrical or specialized contractor to assist in the concealed exploratory work, and other specialized persons as necessary.

Estimated Immediate Cost Impact Justification (methodology and variables):

Using public cost data information as a guide, take for example the most common historic building which is a residential property. Roughly 70% of the US designated historic buildings are residential properties. For example, assume a two-story residential historic property that is between 1,500 sf and 2,500 sf, a single person from the design professional firm conducts the physical survey in one day, and a second day to prepare and review the report before turning it over to the owner. The estimated cost for a visual survey might range between $2,500 and $4,000 for a survey report. If we add one of the exclusions noted above, such as minor exploratory demolition and restoration, this could increase that cost to over $10,000 for the additional time and visits for the design professional and for the services of a general contractor and restoration expert to execute that work. The general contractors expenses for this minor would be in the range of $3,000 to $5,000 (3 days) to set up, install protection to the remainder of the building, and disassembling the construction area, and the restoration expert $3,000 to $5,000 (3 days) to match the altered area to the remainder of the historic character of the building. This estimate subject to change based on the regional or city/town code indexing (e.g., standard average cost versus cost differences for specific regions) based on the location of the project.

EB113-25

EB114-25

IEBC: [BS] 1201.2

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

[BS] 1201.2 Report. Where required by the code official, a ~~A~~ *historic building* undergoing *alteration* or *change of occupancy* shall be investigated and evaluated, and a written report shall be prepared and filed with the *code official* by a *registered design professional* ~~where required by the *code official*~~. The report shall include the following:

1. ~~The report shall identify all~~ Identification of *unsafe* conditions as ~~defined~~ described in Section 115.
2. Documentation that the property meets the definition of a historic building
3. Where a *character-defining feature* does not meet the requirements in this code the reoport shall include the following:
   - 3.1. Identificat of the character-defining feature.
   - 3.2. Identifcation of the applicable code sections of the code not met.
   - 3.3. Description of how the alternative means will meet the intent of the code, if applicable.
4. Documentation required by other sections of this chapter.
5. For buildings assigned to Seismic Design Category D, E or F, a description of the vertical and horizontal elements of the lateral force-resisting system and strengths or weaknesses therein shall be included.

   ~~Additionally, the report shall describe the components of the building that provide a level of safety substantially below that required of existing nonhistoric buildings.~~

~~Exception~~ Exceptions:

1. Repairs.
2. An investigation, evaluation and report shall not be required where the *alteration* is scoped by Section 602 as a Level 1 *alteration* and does not make the building or structure less compliant with the provisions of ~~the *International Building Code*~~ this code.
3. For buildings within the scope of the *International Residential Code*, the investigation, evaluation and report shall be permitted to be prepared by the owner or owner's representative.

Reason: The proposal eliminates the unpredictability of whether a Report will be required, relieves the code official of determining that the code's definition of historic building is met, and ensures that the information documenting character-defining features and any alternatives becomes part of the official project record. The proposed language follows the intent of the Report in the first editions of the IEBC, although provides more specific direction as to what must be included.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This requirement is for a report on alternative. It does not change the construction costs.

EB114-25

EB115-25

IEBC: 1201.5, [BS] 1205.2

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

1201.5 ~~Unsafe~~ Dangerous or unsafe conditions. Conditions determined by the *code official* to be *dangerous* or *unsafe* shall be remedied. Work shall not be required beyond what is required to remedy the *dangerous* or *unsafe* conditions.

Delete without substitution:

~~**[BS] 1205.2 Dangerous conditions.** Conditions determined by the *code official* to be *dangerous* shall be remedied. Work shall not be required beyond what is required to remedy the *dangerous* condition.~~

Reason: The intent of this proposal is to reinforce what is expected for unsafe conditions. Right now one section is under General and another is at the end of the chapter under Structural. Not all users are keyed into the difference between the definitions for 'dangerous' and 'unsafe'. In addition, the definition of 'unsafe' includes 'dangerous'. This would better serve the user if both criteria are indicated in the general provisions. Unsafe buildings are addressed administratively in Section 115; and are required in the report in section 1201.2.

The following are the existing definitions for reference –

> **[BS]DANGEROUS.** Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:
>
> 1. The building or structure has collapsed, has partially collapsed, has moved off its foundation or lacks the necessary support of the ground.
> 2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under permanent, routine or frequent loads; under actual loads already in effect; or under snow, wind, rain, flood, earthquake aftershock or other environmental loads when such loads are imminent.
>
> **UNSAFE.** Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress *facilities*, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "*Dangerous*," or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed *unsafe*. A vacant structure that is not secured against entry shall be deemed *unsafe*.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is removing redundant language. There is no change to construction requirements.

EB116-25

IEBC: 1201.6 (New)

Proponents: Sean Denniston, Heritage Green Consulting, representing Association for Preservation Technology; James Lindberg, representing National Trust for Historic Preservation (jlindberg@savingplaces.org)

2024 International Existing Building Code

Add new text as follows:

1201.6 Historic Occupancies. The documented occupancy of a qualified historic building or property, or portion thereof, shall be permitted to continue, or be returned to that use, and not be considered as a change of occupancy, regardless of any period of time in which it may have remained unoccupied or occupied by other uses, provided such building or property otherwise conforms to all applicable requirements of this code. Documentation of the previous occupancy shall be provided in the report required by Section 1201.2.

Reason: Referred to as the "Change of Occupancy Penalty," the code's current approach to proposed projects involving a Change of Occupancy is steeped in the approach that existed prior to the first edition of the IEBC in 2003, the '25-50% rule.' While the intent of the 2003 edition of the IEBC was to eliminate barriers to rehabilitation, code changes through the 2024 edition have increased the stringency of buildings undergoing a Change of Occupancy, as compared to the requirements for buildings considered an Alteration - Level 3, part of the Work Area Compliance method.

The 2024 IEBC continues to penalize buildings where a new occupancy or use is proposed by imposing requirements reaching those associated with new construction. This is inconsistent with the intent of the IEBC and a major deterrent to the improvement of vacant or other existing buildings.

The proposal eliminates the unintended barriers and encourages building rehabilitation. Rehabilitation of vacant and underutilized buildings is beneficial to the community, can provide needed housing, and will increase public safety by eliminating the risks associated with vacant or unimproved buildings.

Acceptance of documented historic occupancies has long been a provision of The California Historical Building Code. It will also align with state and federal housing and historic building policy that recognizes the importance of protection of the nation's historic and cultural resources, including through the use of state and federal historic tax credits, as administered by the National Park Service, that have been responsible for the rehabilitation of thousands of historic buildings since 1976.

This proposal is submitted by the Association for Preservation Technology and the National Trust for Historic Preservation and further supported by Main Street America, National Trust Community Investment Corporation and RePurpose Capital (see attached letter of support), which represent a significant portion of national historic preservation organizations.

- **Support for amendments to IEBC.pdf**
  https://www.cdpaccess.com/proposal/11961/35804/documentation/185869/attachments/download/9284/

Bibliography: California Historical Building Code

8-302. Change in occupancy.

The use or character of the occupancy of a qualified historical building or property may be changed from or returned to its historical use or character, providing the qualified historical building or property conforms to the requirements applicable to the new use or character of occupancy as set forth in the CHBC. Such change in occupancy shall not mandate conformance with new construction requirements as set forth in regular code.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

By accepting previous occupancies, aligning requirements for Changes of Occupancy or Use with those for the highest level of Alteration (Level 3), construction costs will be decreased with a cost impact of $0.

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal will generally decrease the cost of compliance since it will generally reduce the scope of code compliance that is triggered by a change of occupancy. However, the magnitude of the savings is highly dependent on the specifics of the project, particularly the occupancy that will be recommencing use, and cannot be generalized as a typical savings estimate.

EB116-25

EB117-25

IEBC: 1201.6 (New)

Proponents: Sean Denniston, Heritage Green Consulting, representing Association for Preservation Technology (sean@heritagegreenconsulting.com); James Lindberg, representing National Trust for Historic Preservation (jlindberg@savingplaces.org)

2024 International Existing Building Code

Add new text as follows:

1201.6 Tolerances. The *code official* shall be permitted to accept a de minimis variation of up to 10% of a non-structural requirement where:

1. Achieving a required dimension or performance rating is technically infeasible.
2. Where compliance would damage a character-defining feature.
3. Where acceptance of the tolerance would not affect the intent of the code provision or
4. Alternate means to achieve the intent of the code provision are provided.

Documentation of the above shall be provided in the report required by Section 1201.2.

Reason: For historic buildings, the inability to meet all requirements for new construction can result in a resistance to reuse or improve these buildings. Vacant and other existing buildings can be more easily rehabilitated if granted the opportunity to have minimal levels of variation providing the noted specific conditions are met (physical impediments, that the variation is granted for items that are character-defining features, and that the intent of this code will be met). The provision requires the application and basis of tolerances to be documented in the Report prepared by the design professional (or the case of in the case of buildings covered in the scope of the International Residential Code, by the owner. The code official retains the authority to determine which tolerances are acceptable.

Historic buildings were constructed prior to modern construction, and small differences in dimensions are inevitable. Requiring compliance with new construction standards is often not feasible, and the cost of making changes can make a project financially infeasible. Leaving buildings vacant or underutilized or under improved presents significantly greater community risk than the risk presented by dimensional variations determined to have 'diminimus' impact on safety.

Acceptance of the proposal provides the code official necessary flexibility to accept those requirements which will not have significant impact on the level of safety provided by the rehabilitated building. It also eliminates the built in conflict between the application of historic preservation requirements which require the retention of character-defining features, and inflexible code requirements.

The proposal also eliminates the unintended barriers that were intended to be eliminated by the 2003 edition of the IEBC.

This proposal is submitted by the Association for Preservation Technology and the National Trust for Historic Preservation and further supported by Main Street America, National Trust Community Investment Corporation and RePurpose Capital (see attached letter of support), which represent a significant portion of national historic preservation organizations.

- **Support for amendments to IEBC.pdf**
  https://www.cdpaccess.com/proposal/11963/35806/documentation/185883/attachments/download/9420/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed change is intended to clarify the amount of variation within the code intent.

EB117-25

EB118-25

IEBC: 1202.3 (New), [BS] 507.4, [BS] 1205.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

SECTION 1202
REPAIRS

1202.1 General. Repairs to any portion of a *historic building* or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

1202.2 Replacement. Replacement of existing or missing features using original materials shall be permitted. Partial replacement for *repairs* that match the original in configuration, height and size shall be permitted.

Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the *International Building Code*.

Exception: Glass block walls, louvered windows and jalousies repaired with like materials.

Add new text as follows:

<u>**1202.3 Damaged buildings.** For a historic building that has *substantial structural damage* to the vertical and lateral force resisting systems or to the gravity load carrying components, the damaged elements shall be permitted to be restored to their predamage conditions.</u>

Revise as follows:

[BS] 507.4 Structural. *Historic buildings* shall comply with the applicable structural provisions in this chapter.

~~Exceptions~~ <u>Exception</u>:

~~1.~~ The *code official* shall be authorized to accept existing floors and existing live loads and to approve operational controls that limit the live load on any floor.

~~2. *Repair* of *substantial structural damage* is not required to comply with Sections 405.2.3 and 405.2.4. *Substantial structural damage* shall be repaired in accordance with Section 405.2.1.~~

[BS] 1205.1 General. *Historic buildings* shall comply with the applicable structural provisions for the work as classified in Chapter 6.

~~Exceptions~~ <u>Exception</u>:

~~1.~~ The *code official* shall be authorized to accept existing floor and previously *approved* live loads and roof live loads and to approve operational controls that limit the live load or roof live load.

~~2. Regardless of the level of damage, structural *repairs* shall be permitted to return the building to its predamage condition without additional work.~~

Reason: Historic buildings damaged by flood are addressed in Section 1201.4. This allows for work to not be considered a substantial improvement.

Section 1202.1 and 1202.2 allow for historic buildings to be repaired to their original construction and materials.

The intent of this section is to allow for buildings that receive substantial damage to the vertical and lateral force resisting systems or to the gravity load carrying elements to also be restored rather than meeting new requirements. This is an allowance for historic buildings rather than complying with 405.2.3 and 405.2.4. This is current text for repairs in Section 507.4 Exception 2 and 1205.1 Exception 2.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This allows for historic buildings to be maintained, so there are no increases to construction requirements.

EB118-25

EB119-25

IEBC: CHAPTER 12, SECTION 1203, 1203.1, 1203.2 (New), 1203.7, 1203.8, 1203.4, 1203.6, 1203.5, 1203.4 (New), 1203.2, 1203.12, 1203.5 (New), 1203.3, 1203.9, 1203.10, 1203.10.1, 1203.10.2, 1203.11, 1203.6 (New), SECTION 1205, [BS] 1205.1, [BS] 1205.2, SECTION 1204, 1204.1, 1204.3 (New), 1204.3, 1204.4, 1204.5, 1204.10, 1204.8, 1204.9, 1204.5 (New), 1204.6, 1204.7, 1204.11, 1204.12, 1204.14, [BS] 1204.13, SECTION 1206, 1205.1 (New), 1206.1, 1205.3 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

CHAPTER 12
HISTORIC BUILDINGS

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

1203.1 Scope. *Historic buildings* undergoing *alterations*~~, *changes of occupancy* or that are moved~~ shall comply with Section 1203.

Add new text as follows:

1203.2 Fire and smoke protection features. Fire and smoke protection features in historic buildings shall comply with Sections 1203.2.1 through 1203.2.4.

Revise as follows:

1203.2.1~~1203.7~~ One-hour fire-resistant assemblies. Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood or metal lath and plaster.

1203.2.2 ~~1203.8~~ Glazing in fire-resistance-rated systems. Historic glazing materials are permitted in interior walls required to have a 1-hour fire-resistance rating where the opening is provided with *approved* smoke seals and the area affected is provided with an automatic sprinkler system.

1203.2.3~~1203.4~~ Transoms. In ~~buildings with automatic sprinkler systems of~~ Group R-1, R-2 or R-3 occupancies, existing transoms in corridors and other fire-resistance-rated walls ~~may~~ shall be permitted to be maintained ~~if~~ where the transom is fixed in the closed position and the building has an automatic sprinkler system. A sprinkler shall be installed on each side of the transom.

1203.2.4 ~~1203.6~~ Stairway enclosure. In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements are not required to have a fire-resistance rating.

1203.3 ~~1203.5~~ Interior finishes. The existing interior finishes shall be accepted where it is demonstrated that they are the historic finishes.

Add new text as follows:

1203.4 Automatic sprinkler systems. Automatic sprinkler systems in historic buildings shall comply with Section 1203.4.1 and 1203.4.2.

Revise as follows:

1203.4.1 ~~1203.2~~ **General.** Every *historic building* that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an *approved* automatic sprinkler system as determined appropriate by the *code official*. However, an automatic sprinkler system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.

1203.4.2~~1203.12~~ **Automatic sprinkler systems.** Every *historic building* that cannot be made to conform to the construction requirements specified in the *International Building Code* for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance if provided with an *approved* automatic sprinkler system.

Exception: Where the *code official* approves an alternative life-safety system.

Add new text as follows:

1203.5 Means of egress. Means of egress in historic buildings shall comply with Section 1203.5.1 through 1203.5.4.

Revise as follows:

1203.5.1 ~~1203.3~~ ~~Means of egress~~ Width and capacity. Where, in the opinion of the *code official*, there is sufficient width and height for a person to pass through the opening or traverse the means of egress, existing door openings and corridor and stairway widths are not required to meet the widths required by the *International Building Code* or this code. Where *approved* by the *code official*, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other *approved* means of egress having sufficient capacity to serve the total occupant load are provided.

1203.5.2 ~~1203.9~~ Stairway ~~railings~~ handrails and guards. Grand stairways shall be accepted without complying with the handrail and guard requirements. Existing handrails and guards at all stairways shall be permitted to remain, provided they are not structurally *dangerous*.

1203.5.3 ~~1203.10~~ Guards. Guards shall comply with Sections 1203.5.3.1 ~~1203.10.1~~ and 1203.5.3.2 ~~1203.10.2~~.

1203.5.3.1 ~~1203.10.1~~ Height. Existing guards shall comply with the requirements of Section 404.

1203.5.3.2 ~~1203.10.2~~ Guard openings. The spacing between existing intermediate railings or openings in existing ornamental patterns shall be accepted. Missing elements or members of a guard may be replaced in a manner that will preserve the historic appearance of the building or structure.

1203.5.4 ~~1203.11~~ Exit signs. Where exit sign or egress path marking location would damage the historic character of the building, alternative exit signs are permitted with approval of the *code official*. Alternative signs shall identify the exits and egress path.

Add new text as follows:

1203.6 Accessibility. Accessibility in historic buildings shall comply with Section 306.

Delete without substitution:

~~SECTION 1205~~
~~STRUCTURAL~~

Revise as follows:

[BS] 1203.7 ~~1205.1~~ ~~General~~ Structural. *Historic buildings* shall comply with the applicable structural provisions for the work as classified in Chapter 6.

Exceptions:

1. The *code official* shall be authorized to accept existing floor and previously *approved* live loads and roof live loads and to approve operational controls that limit the live load or roof live load.
2. Regardless of the level of damage, structural *repairs* shall be permitted to return the building to its predamaged condition without additional work.

[BS] 1203.7.1 ~~1205.2~~ **Dangerous conditions.** Conditions determined by the *code official* to be *dangerous* shall be remedied. Work shall not be required beyond what is required to remedy the *dangerous* condition.

SECTION 1204
CHANGE OF OCCUPANCY

1204.1 General. *Historic buildings* undergoing a *change of occupancy* shall comply with Section 1203 and 1204. *Historic buildings* undergoing a *change of occupancy* shall comply with the applicable provisions of Chapter 10, except as specifically permitted in this chapter. Where Chapter 10 requires compliance with specific requirements of Chapter 7, Chapter 8 or Chapter 9 and where those requirements are subject to the exceptions in Section 1202, the same exceptions shall apply to this section.

1204.2 Building area. The allowable floor area for *historic buildings* undergoing a *change of occupancy* shall be permitted to exceed by 20 percent the allowable areas specified in Chapter 5 of the *International Building Code*.

Add new text as follows:

1204.3 Fire and smoke protection features.. Fire and smoke protection features in historic buildings undergoing a change of occupancy shall comply with Sections 1204.3.1 through 1204.3.5.

Revise as follows:

1204.3.1 ~~**1204.3**~~ **Location on property.** Historic structures undergoing a *change of use* to a higher-hazard category in accordance with Section 1011.7 ~~may~~ shall be permitted to use alternative methods to comply with the fire-resistance and exterior opening protective requirements. Such alternatives shall comply with Section 1201.2.

1204.3.2 ~~**1204.4**~~ **Occupancy separation.** Required occupancy separations of 1 hour may be omitted where the building is provided with an *approved* automatic sprinkler system throughout.

1204.3.3 ~~**1204.5**~~ **Roof covering.** Regardless of occupancy or use group, roof-covering materials not less than Class C, where tested in accordance with ASTM E108 or UL 790, shall be permitted where a fire-retardant roof covering is required.

1204.3.4 ~~**1204.10**~~ **One-hour fire-resistant assemblies.** Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath and plaster.

1204.3.5 ~~**1204.8**~~ **Transoms.** In corridor walls required by these provisions to be fire-resistance rated, existing transoms ~~may~~ shall be permitted to be maintained ~~if~~ where the transom is fixed in the closed position, and fixed wired glass set in a steel frame or other *approved* glazing shall be installed on one side of the transom.

Exception: Transoms conforming to Section ~~1203.2.3~~ 1203.4 shall be accepted.

1204.4 ~~**1204.9**~~ **Interior finishes.** Where interior finish materials are required to comply with the fire test requirements of Section 803.1 of the *International Building Code*, existing nonconforming materials shall be permitted to be surfaced with an *approved* fire-retardant coating to achieve the required classification. Compliance with this section shall be demonstrated by testing the fire-retardant coating on the same material and achieving the required fire classification. Where the same material is not available, it shall be permitted to test on a similar material.

Exception: Existing nonconforming materials need not be surfaced with an *approved* fire-retardantcoating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the *International Building Code* and the nonconforming materials can be substantiated as being historic in character.

Add new text as follows:

1204.5 Means of egress. Means of egress in historic buildings shall comply with Section 1204.5.1 through 1204.5.4.

Revise as follows:

1204.5.1 ~~1204.6 Means of egress~~ Width and capacity. Existing door openings and corridor and stairway widths less than those that would be acceptable for nonhistoric buildings under these provisions shall be *approved*, provided that, in the opinion of the *code official*, there is sufficient width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load, or where other operational controls to limit occupancy are *approved* by the *code official*.

1204.5.2 ~~1204.7~~ Door swing. Where *approved* by the *code official*, existing front doors need not swing in the direction of exit travel, provided that other *approved* exits having sufficient capacity to serve the total occupant load are provided.

1204.5.3 ~~1204.11~~ Stairways ~~and guards~~. Existing stairways, including handrails and guards, shall comply with the requirements of these provisions. The *code official* shall grant alternatives for stairways ~~and guards if~~ where alternative stairways are found to be acceptable or are judged to meet the intent of these provisions. ~~Existing stairways shall comply with Section 1203.~~

Exception: For buildings less than 3,000 square feet (279 m^2), existing conditions are permitted to remain at all stairways ~~and guards~~ .

1204.5.4 ~~1204.12~~ Exit signs. The *code official* ~~may~~ shall be permitted to accept alternative exit sign locations where the location of such signs would damage the historic character of the building or structure. Such signs shall identify the exits and exit path.

1204.6 ~~1204.14~~ Natural light. Where it is determined by the *code official* that compliance with the natural light requirements of Section 1010.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered to be acceptable.

[BS] 1204.6 ~~1204.13 Exit stair~~ Stairway live load. ~~Existing historic stairways in~~ In historic buildings changed to a Group R-1 or R-2 occupancy, existing stairways shall be accepted where it can be shown that the stairway can support a 75-pounds-per-square-foot (366 kg/m^2) live load.

SECTION 1205 ~~1206~~
RELOCATED BUILDINGS

Add new text as follows:

1205.1 General. Historic buildings that are being relocated shall comply with Sections 1203, 1204 and 1205 as applicable. *Historic buildings* being relocated shall otherwise be considered a *historic building* for the purposes of this code.

Revise as follows:

1205.2 ~~1206.1 Relocated buildings~~ Foundations. Foundations of relocated *historic buildings* and structures shall comply with the *International Building Code*. ~~Relocated *historic buildings* shall otherwise be considered a *historic building* for the purposes of this code. Relocated *historic buildings* and structures shall be sited so that exterior wall and opening requirements comply with the *International Building Code* or with the compliance alternatives of this code.~~

Add new text as follows:

1205.3 Exterior walls. *Historic buildings* that are relocated shall be sited so that exterior wall and opening requirements comply with the *International Building Code* or with the compliance alternatives of this code.

Attached Files

- **BCAC IEBC Chapter 12 clean draft.pdf**
  https://www.cdpaccess.com/proposal/11448/34365/files/download/8929/

Reason: The intent of this proposal is to

1. Separate the chapter into main topics similar to the rest of the IEBC - Repair, Alterations, Change of Occupancy and Relocation.

2. Group the requirements by topic, and in the order similar to the IBC. This is also proposed for IEBC Chapter 3 and 10.

3. Remove 'may' to improve code language.

The following is some additional explanations on specific sections.

1203.1 - the requirements for change of occupancy and relocated buildings have been relocated to 1204.1 and 12051.

12034.5.3 - the last sentence is deleted because this is addressed in 1204.1. The building is historic, not just the stairway.

1205 - The existing section has been separated into topics instead of lumped together. The general statement has been moved up into 1205.1. Foundation and exterior wall requirements are divided into 1205.2 and 1205.3.

The is no technical change in this proposal. Other proposals address technical revisions.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a reorganization of existing sections with no change in construction requirements.

EB119-25

EB120-25

IEBC: SECTION 1203, 1203.7, SECTION 1204, 1204.10

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

1203.1 Scope. *Historic buildings* undergoing *alterations*, *changes of occupancy* or that are moved shall comply with Section 1203.

1203.9 ~~Stairway railings~~ Stairways. ~~Grand stairways shall be accepted without complying with the handrail and guard requirements.~~ Existing stairways, including handrails and guards ~~at all stairways~~ shall be permitted to remain, provided they are not structurally *dangerous*.
Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.

Delete without substitution:

~~**1203.10 Guards.** Guards shall comply with Sections 1203.10.1 and 1203.10.2.~~

~~**1203.10.1 Height.** Existing guards shall comply with the requirements of Section 404.~~

Revise as follows:

1203.10 ~~1203.10.2 Guard openings~~ Guards. ~~The~~ For existing guards, the guard height and spacing between existing intermediate railings or openings in existing ornamental patterns shall be ~~accepted~~ permitted to remain where the guards are character defining features. Missing elements or members of a guard ~~may~~ shall be permitted to be replaced to match the existing guards~~in a manner that will preserve the historic appearance of the building or structure~~..

SECTION 1204
CHANGE OF OCCUPANCY

Delete without substitution:

~~**1204.11 Stairways and guards.** Existing stairways shall comply with the requirements of these provisions. The *code official* shall grant alternatives for stairways and guards if alternative stairways are found to be acceptable or are judged to meet the intent of these provisions. Existing stairways shall comply with Section 1203.~~

> ~~**Exception:** For buildings less than 3,000 square feet (279 m^2), existing conditions are permitted to remain at all stairways and guards.~~

Reason: In the review of the provisions indicated as requirements for stairways, there were serveral terminoloy glitches and redundancies identified.

1203.9 - The intent is to allow the same allowances for stairways in historic buildings as alterations and changes of occupancy in other buildings.

There is no technical reason to call out grand stairways differently from other existing stairways. In addition, what is a 'grand stairway' is not defined in any of the codes, so this is not uniformly enforced.

Section 1011.5.1 Exception 2 allows for existing stairways to remain in a change of occupancy. Exception 3 allows or new stairways replacing existing stairways to maintain a steeper angle if the structure does not allow a lower slope. The revised text matches those allowances.

1203.10 -

Guards are used at dropoffs in addition to along stairways. So guards do need to be addressed for those locations. the intent is the same as stairways, to allow existing guards to remain and be repaired to match.

The current reference to Section 404 for height is to a generic means of egress reference. This is the same as allowing for the guard to remain as is, so the guard height and openings can be addressed in one section.

404.1 General. Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.

1204.11 -

The 2024 commentary for 1204.11 is

"This provision gives an opportunity to analyze the stairway's functionality as an exit, and to alter only those elements that are judged to be unsafe or inadequate, provided that an alternative stairway is considered acceptable. The exception allows existing stairway conditions to remain for smaller buildings, considering the shorter time required for egress and the smaller occupancy."

Section 1203.9 already allows for existing stairways to remain. Alternatives means is already addressed in 1201.2. The stairway width and height is already addressed in 1204.6 with the general means of egress requirements. In addition, there are two technical issues with the current test. This is a generic requirement for stairways, not exit and exit access stairways. Guards in the title and 2nd sentence, but there do not seem to be any requirements for guards in the text. Therefore, it is proposed to remove this text as unnecessary.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorially revising the text to match current allowances for stairways and guards.

EB120-25

EB121-25

IEBC: SECTION 1203, 1203.3, 1204.7, SECTION 1204, 1204.6

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

1203.1 Scope. *Historic buildings* undergoing *alterations*, *changes of occupancy* or that are moved shall comply with Section 1203.

1203.3 Means of egress. ~~Where, in the opinion of the *code official*, there is sufficient width and height for a person to pass through the opening or traverse the means of egress, existing~~ Existing door openings, ~~and~~ corridor and stairway widths and heights ~~are not required to meet the widths~~ less than those required by the *International Building Code* or this codeshall be *approved*, provided that, in the opinion of the *code official*, the means of egress has sufficient width and height for a person to pass through the opening or traverse the exit. ~~Where *approved* by the *code official*, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other *approved* means of egress having sufficient capacity to serve the total occupant load are provided.~~

1203.4 ~~1204.7~~ Door swing. Where *approved* by the *code official*, existing front or main exit doors need not swing in the direction of exit travel, provided that other *approved* exits having sufficient capacity to serve the total occupant load are provided.

SECTION 1204
CHANGE OF OCCUPANCY

1204.6 Means of egress. Existing door openings, ~~and~~ corridor and stairway widths and heights less than those required by the *International Building Code* or this code~~that would be acceptable for nonhistoric buildings under these provisions~~ shall be *approved*, provided that, in the opinion of the *code official*, the means of egress complies with the following:

1. There ~~there~~ is sufficient width and height for a person to pass through the opening or traverse the exit ~~and~~ .
2. That ~~that~~ the capacity of the exit system is adequate for the occupant load, or where other operational controls to limit occupancy are *approved* by the *code official*.

Reason: The intent of this proposal is to clarify what is required for widths and heights in the means of egress. The current text in Section 1203.3, 1204.6 and 1204.7 are written so differently that it is difficult to determine what is different.

The provisions in Section 1203 are applicable to COO, so duplication is not required. Currently the last sentence of Section 1203.3 and Section 1204.7 have slightly different wording, but appear to have the same requirements. Therefor, door swing is moved to Section 1203.4 and need not be repeated under 1204.The first sentence in Section 1203.3 and Section 1204.6 have most of the same requirement but are written differently. COO also asks for capacity. Both sections are rewritten the same except for the additional Item 2 in COO. To make the sentence consistent within itself, 'and height' was added in the first sentence because the approval is based on sufficient 'width and height'.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

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International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is to provide consistency. There are no change to construction requirements.

EB121-25

EB122-25

IEBC: SECTION 1203, 1203.4, SECTION 1204, 1204.8

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

1203.4 Transoms. In ~~buildings with automatic sprinkler systems of~~ Group R-1, R-2 or R-3 occupancies, existing transoms in ~~corridors and other~~ fire-resistance-rated walls ~~may~~ shall be permitted to be maintained ~~if~~ where the transom is fixed in the closed position and the building has an automatic sprinkler system. A sprinkler shall be installed on each side of the transom.

SECTION 1204
CHANGE OF OCCUPANCY

1204.8 Transoms. ~~In corridor walls required by these provisions to be fire-resistance rated, existing~~ In other than Group R-1, R-2 or R-3 occupancies, existing transoms in walls required to be fire-resistance rated, shall be permitted to ~~may~~ be maintained where the transom is fixed in the closed position, and fixed wired glass set in a steel frame or other *approved* glazing shall be installed on one side of the transom. In Group R-1, R-2 and R-3, transoms shall comply with Section 1203.4.

~~**Exception:** Transoms conforming to Section 1203.4 shall be accepted.~~

Reason: The requirements for transoms in alterations and change of occupancy were compared. Since main corridors are required to be fire-resistance-rated in Group R, it appeared the provisions were meant to apply to rated construction. Since the requirements in Section 1204.8 are less than 1203.4, and the exception sends you do 1203.4, it appears that coordination within these provisions need to be further coordinated and clarified. This is a suggestion for that coordination. We believe this to be the original intent.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination item. Please see reason statement.

EB122-25

EB123-25

IEBC: SECTION 1203, 1203.5, SECTION 1204, 1204.9

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

1203.5 Interior finishes. The existing interior finishes shall be ~~accepted~~ permitted to remain where ~~it is demonstrated that they are the historic finishes~~ such material are character defining features.

SECTION 1204
CHANGE OF OCCUPANCY

1204.9 Interior finishes. Where interior finish materials are required to comply with the fire test requirements of Section 803.1 of the *International Building Code*, existing nonconforming materials shall be permitted to be surfaced with an *approved* fire-retardant coating to achieve the required classification. Compliance ~~with this section~~ shall be demonstrated by testing the fire-retardant coating on the same material and achieving the required fire classification. Where the same material is not available, it shall be permitted to test on a similar material.

> **Exception:** Existing nonconforming materials need not be surfaced with an *approved* fire-retardantcoating where the building is ~~equipped throughout~~ provided with an *approved* automatic sprinkler system ~~installed in accordance with the *International Building Code* and the nonconforming materials can be substantiated as being historic in character~~ and such materials are character defining features.

Reason: The proposal removes unneeded words and coordinates terms with other sections in the Chapter. Such as ‘provided with an approved automatic sprinkler system is used throughout the chapter. This is the only section that includes “equipped throughout with an automatic sprinkler system installed in accordance with the International Building Code.”

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial change for consistent terminology. There are no changes to construction requirements.

EB123-25

EB124-25

IEBC: SECTION 1203, 1203.7, SECTION 1204, 1204.10

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

1203.1 Scope. *Historic buildings* undergoing *alterations*, *changes of occupancy* or that are moved shall comply with Section 1203.

1203.7 One-hour fire-resistant assemblies. Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is ~~wood or metal~~ lath and plaster or other materials that are a character defining feature.

SECTION 1204
CHANGE OF OCCUPANCY

Delete without substitution:

~~**1204.10 One-hour fire-resistant assemblies.** Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath and plaster.~~

Reason: The revisions to Section 1203.7 is to allow for additional wall materials in historic buildings.

Section 1204.10 is deleted because 1203.7 is applicable for change of occupancies. This does not need to be repeated.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is allowing for existing wall materials to remain. There is no change to construction requirements.

EB124-25

EB125-25

IEBC: SECTION 1203, 1203.8

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

1203.8 Glazing in fire-resistance-rated systems. ~~Historic glazing~~ Glazing materials that are character defining features are permitted in interior walls required to have a 1-hour fire-resistance rating where the opening is provided with *approved* smoke seals and the area affected is provided with an automatic sprinkler system.

Reason: This is a clarification of working, the buildings are historic, not the glazing.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial correction to terminology.

EB125-25

EB126-25

IEBC: SECTION 1203, 1203.11

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

1203.11 Exit signs. Where exit sign or egress path marking location would alter or replace a character defining feature ~~damage the historic character~~ of the building, alternative exit signs are permitted with approval of the *code official*. Alternative signs shall identify the exits and egress path.

Reason: The intent of this proposal is to clarify this requirement. 'Damage' is used for flood and structural provisions, and would be subjective where it came to exit sign placement in a historic building. It may not 'damage' a carving, stained glass transom or painting over a door to put an exit sign in front of it, but it would not allow for that element to be fully appreciated.

The code official can approve an alternative exit sign in a different location - such as higher above the door, or little further down the hallway. Or there may be a exit sign that is part of the building that does not fully meet the exit sign requirements of today.

This is also a companion proposal to the new defined term 'character defining feature'.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification for exit sign placement. There are no changes in requirements.

EB126-25

EB127-25

IEBC: SECTION 1203, 1203.2, 1203.12, SECTION 1204, 1204.6 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

SECTION 1203
~~FIRE SAFETY~~ ALTERATIONS

Delete without substitution:

~~**1203.2 General.** Every *historic building* that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an *approved* automatic sprinkler system as determined appropriate by the *code official*. However, an automatic sprinkler system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.~~

Revise as follows:

1203.12 Automatic sprinkler systems. Automatic sprinkler systems in historic buildings shall be provided in accordance with Sections 703, 803 and 904. as applicable. Every *historic building* that cannot be made to conform to the construction requirements specified in the *International Building Code* for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance ~~if~~ where provided with an *approved* automatic sprinkler system. An automatic sprinkler system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.

Exception: Where the *code official* approves an alternative life-safety system.

SECTION 1204
CHANGE OF OCCUPANCY

Add new text as follows:

1204.6 Automatic sprinkler systems. Automatic sprinkler systems in historic building undergoing a change of occupancy shall comply with Section 1004.

Exception: Where the *code official* approves an alternative life-safety system.

Reason: The intent of this proposal is to:

1) Remove redundant language in Section 1203.

2) Allow for historic buildings to use the same limits for installing sprinkler systems currently permitted for other existing buildings.

3) Indicate what is appropriate for requiring a historic building to add a sprinkler system if they undergo a change of occupancy.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification. Since these alternative for sprinklers are already allowed for existing buildings, and alternative means are already permitted for historic buildings, this should be no change of construction requirements.

EB127-25

EB128-25 Part I

IEBC: 1204.5

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE EXISTING BUILDING CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Existing Building Code

Revise as follows:

1204.5 Roof covering. Regardless of occupancy or use group, roof-covering materials <u>classified as</u> not less than Class C, where tested in accordance with ASTM E108 or UL 790, shall be permitted where a fire-retardant roof covering is required.

EB128-25 Part I

EB128-25 Part II

IRC: R302.2.4

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R302.2.4 Parapets for townhouses. Parapets constructed in accordance with Section R302.2.5 shall be constructed for *townhouses* as an extension of exterior walls or common walls separating *townhouse units* in accordance with the following:

1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches (762 mm) above the roof decks.
2. Where roof decks adjacent to the wall or walls are at different elevations and the higher *roof deck* is not more than 30 inches (762 mm) above the lower *roof deck* , the parapet shall extend not less than 30 inches (762 mm) above the lower roof deck.

   Exception: A parapet is not required in the preceding two cases where the *roof covering* complies with a minimum Class C classification ~~rating~~ as tested in accordance with ASTM E108 or UL 790 and the roof deck or sheathing is of *noncombustible materials* or *fire-retardant-treated wood* for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of $^{5}/_{8}$-inch (15.9 mm) *Type X gypsum board* is installed directly beneath the roof decking deck or sheathing, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a distance of not less than 4 feet (1219 mm) on each side of the wall or walls and any openings or penetrations in the roof deck are not within 4 feet (1219 mm) of the common walls. *Fire-retardant-treated wood* shall meet the requirements of Sections R302.15 and R803.2.1.2.

3. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher *roof deck* is more than 30 inches (762 mm) above the lower *roof deck* . The common wall construction from the lower *roof deck* to the underside of the higher *roof deck* shall have not less than a 1-hour fire-resistance rating. The wall shall be rated for exposure from both sides. Openings shall not be permitted in the wall.

Reason: This proposal advances work to improve and clarify terminology associated with roofing fire tests that started during the previous code development cycle and has continued during the Group A portion of the 2027 I-code cycle. Proposal WUIC33-24 (on the PCH consent agenda) addresses the issue described below for the Group A code sections. This proposal addresses the same issue for the relevant Group B sections.

ASTM E108 and UL 790 tests are performed on roof assemblies to establish a classification (Class A, B, or C) based on exposure to simulated fire sources originating outside the building. The outcome of the tests is a classification of the roof assembly. In contrast, ASTM E119 or UL 263 tests evaluate the duration for which building elements contain a fire, retain their structural integrity, or exhibit both properties during a predetermined test exposure. The result of these tests is expressed as a fire resistance rating. This proposal adjusts language in the IRC and IEBC to clarify the distinction between these important fire tests. Specifically, it corrects the single case in the IRC where E108 or UL 790 test results are characterized as providing a "rating" by changing "rating" to "classification." It addresses an instance in the IEBC where neither "rating" nor "classification" is used, adding "classified" as the appropriate term for the context.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal makes clarifying improvements to existing code language. There will be no effect on cost of construction.

EB128-25 Part II

EB129-25

IEBC: 1204.14

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

SECTION 1204
CHANGE OF OCCUPANCY

Revise as follows:

1204.14 Natural light. Where ~~it is determined by the *code official* that~~ compliance with the natural light requirements of Section 1010.1 will lead to loss of ~~historic character or historic materials in the building~~ <u>character defining features</u>, the existing level of natural lighting shall be considered to be acceptable.

Reason: The intent of this proposal is a clarification/clean up of the requirements. The current allowance recognizes that enlarging windows or removing walls to increase natural light would change elements in a historic building.

The code official does not decide the detriment to the historic building - this is in the report (1201.2) and the code official approves alternatives.

The second revision is a companion change to the new definition for 'character defining feature'.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial clarification. There are no change to construction requirements.

EB129-25

EB130-25

IEBC: 1206.1 (New), 1206.1, 1206.3 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Existing Building Code

SECTION 1206
RELOCATED BUILDINGS

Add new text as follows:

1206.1 General. Historic buildings that are being relocated shall comply with Section 1206. *Historic buildings* being relocated shall otherwise be considered a *historic building* for the purposes of this code.

Revise as follows:

1206.2 ~~**1206.1**~~ **Foundations** ~~**Relocated buildings.**~~ Foundations of relocated *historic buildings* and structures shall comply with the *International Building Code* or the *International Residential Code, as* applicable. ~~Relocated *historic buildings*shall otherwise be considered a *historic building* for the purposes of this code. Relocated *historic buildings*and structures shall be sited so that exterior wall and opening requirements comply with the *International Building Code* or with the compliance alternatives of this code.~~

Add new text as follows:

1206.3 Exterior walls. *Historic buildings* that are relocated shall be sited so that exterior wall and opening requirements comply with the *International Building Code*, the *International Residential Code*, or this code, as applicable.

Reason: The existing section 1206 has a charging paragraph and has been separated into topics instead of lumped together. The general statement has been moved up into 1206.1. Foundation and exterior wall requirements are divided into 1206.2 and 1206.3.

The technical change here is that the option of complying with the IRC has been added for historic buildings that are single family homes.

This is one of a group of code change proposals related to IEBC Chapter 12 Historic buildings. While they work together, each proposal can stand on it's own merit. Please see the proposal for the reorganization of this chapter for a clean copy of what this chapter would look like if all the proposals pass.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is primarily a reorganization of the requirements in this section. Allowing for use of the buildings within the scope of the IRC allow for buildings to use the same code throughout, so this is not adding to construction requirements.

EB130-25

EB131-25

IEBC: [BS] 1402.7

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] 1402.7 Required inspection and repairs. The *code official* shall be authorized to inspect, or to require *approved* professionals to inspect at the expense of the owner, the ~~various~~ required systems and equipment, and structural system components and connections ~~parts~~ of a relocated building to verify that these systems~~structural components and connections~~ have not sustained ~~structural~~ damage and are functional. Any *repairs* required by the *code official* as a result of such inspection shall be made prior to the final approval.

Reason: When a building is relocated, there would also be concerns that the plumbing, mechanical, fuel gas, and electrical systems are also checked for any damage caused by the movement. There should be a commissioning of all these systems when the building is relocated. Not only is damage a concern but also the functionality of these systems, including any and all safety features of equipment or systems.

The PMCCAC recommends that the Code Correlation Committee change the scoping of this section to [BG] because these systems cross over into different areas, not just structural.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This section is only a requirement if the code official determines there is a need to do additional inspections.

EB131-25

EB132-25

IEBC: 1204.6.1 (New)

Proponents: Sean Denniston, Heritage Green Consulting, representing Association for Preservation Technology

2024 International Existing Building Code

Add new text as follows:

1204.6.1 Single Exit Buildings. Historic buildings undergoing a change of use to an R-2 occupancy of up to 5 stories in height and less than 3000 sf per floor of Type IV Construction, or better, are permitted to have a single exit stair provided the following requirements are met:

1. Every dwelling unit or tenant space has at least one emergency escape and rescue opening complying with Section 1031 of the International Building Code facing a street, public way, or lawful yard with open, unobstructed, and direct access to the street. Such yard or direct access shall be a minimum width equal to 25 percent of the vertical distance from the windowsill of the highest operable window, facing such yard or direct access, to the grade of such yard or direct access directly below such window, but not less than 36 inches wide.
2. The building contains not more than four tenants or dwelling units per story.
3. The maximum exit access travel distance is limited to 75'.
4. The stairway is enclosed in 2-hour fire-rated walls and all doors leading into the stairway have at least a 1 1/2-hour fire rating.

Reason: Requirements for a second exit can often create an obstacle to the continued use and re-use of small historic buildings. Property line restrictions and limited footprints often make the addition of a second stair technically infeasible or cost prohibitive. However, the number of egress paths is not the factor for building egress safety. For example, due to their smaller size, a single exit can often provide shorter exit travel times in smaller buildings than can be found in larger buildings with multiple exit paths.

This proposal allows for the use of a single exit in certain circumstances. This allowance is contingent on the building also meeting certain other requirements to ensure an overall level of safety. First, it is limited only to R-2 occupancies and not other occupancies with different fire safety or hazard considerations. It also requires that each dwelling unit have secondary access for rescue to ensure that the single exit does not become a single point of failure for rescue. It includes limits on the number of dwelling units per floor to ensure that the exit path does not get overwhelmed. It then has limitations on the travel distance for the exit path to ensure the exception is only used in small buildings that can be evacuated quickly. Finally, it requires a 2-hour fire rating in the exit path. Unlike previous single-exit proposals that have failed in the past, this proposal is focused more on exit distance than building height and dials up the durability of the egress path.

Expansion of allowances for single-stair buildings has become an increasingly common solution in jurisdictions - notably Seattle and New York City - often focused on providing more affordable housing (https://www.centerforbuilding.org/singlestair-tracker). In this proposal, it is also being utilized to specifically encourage the re-use of smaller historic buildings.

Permitting the historic building with a single exit to be improved based on compliance with other requirements of the IEBC and the restrictions included in the proposal will promote reuse of these structures, with the added benefit of reducing the risks associated with vacant and under-utilized structures. The proposal is a targeted expansion of permission in other I-Codes allowing for single exit buildings. Rehabilitation and full occupancy of vacant and underutilized buildings is beneficial to the community, can provide needed housing, and will increase public safety by eliminating the risks associated with vacant or unimproved buildings. Encouraging the reuse of these smaller, single exit buildings aligns with state and federal housing and historic preservation policy that recognizes the importance of protection of the nation's historic and cultural resources, including through the use of state and federal historic tax credits, as administered by the National Park Service, that have been responsible for the rehabilitation of thousands of historic buildings since 1976.

Bibliography:

1. *One stair, two perspectives: Single Exit Stair Symposium.* NFPA (2024).

2. *Single-Stair Tracker — center for building in North America*. (n.d.). Center for Building in North America. https://www.centerforbuilding.org/singlestair-tracker

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposal will generally decrease the cost of compliance since it will generally reduce the scope of code compliance. However, the magnitude of the savings is highly dependent on the specifics of the project, including the building's size, location, and the complexity of the design:

1. Building Height: While this proposal is limited to shorter buildings, it does apply to buildings of different heights. The height of the stair is one of the most significant drivers of cost.
2. Construction Materials: The type of materials (wood, steel, concrete, etc.) also has a significant impact on cost. A metal or concrete stairwell will likely be more expensive than a wooden one, and will be required by the fire code in certain circumstances.
3. Labor Costs: Construction labor rates can vary significantly on the local market, as do design professional (architect or engineer) costs. In high-cost cities, labor might be 50% to 100% higher than in lower-cost areas.
4. Permitting and Design Fees: Likewise, permits can vary significantly from jurisdiction to jurisdiction.

With these considerations in mind, estimated costs could fall into the following:

- Basic/Low-end Construction: For a straightforward project in an average location, the cost of adding a second stairwell might range from $15,000 to $30,000.
- More Complex Designs: For a larger, multi-story building or a stairwell requiring more complex structural work (e.g., reinforced concrete, steel framing, or special finishes), the cost could rise to $40,000 to $60,000 or more.

Estimated Immediate Cost Impact Justification (methodology and variables):

Estimation of costs were drawn from average costs of construction.

EB132-25

EB133-25

IEBC: [BS] A104.1, [BS] A108.3, [BS] A111.6.4, [BS] A112.3, [BS] A112.4, [BS] A112.4.1, [BS] A112.4.2, A112.3.1 (New), A112.3.2 (New), A112.3.2.1 (New), A112.3.2.2 (New), A112.3.3 (New), A112.3.4 (New), A112.3.5 (New), A112.3.6 (New), [BS] A113.1, [BS] A113.1.1, [BS] A113.1.2, [BS] A113.1.3, [BS] A113.1.4 (New), [BS] A113.1.6 (New), [BS] A113.1.6.1 (New)

Proponents: Peter Somers, Magnusson Klemencic Associates, representing self (psomers@mka.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] A104.1 Symbols and notations. For the purpose of this chapter, the following notations supplement the applicable symbols and notations in the building code.
a_n = Diameter of core multiplied by its length or the area of the side of a square prism. A = Cross-sectional area of unreinforced masonry pier or wall, square inches (10^{-6} m^2). A_b = Total area of the bed joints above and below the test specimen for each in-place shear test, square inches (10^{-6} m^2). A_n = Area of net mortared or grouted section of a wall or wall pier. D = In-plane width dimension of pier, inches (10^{-3} m), or depth of diaphragm, feet (m).DCR = Demand-capacity ratio specified in Section A111.4.2. <u>E_m = Elastic modulus of masonry</u> $'_m$ = Lower bound masonry compressive strength.f_{sp} = Splitting-tensile strength of masonry. F_{wx} = Force applied to a wall at level x, pounds (N). H = Least clear height of opening on either side of a pier, inches (10^{-3} m). h/t = Height-to-thickness ratio of URM wall. Height, h, is measured between wall anchorage levels and/or slab-on-grade. L = Span of diaphragm between shear walls, or span between shear wall and open front, feet (m). L_c = Length of crosswall, feet (m). L_i = Effective diaphragm span for an open-front building specified in Section A111.8, feet (m). P = Applied force as determined by standard test method of ASTM C496 or ASTM E519, pounds (N). P_D = Superimposed dead load at the location under consideration, pounds (N). For determination of the rocking shear capacity, dead load at the top of the pier under consideration shall be used. P_{D+L} = Stress resulting from the dead plus actual live load in place at the time of testing, pounds per square inch (kPa). P_{test} = Splitting tensile test load determined by standard test method ASTM C496, pounds (N). P_W = Weight of wall, pounds (N). R = Response modification factor for Ordinary plain masonry shear walls in Bearing Wall System from Table 12.2-1 of ASCE 7, where R = 1.5. S_{DS} = Design spectral acceleration at short period, in g units. S_{D1} = Design spectral acceleration at 1-second period, in g units. v_a = The shear strength of any URM pier, $v_m A/1.5$ pounds (N). v_c = Unit shear strength for a crosswall sheathed with any of the materials given in Table A108.1(1) or Table A108.1(2), pounds per foot (N/m). v_{mL} = Shear strength of unreinforced masonry, pounds per square inch (kPa). V_{aa} = The shear strength of any URM pier or wall, pounds (N). V_{ca} = Total shear capacity of crosswalls in the direction of analysis immediately above the diaphragm level being investigated, $v_c L_c$, pounds (N). V_{cb} = Total shear capacity of crosswalls in the direction of analysis immediately below the diaphragm level being investigated, $v_c L_c$, pounds (N). V_p = Shear force assigned to a pier on the basis of its relative shear rigidity, pounds (N). V_r = Pier rocking shear capacity of any URM wall or wall pier, pounds (N). v_{test} = Load at incipient cracking for each in-place shear test performed in accordance with Section A106.2.3.6, pounds (N). v_{tl} = Lower bound mortar shear strength, pounds per square inch (kPa). v_{to} = Mortar shear test values as specified in Section A106.2.3.6, pounds per square inch (kPa). v_u = Unit shear capacity value for a diaphragm sheathed with any of the materials given in Table A108.1(1) or A108.1(2), pounds per foot (N/m). V_{wx} = Total shear force resisted by a shear wall at the level under consideration, pounds (N). W = Total seismic dead load as defined in the building code, pounds (N). W_d = Total dead load tributary to a diaphragm level, pounds (N). W_w = Total dead load of a URM wall above the level under consideration or above an open-front building, pounds (N). W_{wx} = Dead load of a URM wall assigned to level x halfway above and below the level under consideration, pounds (N). $\Sigma v_u D$ = Sum of diaphragm shear capacities of both ends of the diaphragm, pounds (N). $\Sigma\Sigma v_u D$ = For diaphragms coupled with crosswalls, $v_u D$ includes the sum of shear capacities of both ends of diaphragms coupled at and above the level under consideration, pounds (N). ΣW_d = Total dead load of all the diaphragms at and above the level under consideration, pounds (N).

[BS] A108.3 Masonry compression. Where any increase in wall dead plus live load compression stress occurs, the maximum compression stress in unreinforced masonry, Q_G/A_n, shall not exceed 300 pounds per square inch (2070 kPa).

Delete without substitution:

~~**[BS] A111.6.4 New seismic force-resisting elements.** New seismic force-resisting elements such as moment frames, braced frames or shear walls shall be designed as required by the building code, except that the seismic forces shall be as specified in Section A111.6.1, and the story drift ratio shall be limited to 0.015, except as further limited by Section A112.4.2 for moment frames.~~

~~**[BS] A112.3 Plywood-sheathed shear walls.** Plywood-sheathed shear walls may be used to resist lateral forces for URM buildings with flexible diaphragms analyzed according to provisions of Section A111. Plywood-sheathed shear walls shall not be used to share lateral forces with other materials along the same line of resistance.~~

~~**[BS] A112.4 Combinations of vertical elements.**~~

~~**[BS] A112.4.1 Seismic force distribution.** Seismic forces shall be distributed among the vertical-resisting elements in proportion to their relative rigidities, except that moment-resisting frames shall comply with Section A112.4.2.~~

~~**[BS] A112.4.2 Moment-resisting frames.** Moment resisting frames shall not be used with an unreinforced masonry wall in a single line of resistance unless the wall has piers that have adequate shear capacity to sustain rocking in accordance with Section A112.2.2. The frames shall be designed in accordance with the building code to resist 100 percent of the seismic forces tributary to that line of resistance, as determined from Section A111.2. The story drift ratio shall be limited to 0.0075.~~

Add new text as follows:

A112.3.1 General. New vertical elements shall be permitted to be added to resist seismic forces in accordance with this section.

A112.3.2 Combinations of vertical elements. Combinations of vertical elements shall comply with sections A112.3.2.1 and A112.3.2.2.

A112.3.2.1 Lateral force distribution. For vertical elements in the same line of resistance, lateral forces shall be distributed among the vertical elements in proportion to their relative rigidities. The masonry assemblage of units, mortar, and grout shall be considered to be a homogeneous medium for stiffness computations with an elastic modulus in compression, E_m, as specified in Section A108.4. The shear modulus, G_m, shall be permitted to be equal to $0.4E_m$. The stiffness of a URM wall or wall pier resisting seismic forces parallel to its plane shall be considered to be linear and proportional with the geometrical properties of the uncracked section, excluding veneer wythes. For vertical elements not in the same line, lateral forces shall be permitted to be distributed in accordance with the tributary area method. The existing masonry shall be evaluated and shall be adequate to resist the forces determined in accordance with Section A112.2 and distributed in proportion to relative rigidity, regardless of the design force used for new vertical elements.

Exception: The existing masonry is not required to have adequate capacity to resist the distributed forces if all the following conditions are met:

1. The new vertical elements are designed for 100% of the required forces on the wall line;
2. Truss, post, or beam supports per Section A113.9 are added at rafters, girders, and joists at that wall line; and
3. Vertical bracing per Section A113.5 is added at that wall line.In addition, moment-resisting frames shall comply with Section A112.3.2.2.

A112.3.2.2 Moment-resisting frames. Moment-resisting frames shall not be used in combination with an unreinforced masonry wall in a single line of resistance unless the wall has piers that have adequate shear capacity to sustain rocking in accordance with Section A112.2. The frames shall be designed to carry 100 percent of the forces tributary to that line of resistance.

A112.3.3 Wood structural panels. Wood structural panel shear walls shall be permitted to be used to resist lateral forces for URM buildings with flexible diaphragms analyzed according to the provisions of Section A111. Wood structural panels shall not be used to share lateral forces with other materials along the same line of resistance.

A112.3.4 Forces on new vertical elements. Forces on new vertical elements Story shear per Section A111.6 shall be used to determine forces on new and existing vertical lateral-force-resisting elements. The additional weight of new elements shall be included in the force determination.

A112.3.5 Design of new vertical elements. New vertical elements shall satisfy the requirements of Section A111. Footings shall be provided for new vertical elements to transfer loads into the supporting soil. Existing footings supporting new vertical elements shall be evaluated per Section A108.6. Bearing pressure capacities used for new footings similar to existing footings shall be permitted to use the provisions of Section A108.6. For new footings that are not similar to existing footings, bearing pressure capacities shall be determined by a geotechnical investigation

A112.3.6 Drift limits. The story drift ratio for all new vertical elements shall be limited to 0.0075.

[BS] A113.1 Wall anchorage.

[BS] A113.1.1 Anchor locations. Unreinforced masonry walls shall be anchored at the roof and floor levels as required in Section A110.2. Ceilings of plaster or similar materials, where not attached directly to roof or floor framing and where abutting masonry walls, shall either be anchored to the walls at a maximum spacing of 6 feet (1829 mm) or be removed.

Revise as follows:

[BS] A113.1.2 Anchor requirements. Anchors shall consist of bolts installed through the wall as specified in Table A108.1(2), or an *approved* equivalent at a maximum anchor spacing of 6 feet (1829 mm). Wall anchors shall be secured to the framing members parallel or perpendicular to the wall to develop the required forces. The connection between the walls and the diaphragm shall not induce cross-grain bending or tension in the wood ledgers.

[BS] A113.1.3 Minimum wall anchorage. Anchorage of masonry walls to each floor or roof shall resist a minimum force determined as $0.9S_{DS}$ times the tributary weight or 200 pounds per linear foot (2920 N/m), whichever is greater, acting normal to the wall at the level of the floor or roof. Existing wall anchors, if used, must be tested and meet the requirements of Section A107.5.1 or be upgraded.

Add new text as follows:

[BS] A113.1.5 Anchor locations. Anchors shall be located a minimum distance of 12 inches (305 mm) from wall openings or from the top of parapets.

> **Exception:** If a reinforced beam or column is provided at the top of the wall or adjacent to the wall opening, the minimum distance is permitted to be 6 inches (152 mm).

[BS] A113.1.6 Transfer of anchorage forces into diaphragm. A113.1.6 The wall anchorage force in this section shall be fully developed into the diaphragm when SD1 exceeds 0.2. If subdiaphragms are used, each subdiaphragm shall be capable of transmitting the shear forces caused by wall anchorage to a continuous diaphragm crosstie. Subdiaphragms shall have length-to-depth ratios not exceeding 3:1.Alternatively, the wood diaphragm systems listed in Section A113.1.6.1 shall be permitted to develop the wall anchorage as follows, but subdiaphragm analysis, crossties, and chords are not required:

1. For joists parallel to the masonry walls, the anchorage shall be developed a minimum of 8 feet (2400 mm) into the diaphragm.
2. For joists perpendicular to the masonry walls, anchors attached to joists 8 feet (2400 mm) or longer shall be deemed sufficient development. If joists are shorter than 8 feet (2400 mm) or if attachment is between joists, the wall anchorage shall be developed into the diaphragm similar to conditions where joists are parallel to the masonry walls as outlined in Item 1.

[BS] A113.1.6.1 Wood diaphragms allowed in alternate method. Wood diaphragms consisting of the following shall be permitted to use the alternate anchorage transfer without subdiaphragm analysis, crossties, and chords:

1. <u>Diagonal sheathing overlaid with straight sheathing, finished wood flooring, or wood structural panel sheathing;</u>
2. <u>Double straight sheathing (with board edges offset or perpendicular);</u>
3. <u>Straight sheathing overlaid with wood structural panel sheathing (with panel edges offset);</u>
4. <u>Wood structural panel sheathing; or</u>
5. <u>Nail-laminated timber.</u>

Reason: This proposal aligns several sections of Appendix A1 with updates to the similar procedure contained in ASCE 41-23 Section 16.2 (which is also referenced as an acceptable method for evaluating URM buildings for reduced seismic criteria under IEBC Section 304.4.2). The updates to ASCE 41-23 were based on the ATC-140 project and documented in FEMA P-2208 (NEHRP Recommended Revisions to ASCE/SEI 41-17, Seismic Evaluation and Retrofit of Existing Buildings, August 2023). It is important for the procedures in Appendix A1 to be as consistent as possible with those in the the latest national consensus standard, ASCE 41, which represents the state of the practice for URM retrofits. This is also consistent with the approach taken over several code cycles to improve consistency between the two procedures.

This proposal does the following:

Reorganizes and updates several sections related to how new lateral elements are treated in URM retrofits to be more clear and logical, matching the format in ASCE 41-23 Section 16.2.

Provides additional technical criteria for the design of new lateral systems for URM retrofits. These updates are consistent with the updates in the ASCE 41-23 consensus standard, based on the technical reasoning in FEMA P-2208.

Provides additional requirements for the evaluation and design of wall anchorage consistent with the updates in ASCE 41-23. The intent of these updates are to improve the effectiveness of added wall anchorage by ensuring a complete load path from anchor to floor/roof framing to floor/roof diaphragm.

Cost Impact: Increase

Estimated Immediate Cost Impact:

These revisions may or may not have an impact on construction cost, dependent on several factors that can be specific to each individual URM building and retrofit approach. The revisions to Section A112.3 will not have a cost impact since this is essentially a reorganization and clarification of current code requirements for adding new lateral elements into existing URM buildings.

The revisions in Section A113.1 could lead to minor increase in the construction costs for wall anchorage retrofits depending on which method is used for IEBC-triggered seismic evaluation and retrofit of existing URM buildings (note that chapter A1 is just one of several possible retrofit procedures listed in IEBC Section 304.3.2 for triggered seismic retrofits that allow the use of reduced seismic criteria). Specifically, this proposal could result in an slight increase in the number of retrofit anchors in a building or require increased length of development of the wall anchorage into the diaphragm system. Given the very wide range of seismic retrofit scope and costs for URM buildings, reflecting high variability in existing structural systems, varying current condition of the structure at the time of retrofit, and range of impacts to existing architectural finishes required to access retrofit areas, a direct cost impact or percentage increase of construction cost is impossible to estimate. At most this will have a minor increase in the structural cost of the wall anchorage retrofit, which itself is generally a small percentage of the total retrofit cost for most URM retrofits using Appendix A1.

Estimated Immediate Cost Impact Justification (methodology and variables):

Proposal makes Chapter A1 consistent with the similar procedure in the national consensus standard, ASCE 41-23, which represents to standard of practice for the retrofit of URMs. Past and recent earthquakes have demonstrated the vulnerability of retrofitted URM buildings if the added wall anchorage has not been effectively connected to the floor and roof diaphragms. Again, there is no way to estimate specific project cost impacts given the large uncertainty and huge range of URM retrofit costs.

EB133-25

EB134-25

IEBC: [BS] A302.1, [BS] A304.3.1, [BS] TABLE A304.3.1, [BS] FIGURE A304.3.1(1), [BS] FIGURE A304.3.1(2), [BS] TABLE A304.3.2

Proponents: Randy Shackelford, representing Simpson Strong-Tie Co. (rshackelford@strongtie.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Existing Building Code

Revise as follows:

[BS] A302.1 Definitions. For the purpose of this chapter, in addition to the applicable definitions in the building code, certain additional terms are defined as follows:

[BS] ADHESIVE ANCHOR. An assembly consisting of a threaded rod, washer, nut, and chemical adhesive *approved* by the *code official* for installation in existing concrete or masonry.

[BS] CRIPPLE WALL. A wood-frame stud wall extending from the top of the foundation to the underside of the *lowest floor* framing.

[BS] EXPANSION ANCHOR. An *approved* post-installed anchor that is inserted in a pre-drilled hole in existing concrete or masonry <u>and set by an expansion against the side of the drilled hole through movement of an internal plug in the sleeve or through movement of the sleeve over an expansion element (plug).</u>

[BS] PERIMETER FOUNDATION. A foundation system that is located under the exterior walls of a building.

<u>**SCREW ANCHOR**. An approved post-installed anchor that is a inserted into a predrilled hole in existing concrete or masonry, and is a threaded mechanical fastener that transfers loads to or from the concrete or masonry by direct bearing or mechanical interlock of the screw threads with the grooves that the anchor cuts into the concrete or masonry during installation.</u>

[BS] SNUGTIGHT. As tight as an individual can torque a nut on a bolt by hand, using a wrench with a 10-inch-long (254 mm) handle, and the point at which the full surface of the plate washer is contacting the wood member and slightly indenting the wood surface.

[BS] WOOD STRUCTURAL PANEL. A panel manufactured from veneers, wood strands or wafers or a combination of veneer and wood strands or wafers bonded together with waterproof synthetic resins or other suitable bonding systems. Examples of wood structural panels are:

Composite panels. A wood structural panel that is comprised of wood veneer and reconstituted wood-based material and bonded together with waterproof adhesive.

Oriented strand board (OSB). A mat-formed wood structural panel comprised of thin rectangular wood strands arranged in cross-aligned layers with surface layers normally arranged in the long panel direction and bonded with waterproof adhesive.

Plywood. A wood structural panel comprised of plies of wood veneer arranged in cross-aligned layers. The plies are bonded with waterproof adhesive that cures on application of heat and pressure.

[BS] A304.3.1 Existing perimeter foundations. Where the building has an existing continuous perimeter foundation, all perimeter wall sill plates shall be anchored to the foundation with adhesive anchors<u>, screw anchors,</u> or expansion anchors in accordance with Table A304.3.1.

Anchors shall be installed in accordance with Figure A304.3.1(1), with the plate washer installed between the nut and the sill plate. The nut shall be tightened to a snugtight condition after curing is complete for adhesive anchors and after expansion wedge engagement for expansion anchors. <u>Screw anchors shall be installed using an impact wrench to tighten the anchor until the head contacts the washer or fixture.</u> Anchors shall be installed in accordance with manufacturer's recommendations. Expansion anchors shall not be used where the installation causes surface cracking of the foundation wall at the locations of the anchor.

Where existing conditions prevent anchor installations through the top of the sill plate, this connection shall be made in accordance with Figure A304.3.1(2), A304.3.1(3) or A304.3.1(4). Alternative anchorage methods having a minimum shear capacity of 900 pounds (4003 N) per connection parallel to the wall shall be permitted. The spacing of these alternative connections shall comply with the maximum spacing requirements of Table A304.3.1 for $^1/_2$-inch (12.7 mm) bolts.

[BS] TABLE A304.3.1 SILL PLATE ANCHORAGE AND CRIPPLE WALL BRACING

NUMBER OF STORIES ABOVE CRIPPLE WALLS	MINIMUM SILL PLATE CONNECTION AND MAXIMUM SPACING[a, b, c]	AMOUNT OF BRACING FOR EACH WALL LINE[d, e, f]	
		A combination of exterior walls finished with Portland cement plaster and roofing using clay tile or concrete tile weighing more than 6 psf (287 N/m^2)	All other conditions
One story	$^1/_2$ inch spaced 6 feet, 0 inch center-to-center with washer plate	Each end and not less than 50 percent of the wall length	Each end and not less than 40 percent of the wall length
Two stories	$^1/_2$ inch spaced 4 feet, 0 inch center-to-center with washer plate; or $^5/_8$ inch spaced 6 feet, 0 inch center-to-center with washer plate	Each end and not less than 70 percent of the wall length	Each end and not less than 50 percent of the wall length
Three stories	$^5/_8$ inch spaced 4 feet, 0 inch center-to-center with washer plate	100 percent of the wall length[g]	Each end and not less than 80 percent of the wall length[g]

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.88 N/m^2.

a. Sill plate anchors shall be adhesive anchors, screw anchors, or expansion anchors in accordance with Section A304.3.1.

b. All washer plates shall be 3 inches by 3 inches by 0.229 inch minimum. The hole in the plate washer is permitted to be diagonally slotted with a width of up to $^3/_{16}$ inch larger than the bolt diameter and a slot length not to exceed 1$^3/_4$ inches, provided that a standard cut washer is placed between the plate washer and the nut.

c. This table shall also be permitted for the spacing of the alternative connections specified in Section A304.3.1.

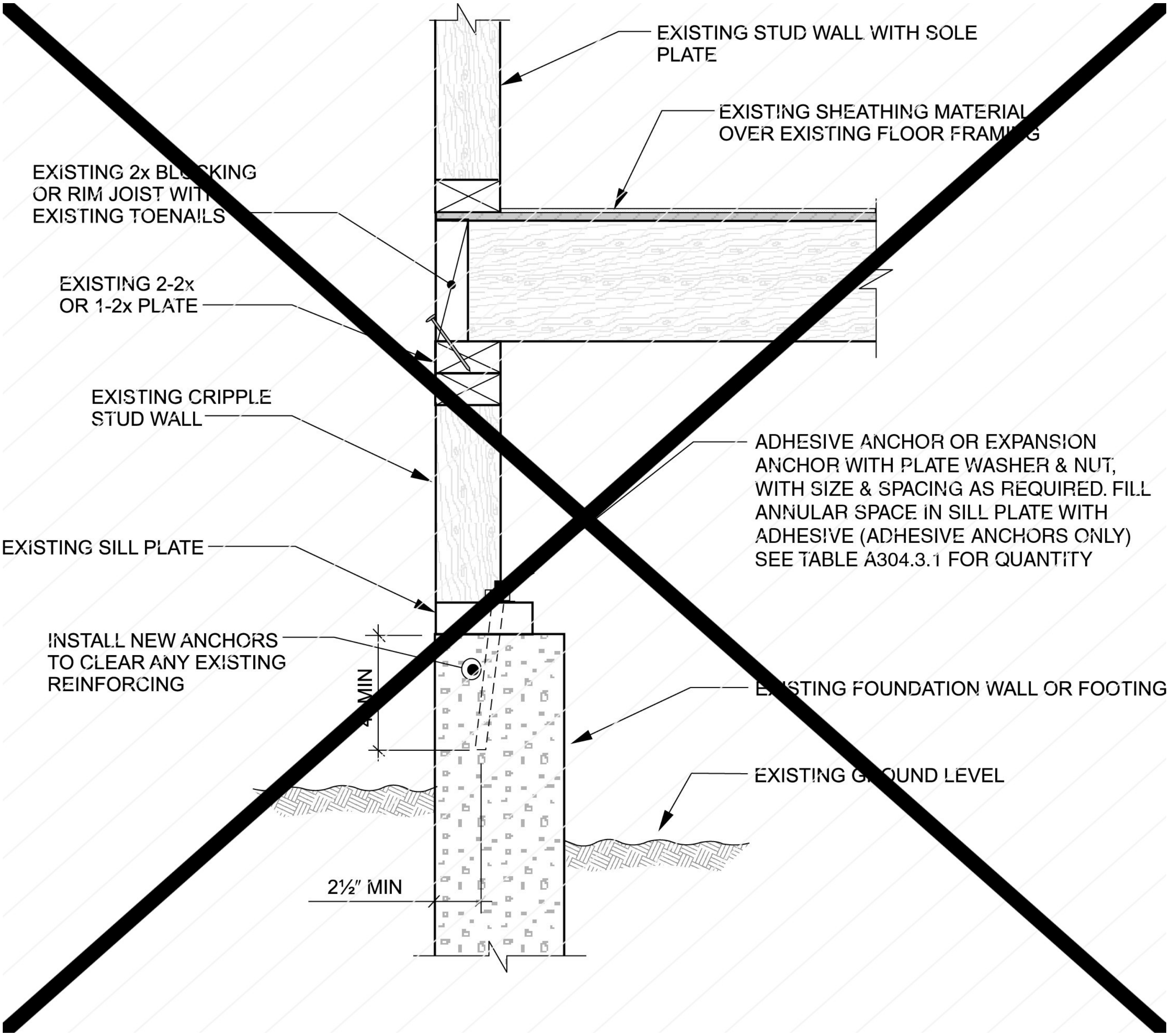
d. See Figure A304.4.2 for braced panel layout.

e. Braced panels at ends of walls shall be located as near to the end as possible.

f. All panels along a wall shall be nearly equal in length and shall be nearly equal in spacing along the length of the wall.

g. The minimum required underfloor ventilation openings are permitted in accordance with Section A304.4.4.

Delete and substitute as follows:



~~For SI: 1 inch = 25.4 mm.~~

~~a. Plate washers shall comply with the following:~~

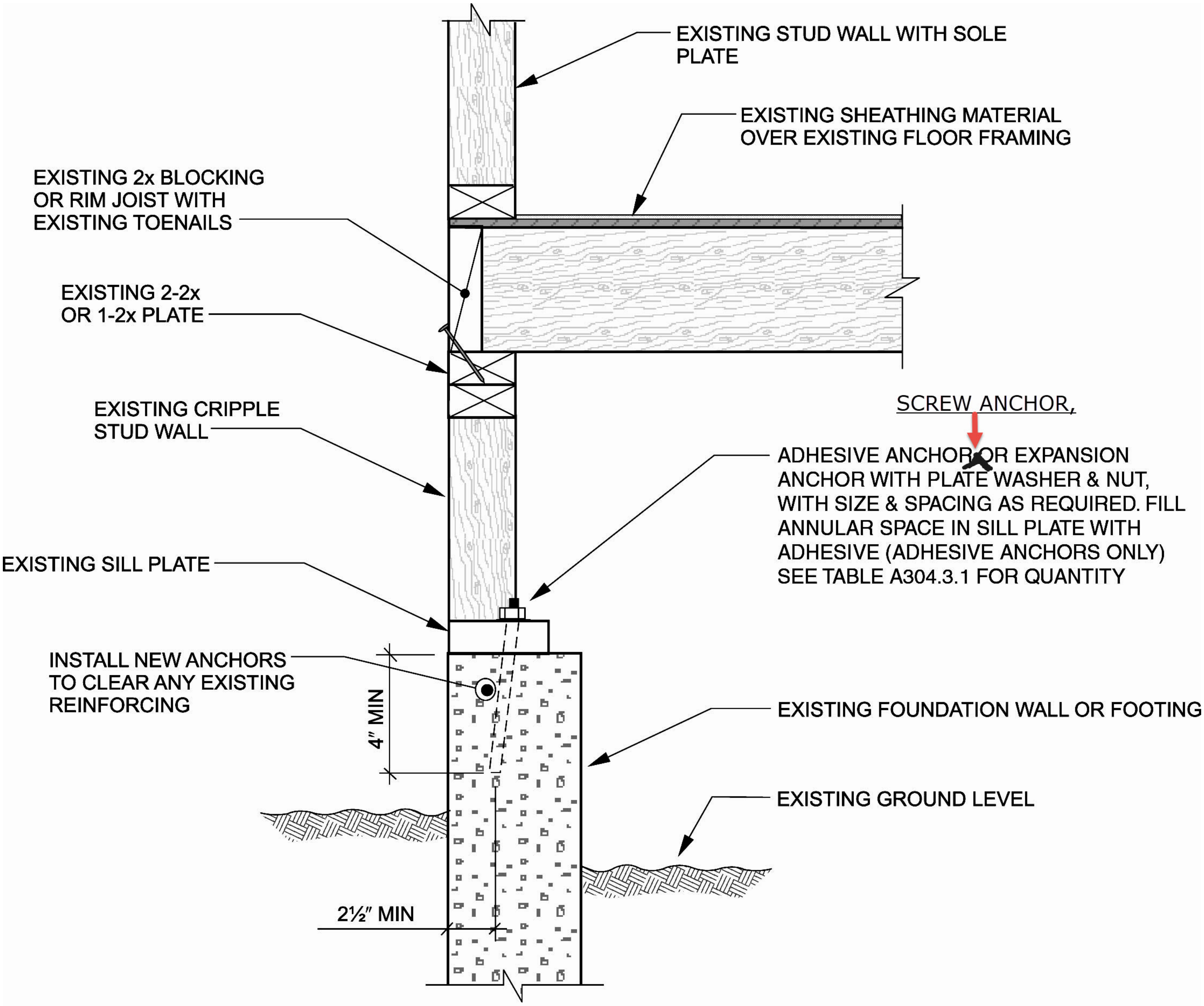
~~1/2-inch anchor or bolt – 3 inches × 3 inches × 0.229 inch minimum.~~

~~5/8-inch anchor or bolt – 3 inches × 3 inches × 0.229 inch minimum.~~

~~A diagonal slot in the plate washer is permitted in accordance with Table A304.3.1, Note b.~~

~~b. See Figure A304.4.1(1) or A304.4.1(2) for cripple wall bracing.~~

~~**[BS] FIGURE A304.3.1(1) SILL PLATE BOLTING TO EXISTING FOUNDATION[a, b]**~~



For SI: 1 inch = 25.4 mm.

a. Plate washers shall comply with the following:

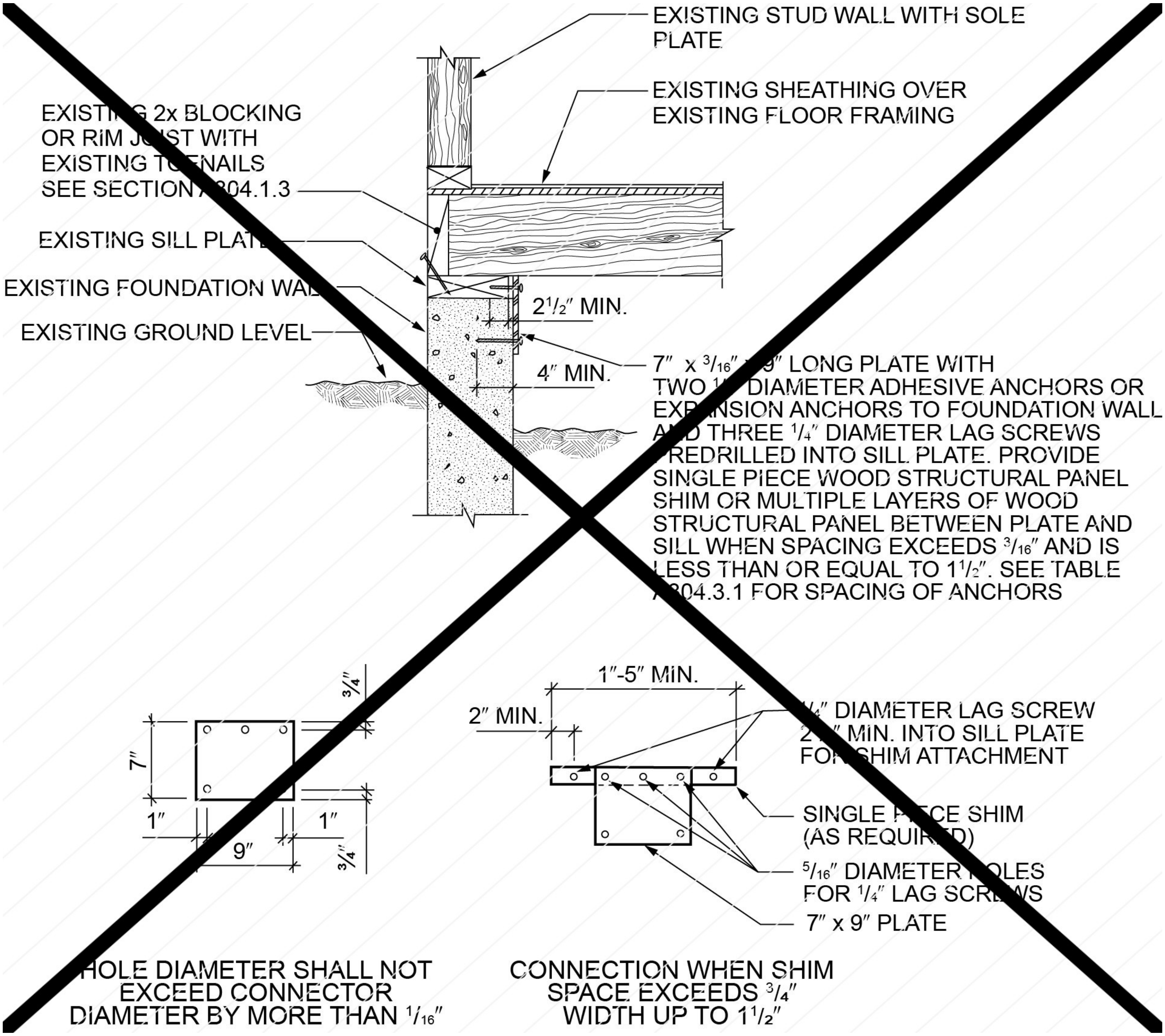
$^{1}/_{2}$-inch anchor or bolt—3 inches × 3 inches × 0.229 inch minimum.

$^{5}/_{8}$-inch anchor or bolt—3 inches × 3 inches × 0.229 inch minimum.

A diagonal slot in the plate washer is permitted in accordance with Table A304.3.1, Note b.

b. See Figure A304.4.1(1) or A304.4.1(2) for cripple wall bracing.

[BS] FIGURE A304.3.1(1) SILL PLATE BOLTING TO EXISTING FOUNDATION[a, b]

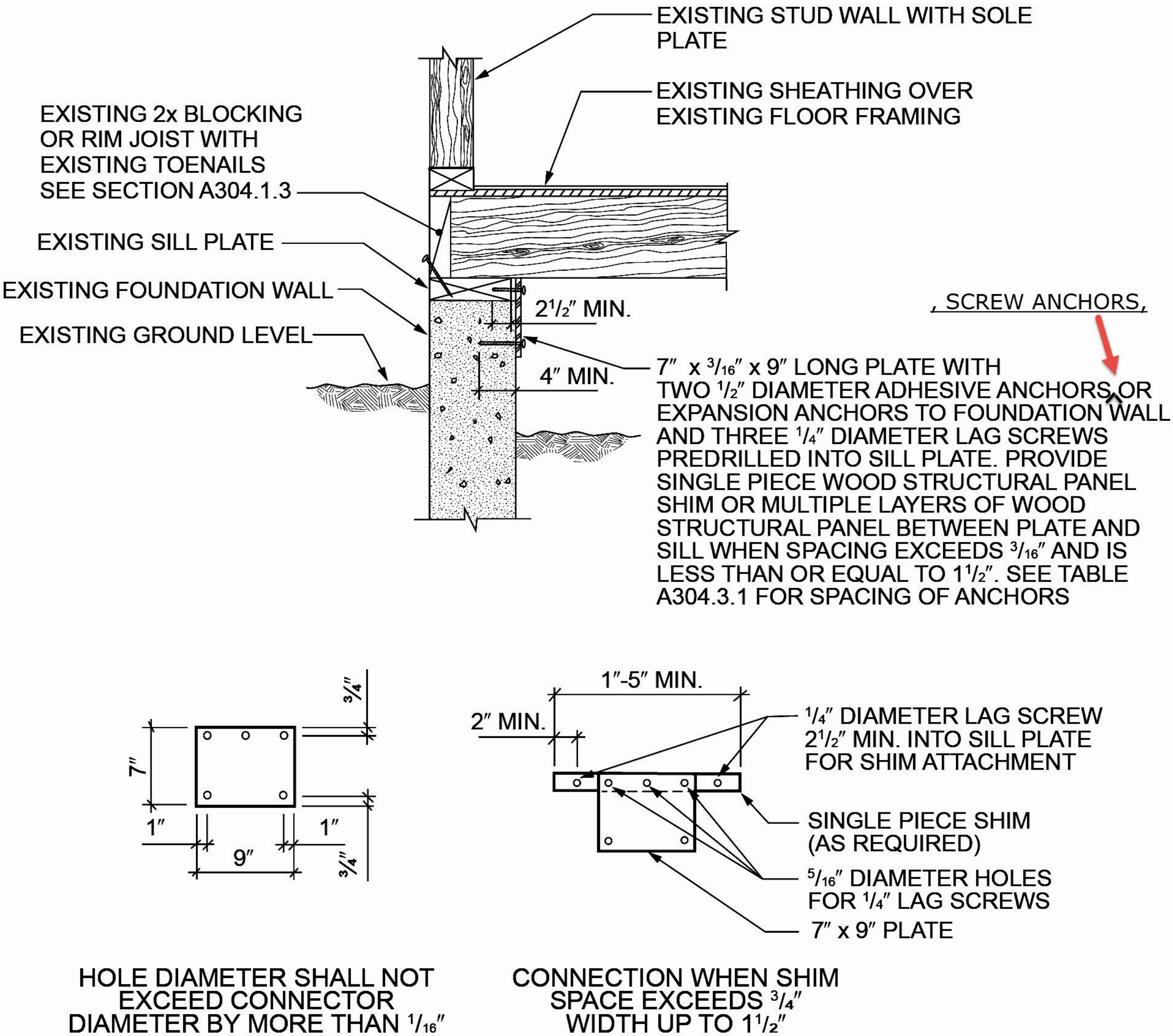


~~For SI: 1 inch = 25.4 mm.~~

a. ~~If shim space exceeds 1 1/2 inches, alternative details will be required.~~

b. ~~Where required, single piece shim shall be naturally durable wood or preservative-treated wood. If preservative-treated wood is used, it shall be isolated from the foundation system with a moisture barrier.~~

~~[BS] FIGURE A304.3.1(2) ALTERNATIVE SILL PLATE ANCHORING IN EXISTING FOUNDATION—WITHOUT CRIPPLE WALLS AND FLOOR FRAMING NOT PARALLEL TO FOUNDATIONS~~[a, b]



For SI: 1 inch = 25.4 mm.

a. If shim space exceeds 1 $^1/_2$ inches, alternative details will be required.

b. Where required, single piece shim shall be naturally durable wood or preservative-treated wood. If preservative-treated wood is used, it shall be isolated from the foundation system with a moisture barrier.

[BS] FIGURE A304.3.1(2) ALTERNATIVE SILL PLATE ANCHORING IN EXISTING FOUNDATION—WITHOUT CRIPPLE WALLS AND FLOOR FRAMING NOT PARALLEL TO FOUNDATIONS[a, b]

Revise as follows:

[BS] TABLE A304.3.2 SILL PLATE ANCHORAGE FOR VARIOUS LENGTHS OF SILL PLATE[a, b]

NUMBER OF STORIES	LENGTHS OF SILL PLATE		
	Less than 12 feet to 6 feet	Less than 6 feet to 30 inches	Less than 30 inches[c]
One story	Three connections	Two connections	One connection

NUMBER OF STORIES	LENGTHS OF SILL PLATE		
	Less than 12 feet to 6 feet	Less than 6 feet to 30 inches	Less than 30 inches
Two stories	Four connections for $^{1}/_{2}$-inch anchors or bolts or three connections for $^{5}/_{8}$-inch anchors or bolts	Two connections	One connection
Three stories	Four connections	Two connections	One connection

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Connections shall be either adhesive anchors, screw anchors, or expansion anchors.

b. See Section A304.3.2 for minimum end distances.

c. Connections shall be placed as near to the center of the length of plate as possible.

Reason: The purpose of this code change proposal is to simply add a fairly new type of post-installed mechanical anchor, the screw anchor, as purely another option for use as sill plate shear anchors in a seismic retrofit. In reality, screw anchors will probably perform better than expansion anchors in this application, because they do not put an expansion load on the existing concrete like expansion anchors do. Screw anchors are covered by the IBC and ACI 318 so there is no issue with determining code compliance of the approved screw anchors. A new definition of screw anchor was added, and the definition of expansion anchor was revised to better differentiate it from screw anchors. These definitions are based on definitions in ACI standards.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no intended cost impact for this code change. It is simply adding a new option for the builder and designer to use, it is not deleting allowance for anchors currently permitted by the IEBC.

EB134-25

EB135-25

IEBC: E107.1.3, E107.3.4

Proponents: Jeff O'Neill, Chair, representing Committee on Healthcare (ahc@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Robert Marshall, representing FCAC (fcac@iccsafe.org)

2024 International Existing Building Code

Revise as follows:

E107.1.3 Sleeping areas. Where a space is used for sleeping purposes, the space shall be equipped with smoke alarms in accordance with Sections 907.2.6.2 and 907.2.11 of the *International Fire Code* or be provided with a fire watch in accordance with Section 403.11.1 of the *International Fire Code*. Carbon monoxide alarms shall be installed in accordance with Section 915 of the *International Fire Code* ~~where the structure uses any fossil fuel or wood burning appliances.~~

E107.3.4 Carbon monoxide alarms. Carbon monoxide alarms shall be installed in accordance with Section 915 of the *International Fire Code,* ~~where the tiny house or manufactured home uses any fossil fuel or wood-burning appliances~~.

Reason: This is coordination with an IFC change to Section 915, F148-24.

Where a *direct carbon monoxide* source is located in a bedroom or sleeping room, or a bathroom attached to either, carbon monoxide detection shall be installed in the bedroom or sleeping room.

Where carbon monoxide detection is not installed in bedrooms or sleeping rooms, carbon monoxide detection shall be installed outside of each separate sleeping area in close proximity to bedrooms or sleeping rooms for either of the following conditions:

The *dwelling unit* or *sleeping unit* has a communicating opening to an attached, enclosed garage.

A *direct carbon monoxide source* is located in the *dwelling unit* or *sleeping unit* outside of bedrooms or sleeping room.

This proposal is submitted by the ICC Building Code Action Committee (BCAC), the ICC Fire Code Action Committee (FCAC) and the ICC Committee for Healthcare (CHC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the FCAC Website

The Committee on Healthcare (CHC) was established by the ICC Board of Directors in 2011 to pursue opportunities to study and develop effective and efficient provisions for Hospital, Nursing Homes, Assisted Living and Ambulatory Care Facilities. This committee was formed in cooperation with the American Society for Healthcare Engineering (ASHE). In July of 2017, the ICC Board made CHC a standing committee. In 2023 and 2024 the CHC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the CHC website at CHC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is coordination with an IFC change to Section 915, F148-24.

IgCC Code Change Proposals

The following code change proposals are labeled as GG code change proposals because they are proposals for changes to sections in chapters of the International Building Code that are designated as the responsibility of the IgCC Development Committee (see page viii of the Introductory pages of this monograph). The changes included in this Group B code development cycle are to sections of the code that have been prefaced with a [ADM] meaning that they are the responsibility of a different Code Development Committee— the Administrative Provision [ADM] Committee.

The committee assigned for each code change proposal is indicated in a banner statement near the beginning of the proposal. See the ADMIN hearing orders.

GG1-25

IGCC: M101.1.1., M101.1.2., M101.1.3., M101.1.4., M101.1.5., M101.1.6., M101.1.7., SECTION M102 (New), M102.1 (New)

Proponents: Shane Hoeper, representing SEHPCAC (sehpcac@iccsafe.org)

2024 International Green Construction Code

Revise as follows:

M101.1.1. N/A. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories in height above grade plane with a separate means of egress, their accessory structures, and the site or lot upon which these buildings are located shall comply with ICC 700–~~2020~~2025 National Green Building Standard.

M101.1.2. N/A. Group R-3 residential buildings, their accessory structures, and the site or lot upon which these buildings are located shall comply with ICC 700–~~2020~~2025 National Green Building Standard.

M101.1.3. N/A. Group R-2 and R-4 residential buildings three stories or less in height above grade plane, their accessory structures, and the site or lot upon which these buildings are located shall comply with ICC 700–~~2020~~2025 National Green Building Standard.

M101.1.4. N/A. Group R-2 and R-4 residential buildings four stories or more in height above grade plane, their accessory structures, and the site or lot upon which these buildings are located shall comply with the provisions of this code or ICC 700–~~2020~~2025 National Green Building Standard.

M101.1.5. N/A. Where the nonresidential portions of a mixed use building are 50 percent or more of the gross floor area, Group R-2 and R-4 portions shall comply with the provisions of this code or ICC 700–~~2020~~2025 National Green Building Standard. The remainder of the building and the site upon which the building is located shall comply with the provisions of this code.

M101.1.6. N/A. Where the residential portions of a mixed use building are greater than 50 percent of the gross floor area, the building and the site or lot upon which the building is located shall comply with the provisions of this code or ICC 700–~~2020~~2025 National Green Building Standard.

M101.1.7. N/A. Assisted living facilities, residential board and care facilities, and group homes classified as I-1 occupancy by the *International Building Code* shall comply with the provisions of this code or ICC 700–~~2020~~2025 National Green Building Standard.

Add new text as follows:

SECTION M102
REFERENCED STANDARDS

M102.1 General. See Table M102.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix that reference the standard.

M102.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ICC-700—25	National Green Building Standard	M101.1.1, M101.1.2, M101.1.3, M101.1.4, M101.1.5, M101.1.6, M101.1.7

Reason: Updating reference to newest publication of ICC-700—25

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

editorial update to latest edition

GG1-25

GG2-25

IGCC: 101.5 (4.1 & 4.2)

Proponents: Shane Hoeper, representing SEHPCAC (sehpcac@iccsafe.org); Emily Toto, ASHRAE, representing AHRAE (etoto@ashrae.org)

2024 International Green Construction Code

101.5 (4.1 & 4.2) Compliance. *Building projects* shall comply with ~~this code. Within each of Chapters 5 through 9, *building projects* shall comply with all mandatory provisions (x.3) and, where offered, either the~~the following:

1. ~~Prescriptive Option (x.4) or~~Chapters 5 through 11
2. ~~Performance Option (x.5).~~ASHRAE/ASHE Standard 189.3, for patient care areas and related support areas of health care facilities, and sites within the scope of Standard 189.3.

~~*Building projects* shall also comply with all provisions of Chapter 10.~~

~~**Exceptions:**~~

1. ~~Compliance shall not be required with sections that are listed in Table 101.5.1 where the jurisdiction has opted out by checking “No” in the corresponding cell in the jurisdictional requirement column.~~
2. ~~Where the jurisdiction has indicated a diversion percentage for Section 501.3.8.1 in Table 101.5.1, that percentage shall replace the diversion percentage indicated in Section 501.3.8.1.~~

Reason: This provides clarification as to what areas may comply under the scope of ASHRAE/ASHE Standard 189.3. This incorporates similar language in an informative note in ASHRAE 189.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

no cost associated with clarification.

GG2-25

GG3-25

IGCC: 102.5, 104.2, 104.2.1, 104.2.5.6.1, 104.7, 104.8.2, 107.3, 107.4, 107.6

Proponents: Shane Hoeper, representing SEHPCAC (sehpcac@iccsafe.org); Emily Toto, ASHRAE, representing AHRAE (etoto@ashrae.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Green Construction Code

Revise as follows:

102.5 Partial invalidity. ~~In the event that~~Where any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

104.2 Determination of compliance. The ~~code official~~authority having jurisdiction shall have the authority to determine compliance with this code, to render interpretations of this code and to adopt policies and procedures ~~in order~~ to clarify the application of this code's provisions. Such interpretations, policies, and procedures:

1. Shall be in compliance with the intent and purpose of this code.
2. Shall not have the effect of waiving requirements specifically provided for in this code or other applicable codes and ordinances.

104.2.1 Listed compliance. Where this code or a referenced standard requires equipment, materials, products or services to be listed and a listing standard is specified, the listing shall be based on the specified standard. Where a listing standard is not specified, the listing shall be based on approved listing criteria. Listings shall be germane to the provision requiring the listing. Installation shall be in accordance with the listing and the manufacturer's instructions, and where required to verify compliance, the listing standard and manufacturer's instructions shall be made available to the ~~code official~~authority having jurisdiction..

104.2.5.6.1 Evaluation reports. Evaluation reports shall be issued by an approved agency, and use of the evaluation report shall require approval by the ~~code official~~authority having jurisdiction for the installation. The alternate material, design or method of construction and product evaluated shall be within the scope of the ~~code official's~~authority having jurisdiction's recognition of the approved agency. Criteria used for the evaluation shall be identified within the report and, where required, provided to the ~~code official~~authority having jurisdiction.

104.7 Notices and orders. The ~~code official~~authority having jurisdiction shall issue all necessary notices or orders to ensure compliance with this code.

104.8.2 Inspections. The ~~code official~~authority having jurisdiction shall keep a record of each inspection made, including notices and orders issued, showing the findings and disposition of each.

107.3 Permit valuations. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at the time of application. Such estimated valuations shall include the total value of work, including materials and labor, for which the permit is being issued, such as electrical, gas, mechanical, and plumbing equipment and permanent systems. In the opinion of the ~~building official~~authority having jurisdiction, where the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates acceptable to the ~~building official~~authority having jurisdiction. The ~~building official~~authority having jurisdiction shall have the authority to adjust the final valuation for permit fees.

107.4 Work commencing before permit issuance. Any person who commences any work before obtaining the necessary permits shall be subject to a fee established by the ~~building official~~authority having jurisdiction that shall be in addition to the required permit fees.

107.6 Refunds. The ~~building official~~authority having jurisdiction is authorized to establish a refund policy.

Reason: HOEPER: provides consistency in terminology used throughout the document.

GROVE: This proposal intends to correlate terms within the IgCC and correct an error created by ADM14-22. This is essentially an editorial revision and makes no change in application of the code.

The IgCC has traditionally used the term “authority having jurisdiction”. ADM14-22 caught most of these occurrences and substituted “authority having jurisdiction” for “code official” which is used in all the other I-Codes.

This proposal replaces the term “code official” with “authority having jurisdiction” in the 7 locations where it was missed in the new Section 104.
This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

HOEPER: editorial change

GROVE: This is consistent terminolgy in a section. There is not change to construction requirements.

GG3-25

IPC Code Change Proposals

The following code change proposal is labeled as a P code change proposal because it is a proposal for changes to sections in chapters of the International Plumbing Code that are designated as the responsibility of the IPC Code Development Committee (see page viii of the Introductory pages of this monograph), which met in the Group A cycle in 2024. However, the changes included in this Group B code development cycle are to sections of the code that have been prefaced with a [S] and meaning that they are the responsibility of a different IBC Code Development Committee— the IBC-Structural [S] Committees.

The committee assigned for each code change proposal is indicated in a banner statement near the beginning of the proposal. See the IBC-Structural hearing orders.

P1-25

IPC: [BS] 1101.7

Proponents: Erik Madsen, representing NCSEA (emadsen@dci-engineers.com); John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

THIS CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2024 International Plumbing Code

Revise as follows:

[BS] 1101.7 Roof design. Roofs shall be designed for the maximum possible depth of water that will pond thereon as determined by the relative levels of roof deck and overflow weirs, scuppers, edges or serviceable drains in combination with the deflected structural elements. In determining the maximum possible depth of water, all primary roof drainage means shall be assumed to be blocked. The maximum possible depth of water on the roof shall include the height of the water required above the inlet of the secondary roof drainage means to achieve the required flow rate of the secondary drainage means to accommodate the greater of the design rainfall ~~rate~~ intensities as required by Section ~~1106~~1108.3 and *International Building Code* Section 1611.1.

Reason: This proposal seeks to coordinate the rain loading provisions in the IPC and the International Building Code.

There is currently a discrepancy between the secondary drainage rainfall intensity that the IBC requires to determine roof rain loads, and the rainfall intensity that IPC requires for the design of the secondary drainage system. IBC and ASCE 7 utilize a 15-minute duration storm event with increased return periods for higher Risk Categories, while the IPC utilizes a 60-minute duration storm event with a 100-year return period.

The IBC rainfall rates are currently larger than the IPC rainfall rates. This can result in large hydraulic heads and rain loads, or in some cases when the rainfall rates exceed the capacity of the secondary drainage system, the hydraulic heads cannot be determined by conventional means.

The systems as designed now may not be capable of handling the calculated flows and heads. This issue exists with both gravity and siphonic roof drainage systems and can be more significant for the latter as slight changes to the flow greatly affect the performance of siphonic systems.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0.25-$0.30/square foot of roof area.

Estimated Immediate Cost Impact Justification (methodology and variables):

Cost change should be minimal. As an example, a single-story industrial building with 40-foot square bays and interior gravity roof drains, the drainage area will be 6,400 square feet. The cost increase of the drain should be zero since only the no-hub outlet diameter changes. The drainage piping material could be PVC, CPVC, FRP or cast iron. Assuming cast iron as worst case, the cost increase to go from 8” diameter to 10” diameter pipe is about $15/ft. The cost of pipe hangers and other accessories should be about the same. The piping cost increase is $15*80=$1,200 and the overall cost per square foot impact is $1,200/6400=$0.19/sf. Considering the potential cost increases for the downstream piping (downcomers at columns & below-grade piping) I think we could safely say the cost increase is in the range of $0.25-$0.30/square foot. Note also, this stormwater is already in IBC. We are aiming to match IPC with IBC.

Staff Analysis: CC # S95-25 and CC # P1-25 addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

P1-25

2025 GROUP B – PROPOSED CHANGES TO THE INTERNATIONAL PROPERTY MAINTENANCE / ZONING CODE

PROPERTY MAINTENANCE / ZONING CODE COMMITTEE

Erik Karl Fritzberg, RA, CBO, CPHC, CFM-*Chair*
Professional Architect III
J. S. Held, LLC
Pittsburgh, PA

James Allen-*Vice Chair*
Fire Marshal/Code Enforcement Officer
City of Prestonsburg
Prestonsburg, KY

Rudolph (Rudy) Beuc, RA, CBO, NCARB, AIA
Architect
R. Beuc Architects
Webster Groves, MO

Kevin Gore, CFM
Chief Building Official
City of Perry
Kathleen, GA

William Hyde, EFO, CFO
Fire Chief
Rogers Fire Department (AR)
Rogers, AR

Tina Mathew, RA, LEED AP, CFM
Code Development Architect
New York City Department of Buildings
New York, NJ

William (Glen) Merchant
Building Official
City of Mountain Brook
Mountain Brook, AL

Lucas Pump, MCP
Building Inspector
City of Cedar Rapids
Cedar Rapids, IA

Dawn Purushothaman, CFPS
Fire and Life Safety Engineer
Jacobs
Abu Dhabi United Arab Emirates

Erik S. Waddell
Rep: Code Official Association of Alabama
Chief Building Inspector
City of Athens, Alabama
Tuscumbia, AL

Staff Secretariat:
LaToya Carraway, Ph.D
Technical Staff
International Code Council
Central Region Office

TENTATIVE ORDER OF DISCUSSION
2025 PROPOSED CHANGES TO THE
INTERNATIONAL PROPERTY MAINTENANCE CODE

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some PM code change proposals may not be included on this list, as they are being heard by another committee.

PM1-25
PM2-25
PM3-25 Part I
PM4-25
PM5-25
PM6-25
PM7-25
PM8-25
PM9-25
PM10-25
PM11-25
PM12-25
PM13-25
PM14-25
PM15-25
PM16-25
PM17-25
PM18-25
PM19-25
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PM28-25
PM29-25
PM30-25
PM31-25
PM32-25
PM33-25
PM34-25
PM35-25
PM36-25
PM37-25
PM38-25
PM39-25
PM40-25
PM41-25
PM42-25
    G28-25 Part III
PM43-25
PM44-25
PM45-25
PM46-25
PM47-25
PM48-25
PM49-25
PM50-25
PM51-25
PM52-25
PM53-25
PM54-25
PM55-25
PM56-25
PM57-25
PM58-25
PM59-25
PM60-25
PM61-25

PM1-25

IPMC: [A] 102.5, SECTION 202

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Property Maintenance Code

Delete and substitute as follows:

~~**[A] 102.5 Workmanship.** Repairs, maintenance work, alterations or installations that are caused directly or indirectly by the enforcement of this code shall be executed and installed in a *workmanlike* manner and installed in accordance with the manufacturer's instructions.~~

[A] 102.5 Workmanship. *Alterations, repairs and* maintenance work in and of *existing buildings* and structures caused directly or indirectly by the enforcement of this code shall comply with the provisions of this code, all other laws and ordinances of this jurisdiction, and, where applicable, the manufacturer's installation instructructions.

Delete without substitution:

~~**WORKMANLIKE.** Executed in a skilled manner; e.g., generally plumb, level, square, in line, undamaged and without marring adjacent work.~~

Reason: The current International Property Maintenance Code's provision for how work is to be performed, which mandates that all work "shall be executed and installed in a workmanlike manner" and where the definition of "workmanlike" means executed in a skilled manner, with examples, is likely unenforceable due to its vagueness. This ambiguity could be successfully challenged under the void for vagueness doctrine, a well-established legal principle rooted in the Due Process Clause of the Fifth and Fourteenth Amendments.

See Connally v. General Const. Co., 269 U.S. 385 (1926) where a statute would likely be void for vagueness if it fails to provide fair notice of what conduct is prohibited or required; "a statute which either forbids or requires the doing of an act in terms so vague that men of common intelligence must necessarily guess at its meaning and differ as to its application violates the first essential of due process of law".

The term "workmanlike manner," while commonly used in the construction industry in contracts and outside of state action, lacks a precise and objective definition. What one official considers "workmanlike" may differ significantly from another's assessment, leading to inconsistent and potentially arbitrary enforcement. Where the IPMC is adopted, under such a subjectivity there would be easy bearing for an argument that a reasonable person would be left to guess at the meaning of the code's requirement regarding workmanship and that the requirement should be struck.

This code change revises the definition and replaces it's intent while respecting the fine line between state action (jurisdiction enforcement) and the civil tort (desire for quality work between owner and others).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change revises the language to meet the intent.

Staff Analysis: CC # AXXX-25 (11403) and CC # AXXX-25 (12238) addresses requirements in a different or contradicting manner. The committee is urged to make their intensions clear with their actions on these proposals.

PM1-25

PM2-25

IPMC: 109.1.5

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Delete without substitution:

~~**109.1.5 Hazardous structure or premises.** For the purpose of this code, any *structure* or *premises* that has any or all of the conditions or defects described as follows shall be considered to be hazardous:~~

1. ~~Any door, aisle, passageway, stairway, exit or other means of egress that does not conform to the *approved* building or fire code of the jurisdiction as related to the requirements for existing buildings.~~
2. ~~The walking surface of any aisle, passageway, stairway, exit or other means of egress is so warped, worn loose, torn or otherwise unsafe as to not provide safe and adequate means of egress.~~
3. ~~Any building, *structure* or portion thereof that is dangerous.~~
4. ~~The building or *structure,* or any portion thereof, is clearly unsafe for its use and *occupancy.*~~
5. ~~The building or *structure* is *neglected*, damaged, dilapidated, unsecured or abandoned so as to become an attractive nuisance to children who might play in the building or *structure* to their danger, becomes a harbor for vagrants, criminals or immoral *persons*, or enables *persons* to resort to the building or *structure* for committing a nuisance or an unlawful act.~~
6. ~~Any building or *structure* has been constructed, exists or is maintained in violation of any specific requirement or prohibition applicable to such building or *structure* provided by the *approved* building or fire code of the jurisdiction, or of any law or ordinance to such an extent as to present either a substantial risk of fire, building collapse or any other threat to life and safety.~~
7. ~~A building or *structure,* used or intended to be used for dwelling purposes, because of inadequate maintenance, dilapidation, decay, damage, faulty construction or arrangement, inadequate light, *ventilation,* mechanical or plumbing system, or otherwise, is determined by the *code official* to be unsanitary, unfit for human habitation or in such a condition that is likely to cause sickness or disease.~~
8. ~~Any building or *structure,* because of a lack of sufficient or proper fire-resistance-rated construction, fire protection systems, electrical system, fuel connections, mechanical system, plumbing system or other cause, is determined by the *code official* to be a threat to life or health.~~
9. ~~Any portion of a building remains on a site after the demolition or destruction of the building or *structure* or whenever any building or *structure* is abandoned so as to constitute such building or portion thereof as an attractive nuisance or hazard to the public.~~

Reason: The term "hazardous structure or premises" is never actually used in the IPMC. Similarly, although the word "hazardous" is used five times beyond this quasi-definition in Section 109.1.5, four of these instances do not even align with the quasi-definition in this provision.

- In Section 109.1.1, the word "hazardous" appears, but it is used in a different context, with different criteria than the criteria in Section 109.1.5.
- In Section 110.1, the word "hazardous" appears, but it is used in a different context, describing a hazardous condition as opposed to a hazardous structure or premises.
- In Section 302.3, the word "hazardous" appears, but it is used in a different context, describing a hazardous condition as opposed to a hazardous structure or premises.
- In Section 506.3, the word "hazardous" appears, but it is used to describe materials that are harmful to the building's drainage system like grease.

The only section where the word "hazardous" is used similarly to that in Section 109.1.5 is Section 105.3, which discusses right of entry to make inspections, but the provision already grants the building official right of entry to make inspections using the broader terms of "unsafe" and "dangerous" conditions, as well as granting the right to make any inspection to enforce any provision of the IPMC.

So the use of the term "hazardous" is inconsistent and highly variable in the IPMC.

Further, without actual provisions that contain requirements regarding a "hazardous structure or premises", the quasi-definition in Section 109.1.5 is essentially useless because it has no teeth. As an example, Section 109.9 discusses restoration or abatement of problematic conditions. Nowhere is the word "hazardous" used. The section of the IPMC that covers abatement of problems only discusses unsafe conditions. Similarly, the demolition provisions in Section 111 contain no mention of hazardous buildings or premises.

Finally, it is important to understand that deletion of Section 109.1.5 will not result in any loss of power of the code official to address unsafe or dangerous conditions. In Section 109.1.5, the nine conditions that would cause a structure to be considered to be hazardous are all subsumed by the terms "unsafe" and "dangerous" as well as other portions of the code, as follows:

- Item 1 (i.e., doors, aisles, passageways, stairways, exits or other means of egress that do not comply with code requirements for existing buildings) is already covered by the definition of "unsafe" in the IEBC (i.e., inadequate means of egress), as well as the IPMC language in Sections 109.1 and 109.1.3.
- Item 2 (i.e., walking surfaces that do not provide a safe and adequate means of egress) is already covered by the definition of "unsafe" in the IEBC (i.e., inadequate means of egress), as well as the IPMC language in Sections 109.1, 109.1.3, and 111.1.
- Item 3 (i.e., the building, structure, or portion thereof is dangerous) is already covered by the definition of "dangerous" in the IPMC as well as Sections 109.1, 109.1.3, 110.1, and 111.1
- Item 4 (i.e., the building, structure, or portion thereof is unsafe) is already covered by the definition of "unsafe" in the IEBC (i.e., dangerous to human life, and/or improper occupancy), as well as the IPMC language in Sections 109.1, 109.1.3, and 111.1.
- Item 5 (i.e., attractive nuisance to children, vagrants, criminals, immoral persons, etc.) is already covered by the definition of "unsafe" in the IEBC (i.e., illegal or improper occupancy, and vacant structures not secured against entry), as well as the IPMC language in Sections 109.1, 109.1.3, 109.2 (vacant or attractive nuisance), and 111.1.
- Item 6 (i.e., buildings or structures in violation of codes that present a substantial risk of fire, building collapse, or any other threat) is already covered by the definition of "dangerous" in the IPMC and the definition of "unsafe" in the IEBC, as well as IPMC language in Sections 109.1, 109.1.3, and 111.1.
- Item 7 (i.e., any building or structure inadequately maintained, decayed, dilapidated, damaged, with faulty construction, inadequate light, inadequate ventilation, inadequate mechanical or plumbing systems, or unsanitary conditions, unfit for human habitation) is already covered by the definition of "dangerous" in the IPMC and the definition of "unsafe" in the IEBC, as well as IPMC language in Sections 109.1, 109.1.3, and 111.1.
- Item 8 (i.e., any building or structure that lacks proper fire-resistive construction, electrical systems, fuel systems, mechanical systems, plumbing systems and poses a threat to life or health) is already covered by the definition of "unsafe" in the IEBC , as well as the IPMC language in Sections 109.1, 109.1.3, 109.2 , 110.1, and 111.1.
- Item 9 (i.e., any portion of the building remains on site after demolition that the remant is an attactive nuisance or hazard, or any abandoned building or structure is an attractive nuisance or hazard) is already covered by the definition of "unsafe" in the IEBC (i.e., illegal or improper occupancy, and vacant structures not secured against entry), as well as the IPMC language in Sections 109.1, 109.1.3, 109.2 (vacant or attractive nuisance), and 111.1.

For these reasons, this section of the IPMC is superfluous and is not needed to address dangerous or unsafe conditions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal removes a section of the code that defines a term (i.e., hazardous structures or premises) that is actually never used in the IPMC. Deletion of a superfluous term that is never used in any requirements will not result in any cost impacts.

PM2-25

PM3-25 Part I

IPMC: 109.4, 109.4.1, 109.4.2, 109.5, 109.6, 109.7, 109.7.1, 109.8, 109.9, 111.2

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPMC CODE COMMITTEE. PART II WILL BE HEARD BY THE ADMIN CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2024 International Property Maintenance Code

Delete and substitute as follows:

~~**109.4 Notice.** Whenever the *code official* determines that there has been a violation of this code or has grounds to believe that a violation has occurred, notice shall be given in the manner prescribed in Sections 109.4.1 and 109.4.2 to the *owner* or the owner's authorized agent, for the violation as specified in this code. Notices for *condemnation* procedures shall comply with this section.~~

109.4 Notice. Where authorized or required, the *code official* shall serve on the *owner* of the *structure*, or the *owner's* authorized agent, a written notice that described the conditions deemed to be in violation with this code and specifies the required action to abate the violations within a stipulated time. Such notice shall require the *person* thus notified to declare immediately to the *code official* acceptance or rejection of the terms of the order.

Delete without substitution:

~~**109.4.1 Form.** Such notice shall be in accordance with all of the following:~~

1. ~~Be in writing.~~
2. ~~Include a description of the real estate sufficient for identification.~~
3. ~~Include a statement of the violation or violations and why the notice is being issued.~~
4. ~~Include a correction order allowing a reasonable time to make the repairs and improvements required to bring the *dwelling unit* or *structure* into compliance with the provisions of this code.~~
5. ~~Inform the property *owner* or *owner's* authorized agent of the right to appeal.~~
6. ~~Include a statement of the right to file a lien in accordance with Section 107.3.~~

Revise as follows:

~~**109.4.2**~~ **109.5 Method of service.** Such notice shall be deemed to be properly served where a copy thereof is served in accordance with one of the following methods:

1. A copy is delivered personally.
2. A copy is sent by certified or registered mail addressed to the *owner* at the last known address with the return receipt requested.
3. A copy is delivered in any other manner as prescribed by local law.

If the certified or registered letter is returned showing that the letter was not delivered, a copy thereof shall be posted in a conspicuous place in or about the *structure* affected by such notice. Service of such notice in the foregoing manner upon the owner's agent or upon the *person* responsible for the *structure* shall constitute service of notice upon the *owner*.

~~**109.5**~~ **109.6 Unauthorized tampering.** Signs, tags or seals posted or affixed by the *code official* shall not be mutilated, destroyed or tampered with, or removed without authorization from the *code official*.

~~109.6~~ __109.7__ **Transfer of ownership.** It shall be unlawful for the *owner* of any *dwelling unit* or *structure* who has received a compliance order or upon whom a notice of violation has been served to sell, transfer, mortgage, lease or otherwise dispose of such *dwelling unit* or *structure* to another until the provisions of the compliance order or notice of violation have been complied with, or until such *owner* or the *owner*'s authorized agent shall first furnish the grantee, transferee, mortgagee or lessee a true copy of any compliance order or notice of violation issued by the *code official* and shall furnish to the *code official* a signed and notarized statement from the grantee, transferee, mortgagee or lessee, acknowledging the receipt of such compliance order or notice of violation and fully accepting the responsibility without condition for making the corrections or repairs required by such compliance order or notice of violation.

~~109.7~~ __109.8__ **Placarding.** Upon failure of the *owner*, *owner*'s authorized agent or *person* responsible to comply with the notice provisions within the time given, the *code official* shall post on the *premises* or on defective equipment a placard bearing the word "Condemned" and a statement of the penalties provided for occupying the *premises,* operating the equipment or removing the placard. Such notice shall be posted in a conspicuous place in or about the *structure* affected by such notice. If the notice pertains to equipment, it shall be placed on the *condemned* equipment.

~~109.7.1~~ __109.8.1__ **Placard removal.** The *code official* shall remove the *condemnation* placard whenever the defect or defects upon which the *condemnation* and placarding action were based have been eliminated. Any *person* who defaces or removes a *condemnation* placard without the approval of the *code official* shall be subject to the penalties provided by this code.

~~109.8~~ __109.9__ **Prohibited occupancy.** Any occupied *structure condemned* and placarded by the *code official* shall be vacated as ordered by the *code official*. Any *person* who shall occupy a placarded *premises* or shall operate placarded equipment, and any *owner or owner*'s authorized agent who shall let anyone occupy a placarded *premises* or operate placarded equipment shall be liable for the penalties provided by this code.

~~109.9~~ __109.10__ **Restoration or abatement.** The *structure* or equipment determined to be unsafe by the *code official* is permitted to be restored to a safe condition. The *owner*, *owner*'s authorized agent, *operator* or *occupant* of a *structure*, *premises* or equipment deemed unsafe by the *code official* shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other *approved* corrective action. To the extent that repairs, alterations, or additions are made or a change of *occupancy* occurs during the restoration of the *structure*, such repairs, alterations, additions, or change of *occupancy* shall comply with the requirements of theInternational Existing Building Code.

111.2 Notices and orders. Notices and orders shall comply with Section__s__ 109.4__ and 109.5__.

PM3-25 Part I

PM3-25 Part II

IPMC: [A] 107.2, [A] 107.3

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Property Maintenance Code

Revise as follows:

[A] 107.2 Notice of violation. The *code official* ~~shall~~ is authorized to serve a notice of violation or order on the *person* responsible for a building or *structure* in violation of this code. Such notice shall be in accordance with Sections 109.4 and 109.5.

[A] 107.3 Prosecution of violation. Any *person* failing to comply with a notice of violation or order served pursuant to this code ~~in accordance with Sections 109.4 and~~ shall be deemed guilty of a misdemeanor or civil infraction as determined by the local municipality, and the violation shall be deemed a *strict liability offense*. If the notice of violation is not complied with, the *code official* shall institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful *occupancy* of the *structure* in violation of the provisions of this code or of the order or direction made pursuant thereto. Any action taken by the authority having jurisdiction on such *premises* shall be charged against the real estate upon which the *structure* is located and shall be a lien upon such real estate.

Reason: The proposed change clarifies the authority of the code official to issue notices of violation or orders. By replacing "shall" with "is authorized to," the language acknowledges the discretionary nature of issuing notices while maintaining the code official's power to enforce code compliance. The revised language is consistent with the other I-Codes including the IFC.

The change also includes deletion of language that is generally outside of the scope of the code including a requirement that the right to appeal be provided on a notice.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change will likely have minimal impact. However a decrease may be appreciated by changing the requirement to issue a notice for any violation to the authority to issue a notice where necessary.

PM3-25 Part II

PM4-25

IPMC: 111.1

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Revise as follows:

111.1 General. When the code official determines that a ~~any~~ structure ~~is so old, dilapidated or has become so out of repair and~~ is dangerous, unsafe, insanitary ~~and~~ or otherwise unfit for human habitation or occupancy, the ~~code official can order either of the~~ following options are available to the code official:

1. The code official is permitted to order ~~authorize~~ the owner or owner's authorized agent to make ~~the structure safe by~~ repairs sufficient ~~in order~~ to make the structure safe and sanitary. Where there has been a cessation of ~~construction~~ repairs ~~of any structure~~ for a period of more than 2 years , the structure will be ordered demolished and removed.
2. The code official is permitted to order the owner or owner's authorized agent to demolish and remove the ~~any such~~ structure.

Reason: This proposal cleans up Section 111.1 and is editorial in nature. The changes are proposed for the following reasons:

1. There is no need to list "old, dilapidated or has become so out of repair". The age of the structure is irrelevant. The word "dilapidated" is vague and undefined. The term "out-of-repair" is also vague and undefined. Further, the wording "is so old, dilapidated or has become so out of repair" is an incomplete thought due to the word "so" and would need to be followed by "that", followed by another thought. It is better to just skip straight to the important stuff: namely, that the structure in question is "dangerous, unsafe, insanitary, or otherwise unfit for human habitation or occupancy".
2. The original wording states that the code official "can order either of the following" and then both 1) and 2) stated that the code official "is permitted to", which is duplicative. Plus, the "can" is not good code language.
3. Option 1 states that the code official is permitted to "authorize" repairs. The code official is always permitted to "authorize" repairs. What the code official needs in this context is the authority to "order" repairs.
4. In both Options 1 and 2, instead of referring to "any structure", the proposal refers to "the structure" because the language is dealing with a specific structure.
5. Two commas were added to help make the language more readable.
6. In Option 1, the term "construction repairs" is convoluted; the word "construction" is not needed.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These are just editorial changes to make the section less clunky and awkward. There are no technical changes or anything that would alter the intent of the requirements.

PM4-25

PM5-25

IPMC: SECTION 202 (New)

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Add new definition as follows:

UNSAFE. Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "*Dangerous*," or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed *unsafe*. A vacant structure that is not secured against entry shall be deemed *unsafe*.

Reason: This proposal is one of the steps necessary to make the IPMC compatible with the IEBC, both of which deal with existing buildings. It does not make sense for the two codes to have different definitions of the word "unsafe", much less have one code define it and the other code omit or appear to dance around the definition; otherwise, a condition permitted in the IEBC might not be permitted in the IPMC, or vice versa.

The IEBC lacked a definition of the word "unsafe" until 2009, when it was added without ill effect. The IPMC also needs a definition. Although Section 201.3, *Terms Defined in Other Codes*, might be interpreted as applying to the IEBC, it is not clear if that is the intent with respect to the term "unsafe". Given that the IPMC uses the word "unsafe" 38 times in technical provisions, a definition is required. To make the two codes compatible, we are proposing to add the same definition as the IEBC.

It is recommended that this definition be put forth to the Code Correlation Committee to apply the scoping letter [EB] since the definition is identical to that in the IEBC.

While we understand that additional changes will need to be made (and are being proposed), this is a necessary change to align the two codes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There does not appear to be any cost associated with this change. The IPMC already contains a provision that says if a word is used in another I-code, that definition is valid in this code. Since we are just copying the definition of unsafe (and linking the two so that they are the same in both), there should not be any cost implications.

PM5-25

PM6-25

IPMC: SECTION 202 (New), 303.1.1 (New), 303.2, PHTA (New)

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Property Maintenance Code

Add new definition as follows:

RESIDENTIAL SWIMMING POOL (Residential Pool). A pool intended for use that is accessory to a residential setting and available only to the household and its guests. Other pools shall be considered to be public pools for purposes of this code.
SPA. A structure or product intended for the immersion of persons in temperature-controlled water for the purpose of relaxing, exercise, therapy or treatment; designed and manufactured to be connected to a circulation system; and not intended to be drained and filled with each use.

Add new text as follows:

303.1.1 Public pool and spa operation and maintenance. Public pools, public spas and aquatic recreation facilities shall be operated and maintained in accordance with PHTA/ICC-2.

Revise as follows:

303.2 Enclosures. ~~Private~~ Residential swimming pools~~, hot tubs~~ and spas, containing water more than 24 inches (610 mm) in depth shall be completely surrounded by a fence or barrier not less than 48 inches (1219 mm) in height above the finished ground level measured on the side of the barrier away from the pool. Gates and doors in such barriers shall be self-closing and self-latching. Where the self-latching device is less than 54 inches (1372 mm) above the bottom of the gate, the release mechanism shall be located on the pool side of the gate. Self-closing and self-latching gates shall be maintained such that the gate will positively close and latch when released from an open position of 6 inches (152 mm) from the gatepost. An existing pool enclosure shall not be removed, replaced or changed in a manner that reduces its effectiveness as a safety barrier.

Exceptions:

1. Spas ~~or hot tubs~~ equipped with a lockable safety cover that complies with ASTM F1346.
2. ~~Private~~ Residential swimming pools equipped with a power safety cover that complies with ASTM F1346 and is in working condition using the control switch.

Add new standard(s) as follows:

PHTA

Pool and Hot Tub Alliance
Suite 602
1650 King Street
Alexandria, VA 22314

ANSI/PHTA/ICC-2-2023 Public pool and spa operations and maintenance

Reason: In Group A, SP23-24 added a requirement to what will be the 2027 ISPSC, for public pools and spas, and aquatic recreation facilities to be operated and maintained in accordance with the ANSI/PHTA/ICC-2 Standard (PHTA-2). PHTA-2 provides requirements for Public Pool and Spa Operations and Maintenance, and SP23-24 was adopted As Submitted. This proposal is including that same language and requirement for public pools and spas, and aquatic recreation facilities to comply with PHTA-2 to have consistency among the I-codes.

Further, this proposal updates the swimming pool enclosures section of the IPMC in order to use terminology consistent with the ISPSC. The ISPSC uses the term *residential swimming pools* and not *private swimming pools*. It also removes the term *hot tub*, leaving the more encompassing term *spa,* which is consistent with other Group B proposals being put forward by BCAC and PMGCAC. The intent is to only use the term *spa* in all the I-codes, but for the ISPSC where the different types of spas are defined in order to address specific ISPSC code requirements only applicable to certain types of spas.

Finally, the proposal adds two definitions. The term *spa* uses the same definition that was adopted in Group A for the ISPSC via SP1-24, and is consistent with what is being proposed for all other I-codes through Group B proposals being put forward by BCAC and PMGCAC. The term *residential swimming pool* is defined exactly how it currently is defined in the ISPSC. This makes clear what type of swimming pool is required to meet the enclosure requirements found in Section 303.2, as well as making it clear that residential swimming pools are not included in the PHTA-2 requirement. Within PHTA-2, the Standard defines a public pool (along with the different classes of public pools) and aquatic recreation facility.

The PMGCAC recommends that the Code Correlation Committee assign a [SP] scoping to this section and to it's parent section.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is simply aligning requirements that will be in the 2027 ISPSC.

PM6-25

PM7-25

IPMC: CHAPTER 3, SECTION 301, 301.1, CHAPTER 4, SECTION 401, 401.1, CHAPTER 5, SECTION 501, 501.1, CHAPTER 6, SECTION 601, 601.1, CHAPTER 7, SECTION 701, 701.1

Proponents: Steven Orlowski, Sundowne Building Code Consultants, LLC, representing Self (sorlowski@sbcc.codes); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Property Maintenance Code

CHAPTER 3
GENERAL REQUIREMENTS

SECTION 301
GENERAL

Revise as follows:

301.1 Scope. ~~The provisions of this chapter shall govern the minimum conditions and the responsibilities of *persons* for maintenance~~ Maintenance of *structures*, equipment and *exterior property*shall comply with this chapter..

CHAPTER 4
LIGHT, VENTILATION AND OCCUPANCY LIMITATIONS

SECTION 401
GENERAL

401.1 Scope. ~~The provisions of this chapter shall govern the minimum~~Minimum conditions and standards for light, *ventilation* and ~~space for occupying a *structure*~~ occupancy limitations shall comply with this chapter.

CHAPTER 5
PLUMBING ~~FACILITIES AND FIXTURE~~ REQUIREMENTS

SECTION 501
GENERAL

501.1 Scope. ~~The provisions of this chapter shall govern the minimum plumbing~~Plumbing systems, equipment and facilities ~~and plumbing fixtures to be provided~~shall comply with this chapter.

CHAPTER 6
MECHANICAL AND ELECTRICAL REQUIREMENTS

SECTION 601
GENERAL

601.1 Scope. ~~The provisions of this chapter shall govern the minimum mechanical~~Mechanical and electrical appliances, equipment and systems shall comply with this chapter. ~~facilities and equipment to be provided.~~

CHAPTER 7
FIRE PROTECTION AND LIFE SAFETY SYSTEMS REQUIREMENTS

SECTION 701
GENERAL

701.1 Scope. ~~The provisions of this chapter shall govern the minimum conditions and standards for fire safety relating to *structures* and exterior *premises*, including fire safety facilities and equipment to be provided.~~Fire protection and life safety systems shall comply with this chapter.

Reason: Currently, there is inconsistency among all the I-Codes in how the scoping sections are written at the beginning of each chapter. The Code Correlation Committee requested a task group be formed to review the scoping section in all the I-Codes and determine if there would be a way to harmonize both the language and style across the model codes. The Scoping Task Group was formed and consisted of several members from the various Code Action Committees and interested parties (some with no client interest). The task group reviewed each chapter of the I-codes and after careful consideration, developed a format that could be incorporated and repeated for all the I-Codes.

As you will see in the proposed changes above, most of the chapters began with a style and format that was already consistent and was only slightly changed to give the scoping a more authoritative infliction. Where the chapter contained no scoping provisions, the task group added scoping language based on the content of the chapter. Where the existing scoping sections provided a laundry list of what is contained in the chapter, these list were reformatted into a list form to make it easier for users to see what information was contained.

The Scoping Task group proposes that the recommended changes will improve the code by:
1. Create consistency in language used in the scope for all the I-Codes.
2. Creates a scoping section for chapters that did not have one before to clarify what is covered by the chapter.
3. Clarify the items covered and not covered in the chapter, using consistent format to send the user to different chapter(s) or code(s).
4. Remove redundant administrative language from existing scoping sections.
5. Where there were extensive number of items outlined in the scoping section, the items are now broken out into a list format to make it easier for the reader to indicate what is contained in the chapter.

To the best of the task groups knowledge the proposed changes are editorial in nature and no requirements not already addressed in the existing scoping or in the chapter being referenced were added. As these proposed changes are editorial, there is no cost impact on the cost of construction.

This proposal is submitted with the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

As stated in our reason statement, these proposed changes are editorial, there is no cost impact on the cost of construction.

PM7-25

PM8-25

IPMC: 302.2

Proponents: Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Gregory Benton, NYS, representing Department of State, Division of Building Standards and Codes (gregory.benton@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov)

2024 International Property Maintenance Code

Revise as follows:

302.2 Grading and drainage. *Premises* shall be graded and maintained to prevent the erosion of soil and to prevent the accumulation of stagnant water thereon, or within any *structure* located thereon.
<u>Drainage water collected from a roof, awning, canopy or marquee, and condensate from mechanical equipment shall not flow over a public walking surface. Except as provided for in other regulations, storm water and ground water shall not be redirected in a manner which substantially increases the flow of water across a property line.</u>

Exception: *Approved* <u>storm water drainage systems,</u> retention areas and reservoirs.

Reason: Owners complain about how their property is being damaged by their neighbor who has significantly changed the way water flows onto the complainant's property. But those complainants are surprised when they are told that the same code that limits the weeds, noxious plants, inoperative motor vehicles and graffiti on their property doesn't limit how general runoff from a property can be redirected in a manner that creates a problem for neigbors.

When other regulations are absent, this proposal provides a default standard that preserves a property owner's ability to change the way unpolluted water drains on their property when that doesn't significantly change the way water drains off of their property. It helps to preserve the value of neighborhoods and the wellbeing of their occupants by helping to discourage careless, inconsiderate, and spiteful ways neighbors can drain water onto other properties.

This proposal includes an automatic deferral to other regulations that compete with this proposal's provisions.

Note: The part of the proposal that says "Drainage water collected from a roof, awning, canopy or marquee, and condensate from mechanical equipment shall not flow over a public walking surface" is a direct quote from Section 3201.4 of the '24 IBC.

Bibliography: https://www.bobvila.com/articles/french-drain-cost/#:~:text=Homeowners%20can%20expect%20to%20pay,to%20$100%20per%20linear%20foot.

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https://www.servicemasterrestore.com/servicemaster-kwik-cary/why-us/blog/2018/september/the-cost-of-cleaning-and-restoring-a-flooded-basement/#:~:text=The%20average%20cost%20to%20remove,and%20several%20other%20important%20factors.
https://www.angi.com/articles/how-much-does-it-cost-finish-basement.htm

https://www.bankrate.com/homeownership/cost-to-finish-basement/

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Savings of at least an average of $5000 per affected building is the estimated cost impact for this proposal.

Estimated Immediate Cost Impact Justification (methodology and variables):

There is no cost impact for the owner of the property that is diverting the source of their property's natural run-off. They are already diverting their water. But their drainage problem's costs are increased in proportion to its negative effects on other properties. The water that is being diverted to a part of a neighbor's property can be rediverted to another neighbor's property who then can redivert the water again to another neighbor's property ad-nauseum. The costs are multiplied by the number of properties that are being negatively affected by the drainage problem.

But this cost impact presumes that only one property is being affected by another properties diverted water and that they have prevented damage to their own property by immediately installing a curtain drain to redivert the water to another property. Of course, when the costs of repairs are not happening because they are not being needed, then the costs of those repairs are being eliminated, and the cost impact becomes a savings.

The national average cost for curtain drain projects is $5000.

The cost impact savings of an average of $5000 is low because it doesn't consider repairs for property damage. Changes to water flow can affect building foundations and dampen or even flood finished interior spaces. That's besides costs for drowned landscaping. Neighboring property owners often are not aware that water has been diverted onto them until AFTER a storm when the damage happens. Then the savings are an average of $18,000 for repairing flooded interiors plus the $5000 for rediverting the water onto a new victim when a public storm water drainage system isn't available for a total of around $23,000 average savings for each property that's negatively affected by a neighbor's water diversion project.

A cost savings would be significant for the neighborhood as one property's drainage problems won't be multiplied by each property onto which the problem cascades.

Estimated Life Cycle Cost Impact:

N/A

Estimated Life Cycle Cost Impact Justification (methodology and variables):

N/A

PM8-25

PM9-25

IPMC: 302.10 (New)

Proponents: Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Gregory Benton, NYS, representing Department of State, Division of Building Standards and Codes (gregory.benton@dos.ny.gov)

2024 International Property Maintenance Code

Add new text as follows:

302.10 Exterior Lighting. Except as provided for in other regulations, self-illuminated exterior light sources shall not radiate across property lines in a straight line from its source.

Exception: *Approved* temporary decorative lights, *approved* signs, and other lighting *approved* by the *code official.*

Reason: This provision is similar to the other provisions in Section 302 of the 2024 IPMC that limit some of the fundamental ways that properties harm their surroundings.

Enforcement of this proposal doesn't require any special tools or knowledge as it merely relies on what can be easily seen from outside of a property. Owners and code officials merely need to try directly seeing the light source, such as a light bulb, from the property's edge to determine compliance. Compliance for a light can be achieved by the angle of its fixture or by the placement of a shade.

This proposal includes an automatic deference to other regulations and local polices that may exist so local sensibilities are respected.

A property's lights are often needed, but they can be blinding.

That can be dangerous for vehicle traffic. Although a property's blinding lights can cause drivers to slow down, that is not a safe traffic calming method.

A neighbor's blinding lights can obscure an exit discharge for the occupants of another property's building.

The return on investment that businesses have in their signs is reduced by a neighbor's blinding lights, which can obscure the signs from view. Businesses are then motivated to have more brightly lit signs, which may cause a competition to have the brightest signs.

Although a property's lights may provide privacy by blinding anyone who is looking towards them, those lights may also invade the privacy of neighbors whose properties become brightly illuminated without their consent. There are less disruptive ways to have privacy.

The glare from a property's lights may reduce the usefulness of their neighbor's buildings. For example, the ability for an occupant of a bedroom or sleeping unit to sleep with their lights off and their shades open so the sun will wake them up in the morning may be ruined by the glare of neighboring lights shining into their window through the night. Another example is the view that attracts customers to a restaurant, which can be obscured by a neighbor's blinding lights.

Property owners even install lights to purposefully blind the public and neighbors (a.k.a. spite-lights).

Passersby and neighbors who complain about a property's blinding lights are often surprised when they are told that the same code that limits weeds, noxious plants, inoperative motor vehicles and graffiti doesn't limit the effect that blinding lights from a property can have on the public and neighbors.

When other regulations are absent, this proposal provides a default simple standard that both preserves a property owner's ability to illuminate their own property and protects the public and neighbors from the hazard of blinding lights. The safety of traffic, the usefulness of signs, the value of neighborhoods and the wellbeing of their occupants are preserved by protecting the safe function of the built environment from blinding lights. This proposal automatically defers to other regulations and local polices.

Determining when light is blinding may be subjective. But blinding light usually comes directly from internally illuminated sources such as light bulb's filament, LED chips, florescence, or electrical arc. So, when a property's light sources cannot be directly seen from another property, then a significant source of blinding light that effect the public and neighbors is eliminated. This proposal applies only to exterior light sources.

So, this proposal limits the hazard that may be created by lights that shine onto other properties while preserving a property owner's ability to illuminate their own property. The only light that is affected comes directly from internally illuminated sources.

Bibliography: https://gizmodo.com/a-brief-history-of-buildings-that-melt-things-1247657178
Gibraltar Building Products 14 in. x 10 ft. Aluminum Roll Valley Flashing 999-10-14 - The Home Depot
Rust-Oleum Specialty 1 qt. High Heat Flat Bar-B-Que Black Enamel Interior/Exterior Paint 7778502 - The Home Depot
Teks No. 8 in. X 1/2 in. L Hex Hex Washer Head Sheet Metal Screws 280 pk Mfr# 21308 - Ace Hardware
2" x 50 yards Flame Retardant Aluminum Foil Tape

Straight Cut Aviation Snip

Cost Impact: Increase

Estimated Immediate Cost Impact:

An average of $7.53 to correct each non-compliant light fixture is the estimated cost impact.

Estimated Immediate Cost Impact Justification (methodology and variables):

Light fixtures that are designed for indirect lighting are already common because that kind of lighting is in demand. A cursory review of the many kinds of light fixtures being shown for sale on the internet suggests that there isn't a correlation between the costs of lighting fixtures and the amount of glare shielding that they provide. Like any product, those shades can be custom, elaborate, expensive, or be simple and cheap. Exterior light shades can even be simple do-it-yourself solutions using a wide variety of common and inexpensive materials.

The cost estimate being provided here presumes that every light fixture needs to be modified using 1-hour of a laborer's time. At least 10 light sources and probably much more can be modified using the following supplies:

1. 1-hour of minimum wage time; $7.25

2. 14 in. x 10 ft. Aluminum Roll Valley Flashing from Home Depot; $15

3. HFT 50 yds. x 2 in. Flame Retardant Aluminum Foil Tape from Harbor Freight; $7

4. PITTSBURGH Straight Cut Aviation Snips from Harbor Freight; $5

5. 1 qt. High Heat Flat Bar-B-Que Black Enamel Interior/Exterior Paint from Home Depot; $27

That generous list of supplies can probably be used to modify much more than just 10 light sources. For example, the paint can be applied to the offending sides of hundreds of 100-watt bulbs without any further materials or effort. But this cost estimate presumes that folks don't want to risk reducing the lifetime of their incandescent light bulbs and so other materials are included to construct many varieties and configurations of exterior light visors.

Estimated Life Cycle Cost Impact:

N/A

Estimated Life Cycle Cost Impact Justification (methodology and variables):

N/A

PM9-25

PM10-25

IPMC: 304.1

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.1 General. The exterior of a *structure* shall be ~~maintained in good repair,~~structurally sound and ~~sanitary~~ maintained in good repair. ~~so as not to pose a threat to the public health, safety or welfare.~~

Reason: Removed the word "sanitary" because it is not normally associated with the maintenance of the exterior of a building. Changed sentence order to be consistent throughout the book. Removed commentary.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial in nature and will not change enforcement of the provision.

PM10-25

PM11-25

IPMC: 304.1.1, 305.1.1

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

304.1.1 Potentially unsafe conditions. The following conditions shall be considered to be potentially unsafe, shall be assessed and, if determined to be unsafe, shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code* or the *International Building Code* :

1. Structural members have *deterioration* or distress that appears to reduce their load-carrying capacity.
2. The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations has *deterioration* or distress that appears to reduce its load-carrying capacity.
3. *Structures* or components thereof have *deterioration* or distress that appears to reduce their load-carrying capacity.
4. Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or watertight.
5. Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.
6. Exterior walls that are not *anchored* to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.
7. Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of *deterioration*, fatigue or without proper *anchorage* and incapable of supporting all nominal loads and resisting all load effects.
8. Flooring and flooring components with defects that affect serviceability or flooring components that show signs of *deterioration* or fatigue, are not properly *anchored* or are incapable of supporting all nominal loads and resisting all load effects.
9. Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.
10. Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs, awnings, fire escapes, standpipes and exhaust ducts not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.
11. Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including *guard*s and handrails, are not structurally sound, not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.
12. Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly *anchored*, or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

Exception~~Exceptions~~:

~~1. Where substantiated otherwise by an *approved* method.~~

~~2.~~ Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

Revise as follows:

305.1.1 Potentially unsafe conditions. The following conditions shall be considered to be potentially unsafe, shall be assessed and, if determined to be unsafe, shall be addressed in compliance with the *International Existing Building Code* , the *International Residential*

Code or the *International Building Code* :

1. Structural members have *deterioration* or distress that appears to reduce their load-carrying capacity.
2. The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations has *deterioration* or distress that appears to reduce its load-carrying capacity.
3. *Structures* or components thereof have *deterioration* or distress that appears to reduce their load-carrying capacity.
4. Stairs, landings, balconies and all similar walking surfaces, including *guards* and handrails, are not structurally sound, not properly *anchored* or are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.
5. Foundation systems that are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.

Exception~~Exceptions~~:

~~1.~~ ~~Where substantiated otherwise by an *approved* method.~~

~~2.~~ Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

Reason: Both of these sections provide a laundry list of *potentially* unsafe conditions. So these *potentially* unsafe conditions are required to be assessed to see if they are actually unsafe conditions. Right now, the current language requires all of these conditions to be addressed in accordance with the IEBC, IRC or the IBC by default. Yes, there is a footnote that can get you out of jail free, but it's buried at the bottom. This proposal adds the words "if determined to be unsafe" so that if the potentially unsafe condition is determined to be unsafe, then it is required to be addressed, but potentially unsafe conditions that turn out not to be unsafe clearly do not need to be addressed. The default condition for potentially unsafe conditions should not be "it is unsafe". It should be neutral: Maybe it's unsafe. Maybe it's not. Find out and fix the unsafe stuff.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Either this proposal will result in no change because the intent was always for only conditions that are actually unsafe to be addressed and that is how it has always been interpreted, or it will reduce costs because conditions that are actually not unsafe will not be required to be addressed.

PM11-25

PM12-25

IPMC: 304.1.1, 305.1.1

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Revise as follows:

304.1.1 Potentially unsafe conditions. The following conditions shall be considered to be potentially unsafe, shall be assessed and shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code* or the *International Building Code* :

1. Structures, structural members, or components thereof have *deterioration* or distress that appears to reduce their load-carrying capacity.
2. The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations has *deterioration* or distress that appears to reduce its load-carrying capacity.

~~3. *Structures* or components thereof have *deterioration* or distress that appears to reduce their load-carrying capacity.~~

3 ~~4~~. Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or watertight.

4 ~~5~~ . Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.

5 ~~6~~. Exterior walls that are not *anchored* to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.

6 ~~7~~. Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of *deterioration*, fatigue or without proper *anchorage* and incapable of supporting all nominal loads and resisting all load effects.

~~8. Flooring and flooring components with defects that affect serviceability or flooring components that show signs of *deterioration* or fatigue, are not properly *anchored* or are incapable of supporting all nominal loads and resisting all load effects.~~

7 ~~9~~. Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

8 ~~10~~. Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs, awnings, fire escapes, standpipes and exhaust ducts not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

9 ~~11~~. Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including *guard*s and handrails, are not structurally sound, not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

10 ~~12~~. Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly *anchored*, or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

305.1.1 Potentially unsafe conditions. The following conditions shall be considered to be potentially unsafe, shall be assessed and shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code* or the *International Building Code* :

1. Structures, structural members, or components thereof, have *deterioration* or distress that appears to reduce their load-carrying capacity.
2. The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations has *deterioration* or distress that appears to reduce its load-carrying capacity.

~~3. *Structures* or components thereof have *deterioration* or distress that appears to reduce their load-carrying capacity.~~

3 ~~4~~. Stairs, landings, balconies and all similar walking surfaces, including *guards* and handrails, are not structurally sound, not properly *anchored* or are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

4 ~~5~~. Foundation systems that are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

Reason: This proposal consolidates and deletes duplicative content from the laundry lists in Section 304.1.1.

Specifically, it deletes Item 3 in both lists and moves "Structures" and "components thereof" into Item 1. Technically, we could have proposed to delete Item 3 in its entirety because Item 1 already covers Item 3. For example, if a structure is unsafe due to deterioration or distress, the structure is only unsafe because its structural members are unsafe due to deterioration or distress. Similarly, since if a "component thereof [a structure]" is unsafe due to detrioration or distress such that its load carrying capacity, it must be a structural member (because it has a load carrying capacity) that is unsafe due to deterioration or distress. Nevertheless, even though Item 3 is already covered by Item 1, we wanted to be sure, so we added "Structures" and "components thereof" to Item 1 and deleted Item 3 as superfluous.

Item 8 is also superfluous and duplicative. First of all, this Item is in Section 304, Exterior Structure, so it can only involve flooring and flooring components in exterior elements, so basically just stairs, balconies, porches, and decks. Those items are already covered in Item 11, which deals with "Exterior stairs, decks, porches, balconies" that "are not structurally sound". Finally, this change eliminates the wording that has "flooring" being unsafe. Flooring is a floor covering, and it is nonstructural in nature and really cannot be unsafe. What was likely meant was "floor framing", but we don't even need to go there because Item 11 already covers it.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Clearly this is just an editorial change that streamlines the code and makes it easier to read and understand. There is no cost element associated with this.

PM12-25

PM13-25

IPMC: 304.1.1

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Revise as follows:

304.1.1 Potentially unsafe conditions. The following conditions shall be considered to be potentially unsafe, shall be assessed and shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code* or the *International Building Code* :

1. Structural members have *deterioration* or distress that appears to reduce their load-carrying capacity.
2. The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations has *deterioration* or distress that appears to reduce its load-carrying capacity.
3. *Structures* or components thereof have *deterioration* or distress that appears to reduce their load-carrying capacity.

~~4. Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or watertight.~~

4 ~~5~~. Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.

5 ~~6~~. Exterior walls that are not *anchored* to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.

6 ~~7~~. Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of *deterioration*, fatigue or without proper *anchorage* and incapable of supporting all nominal loads and resisting all load effects.

7 ~~8~~. Flooring and flooring components with defects that affect serviceability or flooring components that show signs of *deterioration* or fatigue, are not properly *anchored* or are incapable of supporting all nominal loads and resisting all load effects.

8 ~~9~~. Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

9 ~~10~~. Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs, awnings, fire escapes, standpipes and exhaust ducts not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

10 ~~11~~. Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including *guard*s and handrails, are not structurally sound, not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

11 ~~12~~. Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly *anchored*, or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects.

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

Reason: This proposal deletes one of the laundry list items in Section 304.1.1 that makes no sense. The presence of siding joints or masonry joints does not make a structure or premises unsafe. While it is true that such joints may make a structure drafty, or perhaps allow water in, that also does not make the structure unsafe. If sufficient water enters a structure through any means -- whether joints in siding, joints in masonry, holes in the roof, leaks in the below-grade walls, leaks through breaks in windows, leaks in plumbing -- such leakage can result in deterioration and distress and damage, but it is the deterioration, distress, and damage that makes a structure unsafe, not the leak, and not a joint in the siding or a joint in the masonry.

Note that the deletion of Item 4 is not a significant change. If leaks in siding or masonry occur and cause deterioration, distress, or damage to any structural element, that will still be captured by the other items in the laundry list.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The content in Item 4 is already sufficiently covered by the remaining Items. So there is no technical change; we are just deleting a superfluous item in a laundry list. This will have no cost consequences.

PM13-25

PM14-25

IPMC: 304.1.1, 305.1.1

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Revise as follows:

304.1.1 Potentially unsafe conditions. The following conditions shall be considered to be potentially unsafe, shall be assessed and shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code* or the *International Building Code* :

1. Structural members have *deterioration* or distress that appears to meet the definition of *dangerous* ~~reduce their load-carrying capacity~~.
2. The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations has *deterioration* or distress that appears to meet the definition of *dangerous* ~~reduce its load-carrying capacity~~.
3. *Structures* or components thereof have *deterioration* or distress that appears to meet the definition of *dangerous* ~~reduce their load-carrying capacity~~.
4. Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or watertight.
5. Foundation systems that appear to meet the definition of *dangerous* ~~are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects~~.
6. Exterior walls that appear to meet the definition of *dangerous* ~~are not *anchored* to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects~~.
7. Roofing or roofing components that appear to meet the definition of *dangerous* ~~have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of *deterioration*, fatigue or without proper *anchorage* and incapable of supporting all nominal loads and resisting all load effects~~.
8. Flooring and flooring components that appear to meet the definition of *dangerous* ~~with defects that affect serviceability or flooring components that show signs of *deterioration* or fatigue, are not properly *anchored* or are incapable of supporting all nominal loads and resisting all load effects~~.
9. Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features that appear to meet the definition of *dangerous* ~~not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects~~.
10. Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs, awnings, fire escapes, standpipes and exhaust ducts that appear to meet the definition of *dangerous* ~~not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects~~.
11. Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including *guard*s and handrails, that appear to meet the definition of *dangerous* ~~are not structurally sound, not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects~~.
12. Chimneys, cooling towers, smokestacks and similar appurtenances that appear to meet the definition of *dangerous* ~~not structurally sound or not properly *anchored*, or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects~~.

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

305.1.1 Potentially unsafe conditions. The following conditions shall be considered to be potentially unsafe, shall be assessed and shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code* or the *International Building Code* :

1. Structural members have *deterioration* or distress that appears to meet the definition of *dangerous* ~~reduce their load-carrying capacity~~.
2. The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations has *deterioration* or distress that appears to meet the definition of *dangerous* ~~reduce its load-carrying capacity~~.
3. *Structures* or components thereof have *deterioration* or distress that appears to meet the definition of *dangerous* ~~reduce their load-carrying capacity~~.
4. Stairs, landings, balconies and all similar walking surfaces, including *guards* and handrails, that appear to meet the definition of *dangerous* ~~are not structurally sound, not properly *anchored* or are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects~~.
5. Foundation systems that appear to meet the definition of dangerous ~~are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects~~.

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

Reason: The existing language in Sections 304.1.1 and 305.1.1 is extremely clunky and problematic. For example, in Section 304.1.1, Items 1, 2, and 3 talk about having distress or deterioration that appears to reduce an element's load carrying capacity. But that is not a good flag because many things can reduce a structural member's capacity, oftentimes by a negligible amount. Really what everyone should be worried about is deterioration or distress that appears to rise to the level of *dangerous*. Dangerous is a defined term in the IPMC now, so we should be using it.

Similarly, Items 5, 6, 7, 8, 9, 10, 11, and 12 all talk about elements that "are not capable of supporting all nominal loads and resisting all load effects." But that is not a good measuring stick. The term "nominal loads" is defined in the IBC as "The magnitudes of the loads specified in Chapter 16 (dead, live, soil, wind, snow, rain, flood and earthquake)," but that would mean that we are asking all exising buildings to be able to resist the full, LRFD-level wind loads, the full LRFD-level earthquake loads, the full flood loads, the full tornado loads, and even the full tsunami loads as defined in current code. Not even a brand new building is assured of being able to support the full earthquake loads, and older buildings were typically not designed to be able to resist all current code-required loads.

The term "all load effects" is defined in the IEBC as "Forces and deformations produced in structural members by the applied loads." So this again invokes the loads required by the IBC for new buildings. And since "applied loads" is not defined, it could be taken to mean "whatever forces might be applied, those are the applied loads" and that could be even larger than required by the building code for new construction.

Further, even if we think that capturing the fact that older structures likely cannot "support all nominal loads and resist all load effects" is the intent of these laundry lists, that still does not make sense because the definition of *unsafe* in the IBC is fairly well defined, and the structural aspects of *unsafe* are those conditions that are *dangerous*. So all the current iterations of these laundry lists do is confuse the issue, overlaying current code requirements on existing buildings, resulting in confusion because these items do not match the definition of *dangerous*, and therefore do not match the definition of *unsafe*.

Consequently, what we are proposing is to eliminate these problematic words and replace them with a defined term -- *dangerous*. So if something looks like it might meet the definition of *dangerous*, the condition can be investigated to see if it does, and if it does, it is also considered to be *unsafe*, and that will necessitate certain actions on the part of the code official, the building owner, and others.

This proposal also eliminates some of the other less logical portions of the list -- like the use of the term "properly anchored" (which is not defined) and "firmly supported" (also not defined) and "free from open cracks and breaks" (which are not unsafe in and of themselves). Finally, the proposal removes the awkwards differentiation between "not properly anchored" and "anchored with connections that are not capable of supporting all nominal loads and resisting all load effects." Either way, if the connection is sufficiently weak that the term *dangerous* applies, then the condition qualifies as *unsafe*.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a just a long-overdue cleanup of terms that are used inconsistently, sometimes in conflict with the actual criteria against which the components should be judged. It does not appear that these are technically substantive changes from the original intent; however, if they are, they likely reduce the cost of construction (i.e., repairs) as opposed to increasing it.

PM14-25

PM15-25

IPMC: 304.2, 304.2.1 (New), 304.2.2 (New), 304.2.3 (New), 304.2.4 (New), SECTION 202 (New)

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.2 Protective treatment. Exterior surfaces, including but not limited to, wall cladding, doors, door and window frames, cornices, porches, trim, balconies, decks and fences, shall be protected from weathering and maintained in good ~~condition~~repair. ~~Exterior wood surfaces, other than decay-resistant woods, shall be protected from the elements and decay by painting or other protective covering or treatment. Peeling, flaking and chipped paint shall be eliminated and surfaces repainted. Siding and masonry joints, as well as those between the building envelope and the perimeter of windows, doors and skylights, shall be maintained weather resistant and water tight. Metal surfaces subject to rust or corrosion shall be coated to inhibit such rust and corrosion, and surfaces with rust or corrosion shall be stabilized and coated to inhibit future rust and corrosion. Oxidation stains shall be removed from exterior surfaces. Surfaces designed for stabilization by oxidation are exempt from this requirement.~~

Add new text as follows:

304.2.1 Exterior wood surfaces. Exterior wood surfaces shall be painted, treated or protected in an approved manner.

Exception: *Decay resistant* wood.

304.2.2 Painted surfaces. Peeling, flaking and chipped paint shall be eliminated and surfaces repainted.

304.2.3 Siding and masonry joints. Siding and masonry joints, as well as those between the building envelope and the perimeter of windows, doors and skylights shall be maintained weather resistant and water tight.

304.2.4 Metal surfaces. Metal surfaces subject to rust or corrosion shall be coated to inhibit such rust and corrosion, and surfaces with rust or corrosion shall be stabilized and coated to inhibit future rust or corrosion. Oxidation stains shall be removed from exterior surfaces.

Exception: Surfaces designed for stabilization by oxidation.

Add new definition as follows:

NATURALLY DURABLE WOOD. The heartwood of the following species with the exception that an occasional piece with corner sapwood is permitted if 90 percent or more of the width of each side on which it occurs is heartwood.

Decay resistant.
Redwood, cedar, black locust and black walnut.
Termite resistant. Alaska yellow cedar, redwood, Eastern red cedar and Western red cedar including all sapwood of Western red cedar.

Reason: The changes are largely editorial. The paragraph has been broken into subsections to make it easier to understand. "Wall claddings" have been added to clarify that they should be maintained. The definition for decay resistant wood has been copied from the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed changes are editorial and will not affect enforcement of this provision.

PM16-25

IPMC: 304.8

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.8 Decorative features. Cornices, belt courses, corbels, terra cotta trim, wall facings and similar decorative features shall be *anchored* and maintained in good repair ~~with proper *anchorage* and in a safe condition~~.

Reason: Anchorage is not consistent with the remainder of the book. If an element is anchored and in good repair, it would be reasonable to assume that it is also safe.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Changes are editorial in nature and will not change enforcement of the provision.

PM16-25

PM17-25

IPMC: 304.9

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

304.9 Overhang extensions. Overhang extensions including, but not limited to, canopies, marquees, signs, metal awnings, fire escapes, standpipes and exhaust ducts shall be ~~maintained in good repair and be properly~~ *anchored* ~~so as to be kept in a sound condition~~ and maintained in good repair. ~~Where required, all exposed surfaces of metal or wood shall be protected from the elements and against decay or rust by periodic application of weather-coating materials, such as paint or similar surface treatment.~~

Reason: The protective treatment is covered in 304.2 and unnecessary here. Editorial changes were made to be consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial and will not change enforcement of the provision.

PM17-25

PM18-25

IPMC: 304.10

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.10 Stairways, decks, porches and balconies. ~~Every exterior stairway, deck, porch and balcony~~ Exterior stairways, decks, porches and balconies, and all appurtenances attached thereto, shall be ~~maintained~~ *anchored*, structurally sound and maintained in good repair ~~with proper *anchorage* and capable of supporting the imposed loads~~.

Reason: Changed language to be consistent throughout the book. "capable of carrying imposed loads" is synonymous with "structurally sound".

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial in nature and will not change enforcement of this provision.

PM18-25

PM19-25

IPMC: 304.11

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.11 Chimneys and towers. Chimneys, cooling towers, smoke stacks, and similar appurtenances shall be ~~maintained~~ structurally ~~safe and~~ sound~~,~~ and maintained in good repair. ~~Exposed surfaces of metal or wood shall be protected from the elements and against decay or rust by periodic application of weather-coating materials, such as paint or similar surface treatment.~~

Reason: Changes were made to be consistant throughout the book. The last sentence is not needed because it is covered in 304.2.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial and will not change enforcement of the provision.

PM19-25

PM20-25

IPMC: 304.12

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.12 Handrails and guards. ~~Every handrail~~Handrails and *guards* shall be ~~firmly fastened~~anchored,~~and capable of supporting normally imposed loads~~ structurally sound and~~ shall be~~ maintained in good ~~condition~~repair.

Reason: Editorial changes were made to be consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial in nature and will not change enforcement of the provision.

PM20-25

PM21-25

IPMC: 304.13

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.13 <u>Windows, skylights and doors</u> ~~Window, skylight and door frames~~. ~~Every window~~<u>Windows</u>, ~~skylight~~ <u>skylights</u>, ~~door~~ <u>doors</u> and ~~frames~~<u>related components</u> shall be ~~kept in sound condition, good repair and~~ weathertight <u>and maintained in good repair</u>.

Reason: The changes are editorial. "Sound condition" and "good repair" are synonymous.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial in nature and will not change enforcement of the provision.

PM21-25

PM22-25

IPMC: 304.13.2

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.13.2 ~~Openable~~ Operable windows. ~~Every~~ Operable ~~window~~ windows~~, other than a fixed window,~~ shall ~~be easily openable~~ open easily and be capable of being held in position by window hardware.

Reason: "Operable" is a better term than "openable". Changed wording to make it more readable.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Changes are editorial and do not change the enforcement of this provision.

PM22-25

PM23-25

IPMC: 304.15

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.15 Doors. Exterior doors, door assemblies, operator systems ~~if provided~~, and hardware shall be maintained in good ~~condition~~ repair. Locks at all entrances to *dwelling units* and *sleeping units* shall tightly secure the door. ~~Locks on means of egress doors shall be in accordance with Section 702.3.~~

Reason: Changed condition to repair to be consistent throughout the book. Eliminated unnecessary content for simplification.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Changes are editorial and do not impact enforcement.

PM23-25

PM24-25

IPMC: 304.16

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.16 Basement hatchways. ~~Every *basement* hatchway~~ Basement hatchways shall be maintained in good repair to prevent the entrance of rodents, rain and surface drainage water.

Reason: Editorial changes to maintain consistency throughout the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Changes are editorial in nature and will not change enforcement.

PM24-25

PM25-25

IPMC: 304.17

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.17 Guards for basement windows. ~~Every *basement* window that is openable~~ Operable *basement* windows shall be supplied with rodent shields, storm windows or other *approved* protection against the entry of rodents.

Reason: Changed text to be consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This editorial change will not change enforcement of this provision.

PM25-25

PM26-25

IPMC: 304.18

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.18 Building security. Doors, windows ~~or~~and hatchways for *dwelling units*, *room*ing *units* ~~or~~ and *housekeeping units* shall be provided with devices designed to provide security for the *occupant*s and property within.

Reason: Corrected errors editorial in nature. I also added a provision for securing storage areas as they appear to not be covered in the code. Security of personal belongings not located in the unit should be of importance also.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

A cleanup of the language without changing the intent of the code section will not affect the cost of compliance.

PM26-25

PM27-25

IPMC: 304.18.1

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.18.1 Doors. Doors providing access to an individual *dwelling unit, rooming unit* or *housekeeping unit* that is rented, leased or *let* ~~where~~shall be equipped with a deadbolt lock, the deadbolt shall be designed to be readily openable from the side from which egress is to be made without the need for keys, special knowledge or effort and shall have a minimum ~~lock~~ throw of 1 inch (25 mm). ~~Such deadbolt~~ Deadbolt locks shall be installed according to the manufacturer's specifications and maintained in good working order. ~~For the purpose of this section, a sliding bolt~~ Sliding bolts shall not be considered an acceptable deadbolt lock.

Reason: The changes made to the 2021 text do not make sense. I restored the language requiring a deadbolt lock on entrance doors. There are also editorial changes to make language consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Most changes are editorial in nature. The requirement is reset to the 2021 code.

PM27-25

PM28-25

IPMC: 304.19

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

304.19 Gates. Exterior gates~~,~~ and gate assemblies~~, operator systems if provided, and hardware~~ shall be maintained in good ~~condition~~ repair. Latches ~~at all entrances~~ shall tightly secure the gates.

Reason: In my opinion, gate assemblies cover the operator and hardware. Editorial changes made to be consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Changes are editorial and do not change enforcement of the provision.

PM28-25

PM29-25

IPMC: 304.19, 304.19.1 (New), 304.19.2 (New), 304.19.3 (New), 304.19.4 (New), ASTM Chapter 08 (New), UL Chapter 08 (New)

Proponents: Catherine Mills-Reynolds, American Fence Association, representing AFA (catherine@americanfenceassociation.com); Ben Shirley, Ameristar Perimeter Security, representing ASTM F14 (ben.shirley@assaabloy.com); Dave Monsour, Thomas Associates, representing DASMA (dmonsour@thomasamc.com); Richard Sedivy, DoorKing, Inc., representing DASMA (rsedivy@doorking.com); Kevin Ward, Miller Edge Inc, representing American Fence Association (kward@milleredge.com); Don Jeppson, representing City of San Rafael (don.jeppson@cityofsanrafael.org); Scott Kinney, D&D Technologies, representing ASTM F14.15 Gates (skinney@ddtechusa.com); Eric Quanbeck, representing The Hummingbird Alliance (eric.m.quanbeck@gmail.com)

2024 International Property Maintenance Code

Revise as follows:

304.19 Gates. Exterior gates, gate assemblies, operator systems if provided, and hardware shall be maintained in good condition. Latches at all entrances shall tightly secure the gates. Horizontal side, swing and automatic vehicle gates shall comply with Sections 304.19.1 through 304.19.4, as applicable.

Add new text as follows:

304.19.1 Horizontal Slide Gates. A manual slide gate installed in an opening more than 48 inches (1219 mm) measured horizontally or 84 inches (2134 mm) or greater measured vertically shall be maintained in accordance with the following:

1. The gate shall not fall over more than 45 degrees from the vertical plane when detached from the supporting hardware.
2. Positive stops shall be required to limit travel to the designed fully open and fully closed positions. These stops shall be installed at either the top of the gate, or at the bottom of the gate where such stops shall horizontally or vertically project no more than is required to perform their intended function.
3. All weight bearing exposed rollers 8 feet (2.44 m), or less, above grade shall be guarded or covered
4. Gate movement shall not be initiated by gravity in either lineal direction of its travel.
5. Gates shall have sufficient lateral stability to assure that the gate will enter a receiver guide, where provided.
   - 5.1. Single Panel Gates: Receiver guides shall be recessed behind the leading edge of the receiver post or fixed object.

     Exception: Receiver guides mounted greater than 8 feet (2.44 m) above grade shall not be required to comply with this section.
   - 5.2. Dual Panels: Reciever guide installed on either panel, shall include a cross-sectional area of 9 square inches (5806 mm^2) or greater as measured on the leading edge of each guide.
6. Openings shall be designed, guarded, or screened from the bottom of the gate to the top of the gate or a minimum of 72 inches (1.83 m) above grade, whichever is less, to prevent a 2 ¼ inches (57 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position. The gate panel shall include the entire section of the moving gate, including any back frame or counterbalance portion of the gate.
7. A gap, measured in the horizontal plane parallel to the roadway, between a fixed stationary object nearest the roadway , such as a gate support post, and the gate frame when the gate is in either the fully open position or the fully closed position, shall not exceed 2 ¼ inches (57 mm).

304.19.2 Manual Swing Gates. A manual swing gate providing access to a facility, building or a portion thereof having one or more gate leaves more than 48 inches (1219 mm) in width or 84 inches (2134 mm) or greater in height shall be maintained in accordance with the following:

1. The hinge side of the gate shall be fitted with an anti-drop device so the gate shall not move downwards more than 12 inches (305 mm) in the case of a hinge separation.
2. Positive stops shall be required to limit travel to the designed fully open positions.
3. Gate keepers shall securely retain gate leaf in the fully open position.
4. Gate latches shall securely retain gate leaf in the fully closed position.
5. The minimum height for barbed wire shall not be less than 6 feet (1.83 m) above grade.
6. The minimum height for barbed tape shall not be less than 8 feet (2.44 m) above grade.
7. Gates shall have smooth bottom edges, with vertical bottom edged protrusions not exceeding 1/2 inch (12.7 mm).
8. Protrusions shall not be permitted on any gate.

   Exceptions:

   1. Vertical bottom edge protrusions permitted by Item 7.
   2. Gate locks and latches shall not be considered protrusions.
   3. Protrusions at the leading vertical gate edge shall not exceed 1/2 inch (12.7 mm), and shall be smooth on all surface with no sharp edges.
   4. Top pickets and top decorative designs shall not be considered protrusions, provided they are in a vertical plane with respect to the gate. Protrusions extending outside the vertical plane shall be permitted, provided such protrusions are located 7 feet (2.13 m) or more above grade.

9. Gates shall be designed, constructed, and installed such that their movement shall not be initiated by gravity.
10. Horizontal swing gates shall not result in continuous, unimpeded movement in either direction along the arc of its path of travel.

304.19.3 **Automatic Vehicular Gates.** Automatic vehicular gates assemblies shall be maintained in accordance with ASTM F2200 or UL 325.

304.19.4 **Inspection.** Exterior gates installed in an opening more than 48 inches (1219 mm) in width or 84 inches (2134 mm) or greater in height, and automatic *vehicular gates*, shall be inspected by the *code official*, registered design professional, or an *approved agency* every five years in accordance with Sections 304.19.1, 304.19.2, 304.19.3. Repair, alteration, or replacement of such gates shall be performed in accordance with this section and the *International Building Code* or *International Residential Code*

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

ASTM F2200-20	Standard Specification for Automated Vehicular Gate Construction
UL325-2017	Door, Drapery, Gate, Louver and Window Operators and Systems—with Revisions through February 2020

Reason: Reason Statement:

Gates are used, and depended on for our safety and security, throughout our society. Be it for residential use, at a sports arena, on schoolgrounds, a public park, in a parking garage, at a factory, in a multi-family dwelling or countless other applications, people are potentially in contact with a gate every day. Gates are so commonplace that most people don’t think twice about their ability to operate safely until something goes wrong. This is why it is of paramount importance that gates are designed and installed to the highest safety standard.

The need for safe, functioning gates has been underscored in recent years with stories like that of, Alex Quanbeck, the 7-year-old child who was killed by a poorly maintained gate in his school yard at recess in San Rafael, California. Under deeper review, it has been discovered that numerous fatalities and life-altering injuries have occurred in the United States because of these gate issues. A map of known gate fatalities and serious injuries from gates is provided from the Hummingbird Alliance (www.thehummingbirdalliance.com).

Having knowledge of the scope of this problem, ASTM International's F14 Committee on Fences, (which also holds jurisdiction for gate standards) updated their manual gate standards to reflect new safety requirements on slide gates (ASTM F1184) and swing gates (ASTM F900). ASTM had already updated its electric gate standard (ASTM F2200) to meet new requirements in 2002.

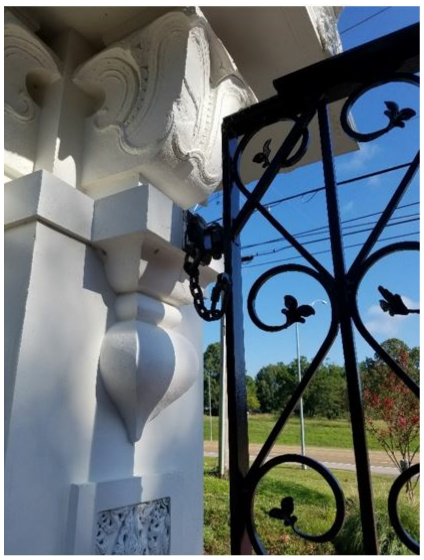
Cal/OSHA is currently reviewing these standards as well, to potentially include them in their own rules. While they do have a rule on gates, (Title 8 section 3324) it does not currently contain the provisions laid out in our proposal. In assessing these potential new standards, they reviewed some of their own accident data and found that their data from 1990 through 2005, showed that 15 out of 31 incidents (48%) involved failed or missing end stops/positive stops of gates. They then compared this data from data collected from 2014 through 2024 and found that 13 out of 16 incidents (81%) involved failed or missing end-stops/positive-stops of gates.

Because of these factors, they determined that, "The relatively low decrease in serious injuries and fatalities per year of only 8.2 percent after the promulgation of section 3324 in 2007 illustrates the need to amend and improve section 3324 to better protect California workers" (DOSH Evaluation, 2024).

The standards we are requesting be adopted would in no way impede first responders in accessing a property, in fact ensuring a gate is functioning properly would only provide them with safer and easier ingress and/or egress. It is when these gates go without the proper safety requirements, they are likely to fail to operate as intended or run the risk of injuring those who use them.

The ICC/AFA Gate Safety Code Development Work Group consists of a wide range of gate and security experts, consumers and code enforcement officials, who have diligently reviewed ASTM standards, current safety standards and the I-Codes to confirm that this addition to the I-Codes is needed and non-duplicative. The work group decided to alter the existing section 3110 to include all gates as well as maintaining the provision currently in place for automatic vehicular gates. The new provision would only apply to gates that are 7' (84 inches) in height or greater OR 4' (48") in length or greater. The code change references industry approved national standards for gate design and construction ASTM F900 for Swing Gates and ASTM F1184 for Slide Gates. The code also includes two new standards to be referenced in Chapter 35 that are necessary for the code change. The group also looked at where gates are required for permitting and inspection and discovered that gates are not specifically referenced in the permit exemption list in Section 105. The group decided to clarify that fences and gates are unique in their own application and as such both need specific permit exceptions.

The general requirements for Swing Gates require a keeper in accordance with ASTM F900. The gate keeper is a mechanical device for securing the free end of the gate when in the fully open position. The compliance for swing gates could be a chain connected to both the gate frame and the end post (or column/structure to which the gate is attached), see the pictures below.



The general requirements for slide gates in accordance with ASTM F1184 include:

A performance statement that gates that are installed shall not fall over more than 45 degrees from the vertical plane;

Positive stops to limit travel;

Weight bearing rollers are covered;

Gap no greater then 2-1/4”;

Gates designed for lateral stability; and

Gates design that will not move under the force of gravity.

Please see pictures below of ASTM 1184 compatible gates. Two options for fall post are shown. The first is the standard post cemented in the ground; it is the post with the yellow cap. The second is of an upside-down J bracket that has been welded on.


(Receiver Guide/ Gate Stop Below)

These standards and the code change proposal only address swing and slide gates. Overhead roll down (or up) doors, roll down security type doors (like those at the tenant space and the mall circulation areas), and parking garage entry, exit or point of sale barrier arms are not within the scope of the proposed code change or within the scope of the two reference standards.   In addition, we believe that these requirements in no way negatively impact building egress required by Chapter 10 of this code. Any swing or slide gate installed within the means of egress should be in compliance with chapter 10, as well as any other technical provision of the code and compliance with any other code application is referenced in 3110.1, as proposed.

Compliance with the ASTM standards will greatly improve safety in and around the built environment by incorporating these simple changes, (like adding fall over protection and gate stops) lives like Alex's, can be saved. Alex's father, Eric Quanbeck was an active participant in this work group, as well as the local building official from the city where the tragedy occurred, along with representatives from the American Fence Association, ASTM International, DASMA and UL. After thorough review, we see a need to incorporate these standards through adoption into the I-Codes.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Compared to the overall cost of these large gates, which can run anywhere from a couple thousand dollars to tens of thousands of dollars, depending on the size, material used, and whether they have an electric operator, the safety requirement costs are negligible. The material costs for the safety parts mentioned average $50.00, with many being less than that amount. For instance, a metal gate stop can be just a few dollars. Items like a Gate Keeper and the safety chain for swing gates can be found at several retailers, including on Amazon, both for under $50.00. Labor would depend on geographical area, but overall, it would average somewhere between $150.00 to $250.00.

Estimated Immediate Cost Impact Justification (methodology and variables):

Posts for this type of application typically run $50.00 a piece or less.

Example of some product costs on Amazon.

Amazon.com: OKG Heavy Duty Security Chain, 3.9ft x 5/16" Thick Outdoor Gate Chain, Cut Proof Chain Made of Hardened Alloy Steel Chain, Ideal for Fence Gates, Bicycles, Moped, Trailers, Generator, etc : Sports & Outdoors

Amazon.com: Chain Link Fence GATE HOLD BACK: Duck Bill Gate Holdback (1-5/8" to 2-3/8"). Holds The gate open for You while You work! : Tools & Home Improvement

PM29-25

PM30-25

IPMC: 305.1

Proponents: Ronald George, Plumb-Tech Design & Consulting Services LLC, representing Self

2024 International Property Maintenance Code

305.1 General. The interior of a *structure* and equipment therein shall be maintained in good repair, structurally sound<u>, safe</u> and in a sanitary condition. *Occupants* shall keep that part of the *structure* that they occupy or control in a clean and sanitary condition. Every *owner* of a *structure* containing a *rooming house, housekeeping units*, a hotel, a dormitory, two or more *dwelling unit*s or two or more nonresidential *occupancies*, shall maintain, in a clean and sanitary condition, the shared or public areas of the *structure* and *exterior property*.

Reason: This is simply Editorial

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Editorial only

PM30-25

PM31-25

IPMC: 305.1

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

305.1 General. The interior of a *structure* and equipment therein shall be in a sanitary condition, structurally sound and maintained in good repair~~, structurally sound and in a sanitary condition~~. *Occupants* shall keep that part of the *structure* that they occupy or control in a clean and sanitary condition. Every *owner* of a *structure* containing ~~a~~ *rooming* ~~*house*~~*units, housekeeping units*, a hotel, a dormitory, two or more *dwelling unit*s or two or more nonresidential *occupancies*, shall maintain~~, in a clean and sanitary condition~~, the shared or public areas of the *structure* and *exterior property* in a clean and sanitary condition.

Reason: The proposed changes are intended to make language consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed changes are editorial and will not affect the enforcement of the provision.

PM31-25

PM32-25

IPMC: 305.4

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

305.4 Stairs and walking surfaces. ~~Every stair~~ Stairs, ~~ramp~~ramps, ~~landing~~landings, ~~balcony~~ balconies, ~~porch~~ porches, ~~deck~~ decks ~~or~~ and other walking ~~surface~~ surfaces shall be ~~maintained in~~ structurally sound ~~condition~~ and maintained in good repair.

Reason: Editorial changes made to be consistant throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are editorial in nature and do not change the enforcement of this provision.

PM32-25

PM33-25

IPMC: 305.5

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

305.5 Handrails and guards. ~~Every handrail;~~ Handrails and ~~*guard*~~*guards* shall be~~firmly fastened and capable of supporting normally imposed loads~~ anchored, structurally sound and ~~shall~~ be maintained in good ~~condition~~ repair.

Reason: Editorial changes were made to use consistent language throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed changes are editorial in nature and no change in enforcement is needed for this provision.

PM33-25

PM34-25

IPMC: 306.1.1

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Delete without substitution:

~~**306.1.1 Potentially unsafe conditions.** Where any of the following conditions cause the component or system to be beyond its limit state, the component or system shall be considered to be unsafe and shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code* or the *International Building Code* :~~

1. ~~Soils that have been subjected to any of the following conditions:~~
   - ~~1.1. Collapse of footing or foundation system.~~
   - ~~1.2. Damage to footing, foundation, concrete or other structural element due to soil expansion.~~
   - ~~1.3. Adverse effects to the design strength of footing, foundation, concrete or other structural element due to a chemical reaction from the soil.~~
   - ~~1.4. Inadequate soil as determined by a geotechnical investigation.~~
   - ~~1.5. Where the allowable bearing capacity of the soil is in doubt.~~
   - ~~1.6. Adverse effects to the footing, foundation, concrete or other structural element due to the ground water table.~~
2. ~~Concrete that has been subjected to any of the following conditions:~~
   - ~~2.1. *Deterioration.*~~
   - ~~2.2. *Ultimate deformation.*~~
   - ~~2.3. Fractures.~~
   - ~~2.4. Fissures.~~
   - ~~2.5. Spalling.~~
   - ~~2.6. Exposed reinforcement.~~
   - ~~2.7. *Detached*, dislodged or failing connections.~~
3. ~~Aluminum that has been subjected to any of the following conditions:~~
   - ~~3.1. *Deterioration.*~~
   - ~~3.2. Corrosion.~~
   - ~~3.3. Elastic deformation.~~
   - ~~3.4. *Ultimate deformation.*~~
   - ~~3.5. Stress or strain cracks.~~
   - ~~3.6. Joint fatigue.~~
   - ~~3.7. *Detached*, dislodged or failing connections.~~

4. ~~Masonry that has been subjected to any of the following conditions:~~
   4.1. ~~*Deterioration*.~~
   4.2. ~~*Ultimate deformation*.~~
   4.3. ~~Fractures in masonry or mortar joints.~~
   4.4. ~~Fissures in masonry or mortar joints.~~
   4.5. ~~Spalling.~~
   4.6. ~~Exposed reinforcement.~~
   4.7. ~~*Detached*, dislodged or failing connections.~~
5. ~~Steel that has been subjected to any of the following conditions:~~
   5.1. ~~*Deterioration*.~~
   5.2. ~~Elastic deformation.~~
   5.3. ~~*Ultimate deformation*.~~
   5.4. ~~Metal fatigue.~~
   5.5. ~~*Detached*, dislodged or failing connections.~~
6. ~~Wood that has been subjected to any of the following conditions:~~
   6.1. ~~Ultimate deformation.~~
   6.2. ~~Deterioration.~~
   6.3. ~~Damage from insects, rodents and other vermin.~~
   6.4. ~~Fire damage beyond charring.~~
   6.5. ~~Significant splits and checks.~~
   6.6. ~~Horizontal shear cracks.~~
   6.7. ~~Vertical shear cracks.~~
   6.8. ~~Inadequate support.~~
   6.9. ~~*Detached*, dislodged or failing connections.~~
   6.10. ~~Excessive cutting and notching.~~

~~**Exceptions:**~~

1. ~~Where substantiated otherwise by an *approved* method.~~
2. ~~Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.~~

Reason: Quite simply, this section is incorrect both from an engineering perspective and from an implementation perspective. For example:

- The title is potentially unsafe conditions; however the text talks about elements that are beyond their *limit state*, and every element in the list is assumed to have already caused the structure to be *unsafe*. Although there is an exception, the default assumption is that all of this laundry list constitutes unsafe conditions. This is not appropriate because very few structures are actually dangerous/unsafe. The default assumption should not be that a structure is dangerous/unsafe.
- Item 1 talks about soil being subjected to various things, but then Items 1.1, 1.2, 1.3 and 1.6 have nothing to do with distress in the soil. Items 1.4 and 1.5 actually do talk about the soil but only in incredibly vague terms (i.e., "inadequate soil" and "where the allowable bearing capacity of the soil is in doubt"). While "collapse of the footing or foundation system" is listed in Item 1.1, that is

already included in the definiton of dangerous. Item 2 talks about damage to the foundation, but foundations and other structural elements often crack when exposed to differential movement caused by soil or any other thing. That is not *dangerous* unless the condition meets the definition of *dangerous*, and is thus *unsafe*. Similarly adverse effects to the design strength from chemical reactions may or may not be *dangerous* or *unsafe*. And adverse effects on the footings, foundations, concrete, or other structural elements -- again, whatever these effects are, they must occur to the point where the elements in question are *dangerous* and thus *unsafe.*

- Similarly, regarding Item 2, concrete:
  - Nearly all concrete deteriorates as it carbonates and slowly loses its ability to protect the embedded steel reinforcing; this essentially unavoidable deterioration is not *dangerous* or *unsafe* in and of itself.
  - There is an old structural engineering joke that there are only two kinds of concrete: concrete that is cracked, and concrete that is going to crack. So to the extent that the undefined term "fractures" means "cracks" this is a bad criterion upon which to determine *dangerous* / *unsafe*. "Fractures" might mean "cracks", but it is not clear.
  - Fissures might be cracks or something else. Who knows? "Fissures" is not a technical term in reinforced concrete.
  - Spalling usually does not make a concrete structure dangerous or unsafe in and of itself, except for overhead spalls, which can result in a falling hazard.
  - Exposed reinforcement also generally does not make a structure *dangerous* or *unsafe*. If it corrodes and loses substantial capacity, sure. But that is already covered by the definition of *dangerous* or *unsafe*, and we don't need to say it again, just like detached, dislodged, or failing connections.
- Regarding Item 3, aluminum:
  - All of these items have similar implementation issues as Item 2, with the exception of Item 3.3, elastic deformation. This is one of the biggest head-scratchers, because elastic deformation happens with every structure ever built. It simply means that something deforms when a force acts on it, which is every structure. All structures deform when they are loaded. Further, the fact that it is elastic deformation means that we are flagging completely reversible deformation (i.e., no damage) as being *dangerous*/*unsafe*! And if only elastic deformation has occurred, how could the component or structure be beyond their limit state?
- Regarding Item 4, masonry:
  - This list as pretty much the same issues as Item 2, concrete. Please see above.
- Regarding Item 5, steel:
  - Again we tag "elastic deformation" (which means that there is no damage) as being *dangerous*/*unsafe.* All of the other items, if they rise to the level of being dangerous/unsafe, then they are *dangerous*/*unsafe*, but otherwise, they are not. They should not be deemed *dangerous*/*unsafe* by default.
- Regarding Item 6, wood:
  - Another head scratcher is Item 6.5, where we identify wood checks as being dangerous/unsafe by default. Checks do not typically reduce the strength of a wood member, so it is unclear why this laundry list considers checking so bad. Splits might be a problem, but it would depend on how big the split is, where the split is, and what the loads are. All of the other conditions are only *dangerous*/*unsafe* if they rise to that level; they should not be assumed to be *dangerous*/*unsafe* by default. Interestingly, only wood lists "inadequate support" as a reason to be considered dangerous/unsafe; none of the other more dense/heavy materials lists "inadequate support" as being a concern. The irony in that notwithstanding, again, as with all of the other items, either the structural members in question are actually dangerous/unsafe or they are not . The laundry list just confuses the issue for lay people, who may confuse one of the items on this list as being a life-safety concern because it is on the list... no matter how inappropriate for it to be on the list (See "elastic deformation").

For these reasons, this list should be deleted. It does not aid in understanding; it only adds confusion and imprecision to the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This list does not add to the clarity of the code; it detracts from it. Consequently, deletion of this section will improve the code and make it easier to understand and easier to admister. So there is some chance that this change will save money on the engineering/administrative side, but it is not expected to change the cost of construction in any measurable way.

PM34-25

PM35-25

IPMC: 306.1.1

Proponents: Ronald George, Plumb-Tech Design & Consulting Services LLC, representing Self

2024 International Property Maintenance Code

Revise as follows:

306.1.1 Potentially unsafe conditions. Where any of the following conditions cause the component or system to be unsafe or beyond its limit ~~state~~, the component or system shall be considered to be unsafe and shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code, International Plumbing Code, International Mechanical Code, International Fuel Gas Code* or the *International Building Code* :

1. Soils that have been subjected to any of the following conditions:
   1.1. Collapse of footing or foundation system.
   1.2. Damage to footing, foundation, concrete or other structural element due to soil expansion.
   1.3. Adverse effects to the design strength of footing, foundation, concrete or other structural element due to a chemical reaction from the soil.
   1.4. Inadequate soil as determined by a geotechnical investigation.
   1.5. Where the allowable bearing capacity of the soil is in doubt.
   1.6. Adverse effects to the footing, foundation, concrete or other structural element due to the ground water table.
2. Concrete that has been subjected to any of the following conditions:
   2.1. *Deterioration.*
   2.2. *Ultimate deformation.*
   2.3. Fractures.
   2.4. Fissures.
   2.5. Spalling.
   2.6. Exposed reinforcement.
   2.7. *Detached*, dislodged or failing connections.
3. Aluminum that has been subjected to any of the following conditions:
   3.1. *Deterioration.*
   3.2. Corrosion.
   3.3. Elastic deformation.
   3.4. *Ultimate deformation.*
   3.5. Stress or strain cracks.
   3.6. Joint fatigue.
   3.7. *Detached*, dislodged or failing connections.

4. Masonry that has been subjected to any of the following conditions:
   4.1. *Deterioration.*
   4.2. *Ultimate deformation.*
   4.3. Fractures in masonry or mortar joints.
   4.4. Fissures in masonry or mortar joints.
   4.5. Spalling.
   4.6. Exposed reinforcement.
   4.7. *Detached*, dislodged or failing connections.
5. Steel that has been subjected to any of the following conditions:
   5.1. *Deterioration.*
   5.2. Elastic deformation.
   5.3. *Ultimate deformation.*
   5.4. Metal fatigue.
   5.5. *Detached*, dislodged or failing connections.
6. Wood that has been subjected to any of the following conditions:
   6.1. Ultimate deformation.
   6.2. Deterioration.
   6.3. Damage from insects, rodents and other vermin.
   6.4. Fire damage beyond charring.
   6.5. Significant splits and checks.
   6.6. Horizontal shear cracks.
   6.7. Vertical shear cracks.
   6.8. Inadequate support.
   6.9. *Detached*, dislodged or failing connections.
   6.10. Excessive cutting and notching.

7. Plumbing:

7.1. Hot water temperatures in excess of 120 degrees Fahrenheit. Hot water temperatures in excess of 120 Fahrenheit shall be considered unsafe when flowing from:

7.1.1. Showers

7.1.2. Bathtubs

7.1.3. Whirlpool Bathtubs

7.1.4. Bathtub-Shower Combination Fixtures.

7.1.5. Lavatories

7.1.6. Bidet

7.1.7. Foot Bath

7.1.8. Shampoo Bowls

7.1.9. Sinks

7.2. Exceptions:

7.2.1. In special applications where manufacturer's literature requires equipment or processes that require water in excess of 120 F.

7.2.2. Maximum hot water temperatures flowing from each type of plumbing fixtures shall comply with the temperatures limits listed in Chapter 4 of the plumbing code.

7.2.3. The water heater thermostat for storage type water heaters shall not be used for compliance with the temperature limitations of 7.1 above.

Exception: Point-of-use water heaters installed in accordance with the requirements of ASSE 1084.

7.3. Restricted access to water heater thermostat controls.

7.4. Restricted access to, or tamper resistant cover on, hot Water System temperature control valves.

8. Mechanical:

8.1. Leaks in Chimney's or flue's that can allow carbon monoxide in the building.

8.1.1. Corrosion or disconnected water heater flue.

8.1.2. Corrosion or disconnected furnace flue.

8.1.3. Corrosion or disconnected gas fired appliance flue.

8.1.4. Corrosion, deterioration or grout loss in chimney's

8.2. Condensate pooling in A/C or Furnace where bacteria can grow.

8.3. Missing discharge piping on temperature or pressure relief valves.

8.4. Wood or oil burning appliance.

8.4.1. Clearance from Combustibles.

8.4.2. Flue is not corroded.

8.4.3. Flue Joints secured per chimney manuf. Requirements

8.4.4. Chimney Masonry in tact..

8.4.5. Chimney Damper operable.

8.4.6. Chimney cap & bird screen in place..

8.5. Check for clogged filters that can affect flue temperatures.

9. Fuel Gas:

9.1. Gas Leaks

9.1.1. Leaks in Gas Piping.

9.1.2. Lack of an appliance gas shutoff valve.

9.1.3. Open Gas pipes. No cap or plug where gas appliances was removed.

9.2. Yellow or incomplete combustion in furnaces/boilers/water heaters that can lead to:

9.2.1. Flue blockage from soot in flue.

9.2.2. CO Spillout from soot in flue.

9.2.3. Bird/rodent screen on flue outlet.

10. Electrical:

10.1. Ground Fault Plugs shall be located within 6 feet of a plumbing fixtures/water sources.

10.2. Improper wiring/grounding on electrical plugs.

10.3. Missing light bulbs/Non-working Lights.

10.4. Lighting on Front Porch.

10.5. Exposed wires.

10.6. Missing electrical panel cover.

11. Drywall/Plaster Partition Walls:

11.1. Holes in partitions that allow vermin, insects, smoke or fire to pass through.

12. Egress Doors, Windows & Passageways:

   12.1. Blocked or locked egress doors.

   12.2. Blocked or locked egress window/door bars that do not have quick release to allow egress.

   12.3. Egress hallways/corridors clear.

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

Reason: IPMC Chapter 3 – General Requirements

This chapter covers General Requirements and includes a variety of inspection requirements for the exterior property areas as well as the interior and exterior elements of the structure that are intended to maintain a minimum level of safety and sanitation for both the general public and the occupants of a structure. Chapter 3 provides specific criteria for regulating the maintenance of specific building components; vacant structures and land; interior and exterior of structures and all exterior property areas; and accessory structures. The scope and responsibility sections of this chapter identifies the minimum conditions and the responsibilities of persons for maintenance of structures, equipment and exterior property. It identifies the owner or owner's agent as being responsible to ensure that any repairs, additions or alterations to the building or portion thereof are performed or constructed in accordance with the International Building Code, International Residential Code or International Existing Building Code. I am proposing adding some references to other ICC codes for plumbing, mechanical and fuel gas items that are added in the section 306 Potentially Unsafe Items Checklist.
Section 306 of the IPMC addresses Component Serviceability and Section 306.1 General, states: The components of a structure and equipment therein shall be maintained in good repair, structurally sound, and in a sanitary condition.
I am adding the word "Safe" to be consistent with previous paragraphs.

Section 306 also has a **“Potentially Unsafe Conditions Checklist”**
The section referenced in this change gives a checklist of "potentially unsafe conditions". This section seems to have been developed originally as a blight ordinance that appears to mostly address structural issues. It states: Where any of the following conditions cause the component or system to be beyond its limit state, the component or system shall be considered to be unsafe and shall be addressed in compliance with the International Existing Building Code, the International Residential Code or the International Building Code. These codes indirectly reference the Plumbing Code, but upon adding some potentially unsafe conditions to the checklist I added reference to the appropriate codes that cover those references. The added text to the checklist is for some simple checks that a property maintenance inspector can add to their checklist in jurisdictions that adopt this code.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0.00 as these requirements do not affect initial cost of construction. This list is mostly editorial and the items are life safety items. Checking for gas leaks, fire hazards, carbon monoxide leaks, or dangerous water temperatures. There is only a cost if a repair is needed and the cost of the repair would be needed with or without this edition to the checklist. This simply adds plumbing, mechanical, architectural, egress and electrical items to the potentially unsafe items checklist for the Property maintenance inspector to check when checking for property maintenance.

Estimated Immediate Cost Impact Justification (methodology and variables):

No cost if the building is maintained properly in a good and safe condition.

Estimated Life Cycle Cost Impact:

This would reduce the overall cost of operating the building by maintaining a safe property and reducing insurance claims, and loss of the building due to fires and it provides an added level of safety for building occupants from injuries and loss of life.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

It depends on the cost of the building. For Example if the inspection in a multi-family building finds a fire hazard hazard, and the building costs millions of dollars, finding a fire hazard can prevent millions in losses from a building fire. Finding a carbon monoxide hazard, Scald hazard, or egress hazard can saves lives and millions in litigation costs from injuries and deaths. These inspection items will also improve the value of the property and the surrounding properties.

PM35-25

PM36-25

IPMC: 307.1

Proponents: Edward Lisinski, American Wood Council, representing ICC Region III Code Development Committee (elisinski@awc.org)

2024 International Property Maintenance Code

Revise as follows:

307.1 Handrails. Stairs having ~~more than~~ four <u>or more</u> risers shall have a handrail on one side of the stair.

Reason: This proposal tries to coordinate the requirements for handrails between the IPMC and the IRC. Currently, this section of the IPMC requires handrails on stairs with more than four risers only. However, Section R318.7.8 of the IRC requires handrails on stairs of four or more risers. This means that a handrail is required for stairs with four risers when a dwelling is constructed, but not once it is occupied.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$100 for some dwellings in overall maintenance costs over the lifecycle of the dwelling.

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal could increase maintenance costs in dwellings with a stair having four risers only. However, since a handrail is required already at the time of construction, there are no initial cost increases. The cost increase would be to replace an IRC required handrail for a four-riser stair once over the lifecycle of the dwelling. A dwelling that does not have a stair with exactly four risers will see no increase in initial construction costs or maintenance costs.

PM36-25

PM37-25

IPMC: 307.2.1

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com)

2024 International Property Maintenance Code

Revise as follows:

307.2.1 Height. *Guards* shall be not less than 42 ~~30~~ inches (762 mm) high.

Exception: Guards that meet the height requirements for railings in the building code that governed their construction shall be permitted to remain.

Reason: There is no rational justification for most locations having perimeter guards that are substantially below the center of gravity of most people. The IBC contains a default requirement of 42 inches (Section 1015.3), which has been the standard for most guards for several decades. The IBC also contains exceptions in the same section that require minimum heights of 36 inches for Groups R-2 and R-3 applications, 34 inches for guards on stairs, and 30 inches for alternating tread devices and ship ladders. Section 1030.17 also contains guard requirements for assembly seating areas, which allows guards of 26 inches if seating sightlines are constrained by the guard (Section 1030.17.3). So the current requirement is both too low and too high, depending on the use of the railing.This proposal fixes the current IPMC requirement to match the various requirments of the building code in effect at the time of construction, and allows existing railings to remain unless they did not meet the requirements at the time of their construction. This is similar to the overall philosophy of the IEBC for most components.

Cost Impact: Increase

Estimated Immediate Cost Impact:

New guard rails or parapets can cost several hundred dollars per lineal foot, depending on the market. However, increasing the height of an existing parapet or guard is typically far less expensive than the cost of adding new guards.

For example, if a typical wood-framed guard rail around a deck in an apartment building is an inch below the required height, new pressure-treated 2x4s can be added to the top of the guard to raise the height by one and a half inches. This minimal retrofit is likely to cost on the order of $20 per lineal foot. So for a balcony that measures 5' x 10' and has low guards on three sides, the cost would be approximately (5 feet + 10 feet + 5 feet) x $20/ft = $400.

Although it is possible that adding a small amount of height would cause the posts or their connections to be 'overstressed', the addition of 1.5 inches to a 35-inch railing would increase the design moment only by about 4 percent, which is very minor and within acceptable design margins for most engineers. Worst case, if the posts or connections were already substantially overstressed, the railing might have to be replaced in its entirety, but that would be addressing a pre-existing problem that is unrelated to the issue at hand.

For pipe railings, I have increased their height by welding light-gauge steel shapes to their tops for an estimated cost of about $50 per lineal foot. And for parapets, I have increased their height by adding engineered sheet metal extensions for a similar cost per lineal foot. Another option I have used is to bolt small stainless steel tubes to the tops of concrete parapets to increase their heights; again, this would be a similar cost per lineal foot.

Estimated Immediate Cost Impact Justification (methodology and variables):

The costs presented above are based on my own experience in a location with very high construction costs. Variables include the materials used in the existing guards, local labor and material costs, how much the height needs to be increased to meet the original code under which the guard was constructed, and whether or not the existing guard is able to resist the increase in design moment associated with the increase in height.

PM37-25

PM38-25

IPMC: 309.4

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

309.4 Multiple occupancy. The *owner* of a *structure* containing two or more *dwelling unit*s, a multiple *occupancy*, a *rooming house* or a nonresidential *structure* shall be responsible for *pest elimination* in the public or shared areas of the *structure* and *exterior property*. ~~If~~ ~~*infestation*~~ *Infestations* ~~is~~ caused by failure of an *occupant* to prevent such *infestation* in the ~~area occupied~~public or shared areas or *exterior property*, the *occupant* and *owner* shall be jointly responsible for *pest elimination*.

Reason: The proposed changes are intended to clarify the requirements of this section.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed change clarifies the section and will not affect enforcement of the provision.

PM38-25

PM39-25

IPMC: 310.1, 310.1.1

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Delete without substitution:

~~**310.1 General.** A facility that is required to be accessible shall be maintained accessible during *occupancy*.~~

Revise as follows:

310.1 ~~310.1.1~~ Accessible features~~Maintenance~~. ~~The accessible~~Accessible features ~~of a facility~~ shall be ~~maintained in good repair,~~ in a clean~~, structurally sound~~ and sanitary condition~~, and~~ structurally sound ~~and free from impediments to accessibility~~and maintained in good repair.

Reason: The two accessibility sections have been reduced to one because they were duplicative. Language was modified to be consistent throughout the book

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed changes are editorial and do not affect enforcement of the provision.

PM39-25

PM40-25

IPMC: 311.3

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Delete without substitution:

~~**311.3 Maintenance and repairs.** Community *storm shelters* shall be maintained in an operable condition. All structural and operational elements shall be repaired or replaced in accordance with ICC 500 where damaged or found to be inoperable.~~

Reason: Section 311.3 is unnecessary as Section 311.1 requires the shelter to be maintained.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed change will not affect enforcement of the provision.

PM40-25

PM41-25

IPMC: 306.1.1

Proponents: Tim Earl, Earl Code Solutions, representing the Gypsum Association (tearl@gbhint.com)

2024 International Property Maintenance Code

Revise as follows:

306.1.1 Potentially unsafe conditions. Where any of the following conditions cause the component or system to be beyond its limit state, the component or system shall be considered to be unsafe and shall be addressed in compliance with the *International Existing Building Code* , the *International Residential Code* or the *International Building Code* :

1. Soils that have been subjected to any of the following conditions:
   1.1. Collapse of footing or foundation system.
   1.2. Damage to footing, foundation, concrete or other structural element due to soil expansion.
   1.3. Adverse effects to the design strength of footing, foundation, concrete or other structural element due to a chemical reaction from the soil.
   1.4. Inadequate soil as determined by a geotechnical investigation.
   1.5. Where the allowable bearing capacity of the soil is in doubt.
   1.6. Adverse effects to the footing, foundation, concrete or other structural element due to the ground water table.
2. Concrete that has been subjected to any of the following conditions:
   2.1. *Deterioration.*
   2.2. *Ultimate deformation.*
   2.3. Fractures.
   2.4. Fissures.
   2.5. Spalling.
   2.6. Exposed reinforcement.
   2.7. *Detached*, dislodged or failing connections.
3. Aluminum that has been subjected to any of the following conditions:
   3.1. *Deterioration.*
   3.2. Corrosion.
   3.3. Elastic deformation.
   3.4. *Ultimate deformation.*
   3.5. Stress or strain cracks.
   3.6. Joint fatigue.
   3.7. *Detached*, dislodged or failing connections.

4. Masonry that has been subjected to any of the following conditions:
    4.1. *Deterioration.*
    4.2. *Ultimate deformation.*
    4.3. Fractures in masonry or mortar joints.
    4.4. Fissures in masonry or mortar joints.
    4.5. Spalling.
    4.6. Exposed reinforcement.
    4.7. *Detached*, dislodged or failing connections.
5. Steel that has been subjected to any of the following conditions:
    5.1. *Deterioration.*
    5.2. Elastic deformation.
    5.3. *Ultimate deformation.*
    5.4. Metal fatigue.
    5.5. *Detached*, dislodged or failing connections.
6. Wood that has been subjected to any of the following conditions:
    6.1. Ultimate deformation.
    6.2. Deterioration.
    6.3. Damage from insects, rodents and other vermin.
    6.4. Fire damage beyond charring.
    6.5. Significant splits and checks.
    6.6. Horizontal shear cracks.
    6.7. Vertical shear cracks.
    6.8. Inadequate support.
    6.9. *Detached*, dislodged or failing connections.
    6.10. Excessive cutting and notching.
7. Gypsum board that has been subjected to any of the following conditions:
    7.1 Deterioration.
    7.2 Fire or smoke damage.
    7.3 Significant splits, cracks, or holes.
    7.4 Hazardous chemical exposure.
    7.5 Mold or core damage from moisture.

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

Reason: Gypsum board is notably absent from this list, so this proposal seeks to advise users of conditions that warrant repair or replacement.

Cost Impact: Increase

Estimated Immediate Cost Impact:

People should be addressing these situations already, but if they are not, this will increase costs by approximately $1 per square foot plus labor at an approximate rate of $70-80/hr. Gypsum board prices vary greatly depending on location and quantity purchased, so this number is simply an estimate. If the board can be repaired in lieu of replacement, the cost of materials is negligible and will be the cost of labor per hour, which varies but can be estimated at $70-80 per hour.

Estimated Immediate Cost Impact Justification (methodology and variables):

Gypsum board prices vary greatly depending on location and quantity purchased, but an estimate to include other materials such as mud, tape, screws, etc. is approximately $1/square foot for replacement. If board is repaired instead of being replaced, the materials costs are negligible, but labor for drywall repair can be estimated at $70-80 per hour. This varies greatly based on location.

PM41-25

PM42-25

IPMC: 307.2.1

Proponents: Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

307.2.1 Height. Required *guards* shall be not less than 42~~30~~ inches (1067~~762~~ mm) high.

Exception: Guard height shall be permitted to be lower where allowed by the currently adopted building code.

Reason: The height requirement should align with IBC 2024 (42 inches). Rather than duplicate the allowed variances from IBC 2024, the exception allows for that adjustment in appropriate situations.

Bibliography: https://www.angi.com/articles/what-should-labor-cost-installing-new-deck-railing-be.htm

https://www.simplifiedbuilding.com/railing/guardrail?srsltid=AfmBOopPptwmS1t7kDHryOveCZBr_3gUc9gPFVLA742doYsiizpYKuOG

https://homeguide.com/costs/deck-or-porch-railing-cost#:~:text=Tropical%20woods%20like%20tigerwood%2C%20Ipe,%2C%20low%20maintenance%2C%20and%20lightweight.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The cost impact will vary based on location and building conditions and whether the existing guard can be modified in place or if it needs to be replaced. Cost impact will also be affected by material type, structural supports, and guard length.

Recent project experience for new residential guards (wood and/or aluminum) had costs that ranged from $25 to $50 per linear foot. With approximately 50 linear feet, that project cost ranged from $1,250 to $2,500. Commercial guard pricing has been priced at $30 to $100 per linear foot. Costs to modify existing guards should be significantly less, likely in the $10 to $20 per linear foot.

Estimated Immediate Cost Impact Justification (methodology and variables):

Cost impacts are based on recent project pricing and web searches. Further information that would be needed includes the material and design of the existing guards, the nature of the existing structure that supports the guards, and the cost of labor and materials at the time the guards are retrofitted. Given that the proposed guard heights have been in the building code for decades, there should not be a substantial number of buildings with guards of substandard height; however, if there are guards that are unusually low in height, they should be improved.

PM42-25

PM43-25

IPMC: SECTION 202 (New), SECTION 312 (New), 312.1 (New), 312.1.1 (New), 312.1.2 (New), 312.2 (New), 312.3 (New), ICC Chapter 08 (New)

Proponents: Dwayne Garriss, Synergy Consortium Group, representing Self (dwaynescg@gmail.com)

2024 International Property Maintenance Code

Add new definition as follows:

CONDITION ASSESSMENT. An observation of the existing building, facility, system(s) or component(s) and review of records, where available, as documented in a written report.

Add new text as follows:

SECTION 312
EXISTING BUILDING CONDITION ASSESSMENTS

312.1 General. *Condition assessments* shall be performed on all existing buildings in accordance with this section and ICC 1500.

Exceptions: *Condition assessments* are not required for the following buildings and occupancies.

1. Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures not more than three stories above grade plane in height.
2. Other buildings and facilities where a national, state, local authority or organization which provides a systematic approach to a building *condition assessment* that is determined to provide the requisite level of occupant safety.
3. Other occupancies and building types as determined by the jurisdiction.

312.1.1 Ongoing assessments. *Condition assessments* shall be continued for the life of each occupied or vacant building in accordance with ICC 1500.

312.1.2 Frequency. The frequency interval of required condition *assessments* shall be assigned in accordance with ICC 1500. Condition assessment frequency intervals shall begin on the date of the building's certificate of occupancy, or a date established by the code official.

312.2 Identification of unsafe conditions.. Where the *condition assessment* identifies repairs or replacements are required such repairs or replacements shall be addressed in accordance with Section 109.

312.3 Notification. Where potential unsafe or *dangerous* conditions are identified, the *code official* shall be notified as soon as possible to determine if an *imminent danger* exists. Where an immeinet danger exists the code official is authorized to require the occupants to vacate the building or portions thereof and take other actions necessary to ensure occupant safety.

Add new standard(s) as follows:

ICC

International Code Council
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

ICC 1500-xx	Standard for Existing Building Condition Assessments

Reason: Maintaining the integrity of the structural, fire and life safety, envelope, plumbing, mechanical, electric, and fuel gas components and systems of a building throughout its life is of paramount importance to maintain the health, safety and welfare of the occupants and public. Because building systems work together, it is not enough to just consider one system while overlooking others. The fundamental purpose of an Existing Building Safety Condition Assessment program is to establish the minimum timeframes for condition assessments, therefore enabling the building owners to reasonably maintain their buildings, such that identifiable potential or current unsafe conditions have been noted and remedied. This proposed standard being developed is intended to provide the framework for an Existing Building Condition Assessment program to be used by jurisdictions for implementing a program to supplement provisions in other codes such as the:

- International Building Code (IBC),
- International Plumbing Code (IPC),
- International Mechanical Code (IMC),
- National Electrical Code (NEC),
- International Existing Building Code (IEBC), and
- International Fire Code (IFC).

While the proposed standard is not complete at this time, there is an existing guideline that provides similar framework as template meant to convey important concepts related to condition assessments of existing buildings.

In general, the IPMC require owners to continually maintain their buildings in good repair including the structural components; the exterior building envelope (including the roof); the electrical, plumbing, mechanical, and fuel gas equipment and systems; and the operational capacity of life safety systems (such as means of egress and active and passive fire protection systems so as to not pose a threat to safety, health, and welfare of occupants and the general public but does not currently provide a mechanism for actively assessing exiting buildings. This proposal would codify requirements for assessments and reference the ICC 1500 standard currently being developed to establish the minimum timelines, action, and assessment types that must be performed to promote adequate building maintenance. Thus, providing public safety, health, and welfare to communities in light incidences such as the Champlain Tower South collapse in Surfside FL.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0.00. There is no cost impact to initial construction.

Estimated Immediate Cost Impact Justification (methodology and variables):

There is an increased cost to perform the assessment dependent on size of the building, the level of assessment needed, and the market rate for the professional services.

Estimated Life Cycle Cost Impact:

There is an increased cost to perform the assessment dependent on size of the building, the level of assessment needed, the frequency rate of the required assessments and the market rate for the professional services.

Staff Analysis:

A review of the standard proposed for inclusion in the code, *ICC 1500-xx Standard for existing Building Condition Assessments* with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

PM43-25

PM44-25

IPMC: SECTION 202 (New), SECTION 312 (New), 312.1 (New), NFPA Chapter 08 (New)

Proponents: Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov)

2024 International Property Maintenance Code

Add new definition as follows:

LIVE FIRE TRAINING STRUCTURE. A structure utilized by the fire department for conducting live fire training on a repetitive basis.

Add new text as follows:

SECTION 312
LIVE FIRE TRAINING STRUCTURE

312.1 General. *Live fire training structures* shall be secured in accordance with Section 5.2 of NFPA 1402, and evaluated, maintained, and repaired in accordance with Section 7.2 of NFPA 1402.

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

1402.-2019 Standard on Facilities for Fire Training and Associated Props

Reason: Live fire training facilities contain unique types of buildings/structures that are in some instances, purposely designed to not meet building codes and/or simulate potentially hazardous conditions. NFPA 1402, when combined with the codes, provides for the necessary provisions for these types of buildings and gives the code enforcement community the tools necessary to properly regulate them. this code proposal was kept This provision requires 3 items

1. The building be secured 2. An annual inspection by the owner3. A professional inspection once every few years (3, 5,10 depending on the construction type.)

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal may increase the cost of construction or the cost may remain the same, depending on how the enforcement community has previously enforced the provisions of the code on these types of buildings. Some already enforce these additional standards, others may enforce nothing, treating these buildings as outside the scope. In the second scenario, the cost may increase in order to ensure compliance with the new standards. Based on cost one company that installs live fie training buildings and provide inspections as required by NFPA 1402 (5-year inspections for live fire building not fired by gas) the inspection cost ranges from $14,000 to $18,000 based on what state the facility is located in.

Estimated Immediate Cost Impact Justification (methodology and variables):

since there are relatively few engineers who perform theses types of inspection the cost will vary depending on location. Estimated cost were obtained form a business that performs these inspections. The inspection performed in accordance with NFPA 1402 Section 7.2 the standard requires them to be performed at a 3 yr, 5 yr or 10 yr interval) with the typical one at a 5 yr interval.

Estimated Life Cycle Cost Impact:

it is estimated that a live fire training build will last 25 years but with proper maintenance the building may last longer than the estimated life span, therefore it is expected that over 25 years there would be 5 inspection @ $18000 would be a $90,000 life cycle cost.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

see above , numbers are rounded up from the actual cost for my jurisdiction.

A review of the standard proposed for inclusion in the code, NFPA 1402-2019 S*tandard on Facilities for Fire Training and Associated Props*, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

PM44-25

PM45-25

IPMC: 402.1, 402.1 (New)

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Delete without substitution:

~~**402.1 Habitable spaces.** Every *habitable space* shall have not less than one window of *approved* size facing directly to the outdoors or to a court. The minimum total glazed area for every *habitable space* shall be 8 percent of the floor area of such room. Wherever walls or other portions of a *structure* face a window of any room and such obstructions are located less than 3 feet (914 mm) from the window and extend to a level above that of the ceiling of the room, such window shall not be deemed to face directly to the outdoors nor to a court and shall not be included as contributing to the required minimum total window area for the room.~~

~~**Exception:** Where natural light for rooms or spaces without exterior glazing areas is provided through an adjoining room, the unobstructed opening to the adjoining room shall be not less than 8 percent of the floor area of the interior room or space, or not less than 25 square feet (2.33 m^2), whichever is greater. The exterior glazing area shall be based on the total floor area being served.~~

Add new text as follows:

402.1 Habitable rooms. Habitable rooms shall have an aggregate area of glazed openings not less than 8 percent of the floor area of such rooms. Required glazed openings shall face directly onto a street, alley or *public way*, or a yard or *court* located on the same *lot* as the *building*.

Exceptions:

1. Required glazed openings shall be permitted to face into a roofed porch, deck or patio adjacent to a street, alley, *public way*, yard or *court*, where there the longer side of the roofed area is not less than 65 percent unobstructed and the *ceiling height* is not less than 7 feet (2134 mm).
2. Required glazed openings shall be permitted to face into a *sunroom* adjacent to a street, alley, *public way*, *yard* or *court*.
3. Glazed openings are not required where artificial light is provided that is capable of producing an average illumination of 6 footcandles (65 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.
4. Eave projections shall not be considered as obstructing the clear open space of a *yard* or *court*.

Reason: Replacing 402.1 with the corresponding requirements from the 2024 IRC maintains consistency across books. The IRC also provides an exception for artificial light. Including this exception prevents the existing buildings from being more restrictive than new buildings.

For information the 2024 IRC Section 325.1.1 reads:

R325.1.1 Natural light. Habitable rooms shall have an aggregate area of glazed openings not less than 8 percent of the floor area of such rooms. Required glazed openings shall face directly onto a street, alley or *public way*, or a yard or *court* located on the same *lot* as the *building*.

Exceptions:

1. Required glazed openings shall be permitted to face into a roofed porch, deck or patio adjacent to a street, alley, *public way*, ya (2134 mm).
2. Required glazed openings shall be permitted to face into a *sunroom* adjacent to a street, alley, *public way*, *yard* or *court*.

3. Glazed openings are not required where artificial light is provided that is capable of producing an average illumination of 6 foo
4. Eave projections shall not be considered as obstructing the clear open space of a *yard* or *court*.

R325.1.3 Adjoining rooms. For the purpose of determining light and *ventilation* requirements, rooms shall be considered to be a portion of an adjoining room where not less than one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room and not less than 25 square feet (2.3 m^2).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes do not change enforcement of the provision.

PM45-25

PM46-25

IPMC: 402.2

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

402.2 Common halls and stairways. ~~Every common hall~~Common halls and stairways in residential *occupancies*, other than in one-and two-family dwellings, shall be ~~lighted~~illuminated at all times with not less than a 60-watt standard incandescent light bulb for each 200 square feet (19 m^2) of floor area or equivalent illumination, provided that the spacing between lights shall not be greater than 30 feet (9144 mm). In other than residential *occupancies*, interior and exterior means of egress~~,~~and stairways shall be illuminated at all times the building space served by the means of egress is occupied with not less than 1 footcandle (11 lux) at floors, landings and treads.

Reason: Changes provide consistency in language throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The editorial changes do not affect enforcement of the provision.

PM46-25

PM47-25

IPMC: 402.3

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

402.3 Other spaces. Other spaces shall be provided with sufficient natural or artificial light ~~sufficient~~ to permit the maintenance of sanitary conditions, ~~and~~ the safe *occupancy* of the space and utilization of the appliances, equipment and fixtures.

Reason: Changes to maintain consistency throughout the book and correct grammar issues.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The editorial changes will not affect enforcement of this provision.

PM47-25

PM48-25

IPMC: 403.1

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

403.1 Habitable spaces. ~~Every *habitable space*~~*Habitable spaces* shall have not less than one openable window. The total *openable area* ~~of the window~~ in every ~~room~~*habitable space* shall be ~~equal to~~ not less than 45 percent of the minimum glazed area required in Section 402.1.

> **Exception:** Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining room shall be not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.33 m^2). The *ventilation* openings to the outdoors shall be based on a total floor area being ventilated.

Reason: The changes are intended to provide consistency throughout the book and to clarify the requirements of this provision.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed changes do not change enforcement of this provision.

PM48-25

PM49-25

IPMC: 403.2

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

403.2 Bathrooms and toilet rooms. ~~Every *bathroom*~~*Bathroom* and *toilet rooms* shall comply with the *ventilation* requirements ~~for *habitable spaces* as~~ required by Section 403.1, except that a window shall not be required in such spaces equipped with a mechanical *ventilation* system. Air exhausted by a mechanical *ventilation* system ~~from a *bathroom* or *toilet room*~~ shall discharge to the outdoors and shall not be recirculated.

Reason: Changes provide consistency throughout the book and removes unnecessary language

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The editorial changes do not affect enforcement of this provision.

PM49-25

PM50-25

IPMC: 404.1

Proponents: Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Gregory Benton, NYS, representing Department of State, Division of Building Standards and Codes (gregory.benton@dos.ny.gov)

2024 International Property Maintenance Code

Revise as follows:

404.1 Privacy. *Dwelling units*, hotel units, *housekeeping units, rooming units*<u>, *sleeping units*,</u> and dormitory units shall be arranged to provide privacy and be separate from other adjoining spaces.

Reason: Unless "sleeping units" are not supposed to be private spaces, they should be included in this provision's list of effected spaces.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change doesn't affect the intent of the code's provisions. Neither does it affect the usual behavior of designers, occupants, and builders. This proposal merely includes "sleeping units" within this provision, which seems to have been the application of this section anyway. The other change, from "privacy" to "individual private space" doesn't significantly affect the meaning of this code, though it does seem to clarify it beside reinforcing another proposal for Section 404.4.3 of the IPMC.

PM50-25

PM51-25

IPMC: 404.4.3

Proponents: Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

2024 International Property Maintenance Code

Revise as follows:

404.4.3 Water closet ~~accessibility~~<u>and lavatory access</u>. Every *bedroom* shall have access to not less than one water closet and one lavatory without passing through another *bedroom*. Every *bedroom* in a *dwelling unit* shall have access to not less than one water closet and lavatory located in the same story as the *bedroom* or an adjacent story.

> <u>**Exception:** Water closet and lavatory access required by this section, in dwelling units regulated by the International Residential Code, is not required to be within a building. The distance of travel shall be limited to 100 feet on the same lot. The requirements to access at least one water closet and one lavatory without passing through another bedroom shall still apply.</u>

Reason: The requirement in Section 404.4.3 of the 2024 IPMC to have the water closet for a bedroom be located either on the same story or an adjacent story implies that the water closet must be in the same building as the bedroom. That compliments similar provisions for various lodging accommodations and the IBC's group-R and group-I occupancies to have indoor access to bathrooms. But Section 404.4.3's requirement for indoor access to a bathroom is not necessary for the International Residential Code's dwellings.

The exception that is being proposed here facilitates the efficient design for an IRC dwelling unit when it is a residential compound of interdependent buildings on the same lot. For example, imagine a home where each of its rooms are in closely spaced but separate buildings on the same lot, or simply imagine a detached guestroom behind the main house. This proposal allows that arrangement to not have a bathroom attached to each detached bedroom. It also prohibits multiple dwelling units on the same lot from depending on a shared bathroom.

Until privies (outhouses) with their challenging design limits were replaced relatively recently by indoor water closets, having toilets in separate buildings hasn't been unusual. This exception increases the potential for home designs to suite their occupants by enabling the IRC's dwelling units to have detached bedrooms that don't each include an attached bathroom.

The overall 100-feet travel distance for the IRC's dwelling units is arbitrary, but a limit is needed for sprawling or complex arrangements. This proposed exception for the IRC's bedrooms from the existing implied requirement to have indoor access to a bathroom does not affect the IBC's dwelling units (e.g. Group R occupancies), which would continue to need indoor access from bedrooms to bathrooms.

The replacement in this Section's title of the word "accessibility" with "and lavatory access" is intended to clarify that this section is about 'access' to both a water closet and a lavatory.

If both of my proposals should pass (11604 and 11679) it is my intention that they would be combined as follows:

404.4.3 Water closet ~~accessibility~~<u>and lavatory access</u>. Every *bedroom* shall have access to not less than one water closet and one lavatory without passing through another *bedroom* <u>or any space that is off-limits to the bedroom's occupants</u>. Every *bedroom* in a *dwelling unit* shall have access to not less than one water closet and lavatory located in the same story as the *bedroom* or an adjacent story.

> <u>**Exception:** Water closet and lavatory access required by this section, in dwelling units regulated by the International Residential Code, is not required to be within a building. The distance of travel shall be limited to 100 feet on the same lot. The requirements to access at least one water closet and one lavatory without passing through another bedroom or any space that is off-limits to the bedroom's occupants shall still apply.</u>

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Cost decrease of $4,500 - $12,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

All dwelling units are currently required to have a water closet and a lavatory – this proposal does not change that requirement, it simply relaxes the requirements for such water closet and lavatory to allow utilization of water closets/lavatories which are accessed via the exterior of the structure, such as water closets/lavatories that are located in an accessory building on the same lot within the required travel distance. This provision would allow a building to use an outhouse as the required water closet and/or lavatory, or allow a bedroom located in a detached accessory structure to utilize a water closet and lavatory inside the dwelling, instead of requiring a separate water closet/lavatory to be installed in the detached bedroom structure.

The cost impact of this proposal is a potential cost decrease in that it may, in some circumstances, prevent the requirement of constructing an additional water closet and lavatory, plus any additional plumbing required to supply such fixtures. While a water closet and lavatory are still required to exist on the property, the cost of additional water closets and lavatories may be avoided. The average cost to install a “half bath” (water closet + lavatory) ranges from $4,500 to $12,000, depending on a variety of factors, including the price of interior finishes (1).

Source:

https://www.angi.com/articles/how-much-does-it-cost-to-add-half-bathroom.htm

Estimated Life Cycle Cost Impact:

Negligible.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

After installation, the primary cost is for maintenance of a bedroom's required water closet and lavatory. Being an indoor location, the cost of maintaining the required water closet and lavatory is independent of its building's location.

PM51-25

PM52-25

IPMC: 404.4.3

Proponents: Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Gregory Benton, NYS, representing Department of State, Division of Building Standards and Codes (gregory.benton@dos.ny.gov)

2024 International Property Maintenance Code

404.4.3 Water closet ~~accessibility~~<u>and lavatory access</u>. Every *bedroom* shall have access to not less than one water closet and one lavatory without passing through another *bedroom*<u>or any space that is off-limits to the bedroom's occupants</u>. Every *bedroom* in a *dwelling unit* shall have access to not less than one water closet and lavatory located in the same story as the *bedroom* or an adjacent story.

Reason: This proposal increases the effectiveness of the requirement for each bedroom to have access to at least one water closet and one lavatory. Currently, access to a bathroom from a bedroom is prohibited from passing through another bedroom. Apparently, that's due to how a bedroom is usually off limits to other occupants in a dwelling unit. But other areas between a bedroom and its bathroom may be similarly off limits to the bedroom's occupants.
For example, a bedroom is provided with a designated water closet and lavatory to technically comply with this code, but to access them the bedroom's occupants must pass through another occupant's private home office while that is off limits. Another example: the landlord closes the lodger's path to the bathroom to reduce noise during sleeping hours or for other reasons.This proposal merely makes sure that access to a bedroom's designated bathroom cannot be blocked by other spaces that could be off limits to the bedroom's occupants.

The replacement in this Section's title of the word "accessibility" with "and lavatory access" is intended to clarify that this section is about 'access' to both a water closet and a lavatory.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The provision's intent is already widely understood to mean that a bedroom's occupants can access a toilet and lavatory without invading anyone's privacy despite how it's specific to only one way that happens. Consequently, buildings are typically designed to provide access to bathrooms from bedrooms through the dwelling's common areas. This provision merely makes sure that slumlords cannot create a locked space through which a bedroom's occupants much pass to access the designated bathroom.

PM52-25

PM53-25

IPMC: 404.4, 404.4.1, 404.4.2, 404.4.3, 404.4.4, 404.4.5

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

404.4 Habitable ~~room~~space requirements. ~~Every habitable room~~Habitable spaces shall comply with the requirements of Sections 404.4.1 through 404.4.~~5~~4.

404.4.1 Room area. ~~Every habitable room~~Habitable spaces shall contain not less than 70 square feet (6.5 m^2) and every bedroom occupied by more than one *person* shall contain not less than 50 square feet (4.6 m^2) of floor area for each *occupant* thereof.

404.4.2 Access from bedrooms. *Bedrooms* shall not constitute the only means of access to other *bedrooms* or *habitable spaces* and shall not serve as the only means of egress from other *habitable spaces*.

Exception: Units that contain fewer than two *bedrooms*.

404.4.3 Water closet accessibility. ~~Every *bedroom*~~*Bedrooms* shall have access to not less than one water closet and one lavatory without passing through another *bedroom*. ~~Every *bedroom*~~*Bedrooms* in a *dwelling unit* shall have access to not less than one water closet and one lavatory located in the same story as the *bedroom* or an adjacent story.

404.4.4 Prohibited occupancy. Kitchens and nonhabitable spaces shall not be used for sleeping purposes.

Delete without substitution:

~~**404.4.5 Other requirements.** *Bedrooms* shall comply with the applicable provisions of this code including, but not limited to, the light, *ventilation*, room area, ceiling height and room width requirements of this chapter; the plumbing facilities and water-heating facilities requirements of Chapter 5; the heating facilities and electrical receptacle requirements of Chapter 6; and the smoke detector and emergency escape requirements of Chapter 7.~~

Reason: Changes were mode for consistency throughout the book. Deleted 404.4.5 because it restates other portions of the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes made will not affect enforcement of this provision.

PM53-25

PM54-25

IPMC: 501.2

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Property Maintenance Code

Revise as follows:

501.2 Responsibility. The *owner* of the *structure* shall provide and maintain such plumbing facilities and plumbing fixtures in compliance with ~~these~~ the requirements of this chapter and the *International Plumbing Code or the International Residential Code*. A *person* shall not occupy as *owner-occupant* or permit another *person* to occupy any *structure* or *premises* that does not comply with the requirements of this chapter.

Reason: Current text implies that the IPMC governs all requirements related to plumbing systems. The revisions clarify the IPMC is related to maintenance and the foundational code for plumbing systems in the IPC.

The PMGCAC recommends that the Code Correlation Committee apply a [P] scoping to to this section.

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Maintenance is not a cost of construction. This proposal only clarifies what requirements apply when maintaining plumbing facilities and and fixtures.

PM54-25

PM55-25

IPMC: SECTION 603 (New), 603.1 (New), 603.2 (New), 603.3 (New), 603.5 (New)

Proponents: Clayton Trevillyan, representing City of Tucson (clayton.trevillyan@tucsonaz.gov); Jane Gilbert, Miami Dade County, representing Miami-Dade County (jane.gilbert@miamidade.gov); Mary Wright, Office of Heat Response and Mitigation, City of Phoenix, representing self; Ali Frazzini, representing Los Angeles County Chief Sustainability Office (afrazzini@cso.lacounty.gov); Pedro Quintela, Miami Dade County, representing RER

2024 International Property Maintenance Code

Add new text as follows:

SECTION 603
COOLING SYSTEMS

603.1 System maintenance. Where cooling systems are provided in existing *structures* they shall be maintained as required by this section.

603.2 Dwelling and sleeping units. Cooling systems shall be maintained and capable of performing the intended function for thermal comfort. Every *owner* and *operator* of any building who rents, leases, or lets one or more *dwelling units* or *sleeping units* on terms, either expressed or implied, shall maintain the provided equipment and systems in a manner to provide thermal comfort in habitable rooms at or below 80°F (26.7°C). Where permanently installed fans are capable of generating 120 fpm (0.6 m/s) air speed within the habitable rooms, the indoor temperature shall be maintained at or below 85°F (29.4°C).

Exception: Where site-specific climate conditions warrant, as *approved* by the *building official.*

603.3 Occupiable workspaces. Cooling systems shall be maintained in working order and capable of thermal comfort to maintain a maximum temperature of 80°F (26.7°C) during the period the spaces are occupied. Where permanently installed fans are capable of generating 120 fpm (0.6 m/s) air speed within the spaces occupied, the indoor temperature shall be maintained at or below 85°F (29.4°C).

Exceptions:

1. Processing, storage, operation areas or special uses require heat that exceeds 80°F (26.7°C) or other special temperature conditions provided employees have access to an area either inside or outside of the building where thermal comfort can be obtained.
2. Where site-specific climate conditions warrant, as *approved* by the *building official.*

603.5 Room temperature measurement. The required room temperatures shall be measured 3 feet (914 mm) above the floor near the center of the room and 2 feet (610 mm) inward from the center of each exterior wall.

Reason: According to the National Association of Home Builders, 95% of new single-family homes started in 2020 are constructed with a central air conditioning system, up from 85% in 2000[1]. In 2020, the US Energy Information Administration reported in May of 2022 that approximately two-thirds of all American households use central air conditioning[2]. 78% of US commercial building use of air conditioning[3].

The IPMC is relatively silent on the requirements to maintain these systems, despite the majority of buildings having these systems. The built environment is a safe haven from the effects of weather and climatic conditions, heat not being an exception for people to seek shelter from the elements. As a result of increased summer temperatures, nearly half of heat-related deaths happen inside a person's home[4] and some jurisdictions have already mandated cooling be provided in new buildings while many others are considering extreme heat related ordinances. Media attention to heat-related health emergencies on the elderly and people in underserved communities demonstrates the need for improvements in the built environment that would require maintenance of cooling equipment similar to the requirement for heating equipment to be maintained.

This new section follows a consistent format to Section 602 – Heating Facilities in the IPMC with some significant deviations that are specific to cooling equipment. Unlike the heating facilities that shall be provided, this section only applies to buildings **where cooling equipment is installed**. This section is not a requirement for a retroactive provision on existing buildings that were constructed to code. However, when installed they should be maintained to provide the thermal comfort intended.

If owner-occupied residential units are maintained and capable of performing as intended, then compliance is obtained. The owner-occupant has the right to decide whether to use or not to use air conditioning to the degree needed. Code enforcement action could be taken where unmaintained air conditioning systems are putting children, the elderly, or others at risk of heat related health emergencies. Where A/C is installed in rental units, the landlord is held to a higher standard of care to protect the occupants, consistent in nature to the requirement for heating. Maintenance is required, as well as an 80°F maximum temperature or 85°F when permanently installed fans are capable of maintaining air flow of 120 ft/min. The 85°F temperature is based on an interior temperature of 80°F for the thermal comfort of the interior environment plus 5°F temperature differential where air movement provides additional thermal relief based on ANSI/ASHRAE Standard 55-2023[5]. An exception allows the code official leniency on enforcement when a system is being maintained and the ambient conditions are within normal environmental parameters.

Maintenance of cooling equipment for commercial spaces is based on similar provisions for the Heat Facilities requirement in 602.3. The 80°F temperature limit is based on a proposal presented for the Building and Mechanical Codes. ANSI/ASHRAE Standard 55-2023[5] recommends 80°F as optimal temperature for thermal comfort in most applications. The exception is adjusted to reflect the different working conditions than those reflected in the heat requirement. Some business applications may require heat for processing, manufacturing, or storage of commodities. Requiring an ambient indoor temperature below 80 degrees for employees in spaces where temperatures above 80 degrees are required for processing, storage, or operations would be challenging and counterproductive. An additional requirement, modeled after a recently adopted California OSHA regulation, is for employees to be provided access to areas where relief from heat can be obtained where subjected to those working conditions where air conditioning is not provided[6].

The location of the temperature measurement is consistent with Section 602 and other International Code applications.

Bibliography:

1. https://www.nahb.org/blog/2021/09/which-heating-and-cooling-systems-are-most-common-for-new-homes/
2. https://www.eia.gov/todayinenergy/detail.php?id=52558
3. https://www.eia.gov/consumption/commercial
4. ANSI/ASHRAE 55-2020: Thermal Environmental Conditions for Human Occupancy. Atlanta, GA, US: ASHRAE, 2020.
5. https://www.dir.ca.gov/oshsb/documents/Indoor-Heat-proptxt.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change does not require the installation of any equipment, only that any equipment that has been installed is maintained in proper working order.

PM55-25

PM56-25

IPMC: 603.1, 603.2

Proponents: Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org)

2024 International Property Maintenance Code

Revise as follows:

603.1 Mechanical equipment and appliances. Mechanical equipment, appliances, fireplaces, ~~solid~~ fuel-burning appliances, cooking appliances and water heating appliances shall be maintained in a safe working condition and shall be capable of performing the intended function. The equipment and appliances shall be installed in accordance with the *International Residential Code* or the *International Mechanical Code* and *International Fuel Gas Code.*
~~shall be properly installed and maintained in a safe working condition, and shall be capable of performing the intended function.~~

603.2 Removal of combustion products. Fuel-burning equipment and appliances shall be connected to an *approved* chimney or ventin accordance with the International Mechanical Code or the International Fuel Gas Code.

Exception: Fuel-burning equipment and appliances that are *listed* and *labeled* for unvented operation.

Reason: This proposal is not a technical change. The intent is to reference the correct applicable code.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held numerous virtual meetings open to any interested party. Related documents and reports are posted on the PMGCAC website at PMGCAC webpage.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Referencing the applicable codes in the text of the IPMC is simply confirming what the basis of "installed" means and how approval of an installation is given.

PM56-25

PM57-25

IPMC: 603.1.1 (New)

Proponents: Jonathan Roberts, representing UL Solutions (jonathan.roberts@ul.com)

2024 International Property Maintenance Code

Add new text as follows:

603.1.1 Refrigerant Detection Systems. Where required by the equipment or appliance manufacturer, refrigerant leak detection systems shall be maintained in accordance with the manufacturer's instructions.

Reason: EPA Significant New Alternative Policy Program (SNAP) rules regarding low-GWP refrigerants will essentially require the use of refrigerants with higher flammability safety classifications per ASHRAE 34. These refrigerants introduce new hazards compared to those used previously. These concerns are addressed in the standards used to evaluate this equipment for listing (UL 60335-2-40 for air-conditioning equipment, and UL 60335-2-89 for refrigerating equipment).

One of the key product features required by these standards for many refrigerant-containing mechanical appliances is a Refrigerant Detection System (RDS). The RDS detects leaks and initiates mitigation actions to minimize flammable concentrations and minimize potential sources of ignition.

It is important that these systems are maintained in working order and inspected as part of property maintenance. The RDS is integral to the appliance, usually located near the indoor coil. Most systems incorporate self-diagnosis, and do not require sensor replacement unless there is a malfunction. In some cases, the manufacturer may specify a replacement date for a sensor. In most cases the inspection would simply consist of verifying that they system is still installed and has not been bypassed.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Editorial in nature.

PM57-25

PM58-25

IPMC: 605.1, NFPA Chapter 08 (New)

Proponents: Bryan Holland, representing National Electrical Manufacturers Association (NEMA) (bryan.holland@nema.org)

2024 International Property Maintenance Code

Revise as follows:

605.1 Installation. Electrical equipment, wiring and appliances shall be properly installed and maintained in a safe and *approved* manner <u>in accordance with NFPA 70 and NFPA 70B, as applicable</u>.

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

<u>70B-23</u>	<u>Standard for Electrical Equipment Maintenance</u>

Reason: This proposal adds a pointer to NFPA 70 and NFPA 70B in section 605.1 to ensure electrical equipment, wiring, and appliances are properly installed in compliance with the NEC and maintained in accordance with NFPA 70B. As such, the title of the section is revised to include maintenance in addition to installation. NFPA 70B details preventive maintenance for electrical, electronic, and communication systems and equipment, such as those used in industrial plants, institutional and commercial buildings, and large multi-family residential complexes, to prevent equipment failures and worker injuries. The proposal also adds the 70B standard to Chapter 8 as an official referenced standard and links NFP 70 to section 605.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code proposal has no cost impact on the cost of construction but will require compliance with NFPA 70B when electrical equipment installed in an existing building undergoes repair or maintenance. The cost to maintain equipment varies greatly and is dependent on the scale, scope, environmental conditions, and other variables associated with the electrical equipment being maintained.

A review of the standard proposed for inclusion in the code, NFPA 70B-23 *Standard for Electrical Equipment Maintenanc*e, with regard to some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025. Standard NFPA 70 is already in the reference standards chapter of this code.

PM58-25

PM59-25

IPMC: 605.2

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

605.2 Receptacles. ~~Every~~ ~~*habitable*~~ *Habitable* ~~*space*~~ *spaces* ~~in a dwelling~~ shall contain not less than two separate and remote receptacle outlets. ~~Every laundry~~ Laundry ~~area~~ areas shall contain not less than one grounding-type receptacle or a receptacle with ~~a~~ ground fault circuit interrupter protection. ~~Every~~ ~~*bathroom*~~ *Bathrooms* shall contain not less than one receptacle. ~~Any new~~ ~~*bathroom*~~ ~~receptacle outlet shall have ground fault circuit interrupter protection. All~~ ~~receptacle~~ Receptacle outlets shall have the appropriate faceplate cover for the location.

Reason: Changed language to be consistent throughout the book. Removed the sentence that is covered by the NEC and is not in the scope of the IPMC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are intended to be editorial in nature and will not change enforcement of the provision.

PM59-25

PM60-25

IPMC: 607.2

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Delete without substitution:

~~**607.2 Clothes dryer exhaust duct system maintenance.** The lint trap, mechanical and heating components, and the exhaust duct system of a clothes dryer shall undergo periodic removal of accumulations of lint in accordance with the manufacturer's operating instructions to prevent obstruction of exhaust air and products of combustion.~~

Reason: This section is adequately covered by 603.1 and 607.1 and is unnecessary.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Removing this language will have no impact on enforcement result in no additional costs.

PM60-25

PM61-25

IPMC: APPENDIX C (New), SECTION C101 (New), C101.1 (New), C101.2 (New), SECTION 202 (New), C101.3 (New), SECTION C102 (New), C102.1 (New), C102.2 (New), C102.3 (New), C102.3.1 (New), C102.3.2 (New), C102.3.3 (New), C102.3.4 (New), C102.4 (New), C102.5 (New), C102.6 (New), C102.7 (New), C102.8 (New), C102.9 (New), C102.10 (New), SECTION C103 (New), C103.1 (New), C103.2 (New), SECTION C104 (New), C104.1 (New), C104.2 (New), C104.3 (New), C104.4 (New), SECTION C105 (New), C105.1 (New), C105.2 (New), C105.3 (New), C105.4 (New), SECTION C106 (New), C106.1 (New), C106.1.1 (New), C106.2 (New), SECTION C107 (New), C107.1 (New)

Proponents: Jeffrey Shapiro, P.E., FSFPE, LTFR, representing Lake Travis Fire Rescue (jeff.shapiro@intlcodeconsultants.com)

2024 International Property Maintenance Code

Add new text as follows:

APPENDIX C
SHORT-TERM RESIDENTIAL RENTAL SAFETY PROGRAM

SECTION C101
GENERAL

C101.1 Scope. *Dwelling units*, *sleeping units*, and portions thereof classified as a short-term rental property shall comply with this appendix.

C101.2 Definitions. For the purpose of this appendix, certain terms are defined as follows:

Add new definition as follows:

RESPONSIBLE PARTY. An *owner* or manager operating a *short-term rental property.*
SHORT-TERM RENTAL PROPERTY. A *dwelling unit*, *sleeping unit*, or portion thereof providing one or more sleeping spaces, made available for transient overnight occupancy, whether rented or swapped, for a period of 30 or fewer days.
SLEEPING SPACE. A bedroom or other location in a *short-term rental property* designated in the permit application as a space that will be offered for overnight occupancy.

Add new text as follows:

C101.3 Permit. A permit shall be required for each short-term rental property. Where two or more *sleeping spaces* are available for separate rental or exchange in a single *dwelling unit* or *sleeping unit*, only one permit for the *dwelling unit* or *sleeping unit* shall be required. A permit application shall be accompanied by a floor plan that identifies every *sleeping space* and a copy of the safety plan required by this appendix.

SECTION C102
GENERAL SAFETY FEATURES AND PRECAUTIONS

C102.1 General. *Short-term rental properties* shall comply with Sections C102.2 through C102.10.

C102.2 Permissible locations.. *Short-term rental properties* shall only be located in *dwelling units* or *sleeping units* in buildings that are legally in existence for residential use and are maintained in accordance with this Code.

> **Exception:** The *fire code official* is authorized to accept other *short-term rental properties* where justified in accordance with *International Fire Code* Sections 104.2.3 or 104.2.4.

C102.3 Smoke alarms. *Smoke alarms* shall be installed and maintained in accordance with *International Fire Code* Section 907.2.11 except as provided by Sections C102.3.1 through C102.3.4.

C102.3.1 Interconnection. Where more than one *smoke alarm* is required to be installed within an individual *dwelling or sleeping unit*, the *smoke alarms* shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of *smoke alarms* shall not be required where *listed* wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm shall be clearly audible in all *sleeping spaces* over background noise levels with all intervening doors closed.

C102.3.2 Power source. *Smoke alarms* shall be powered in accordance with Section 704.6.3.

C102.3.3 Additional smoke alarms. Where a *sleeping space* would otherwise not require a *smoke alarm* based on the requirements of *International Fire Code* 907.2.11, a *smoke alarm* shall be installed in such space.

C102.3.4 Replacement. If a *smoke alarm* stops functioning or is more than 10-years old, based on the date marked on the back of the device, or if there is no marked date, such *smoke alarm* shall be replaced.

C102.4 Carbon monoxide alarms. Carbon monoxide alarms shall be provided and maintained in accordance with *International Fire Code* Section 915.

C102.5 Portable fire extinguishers. A minimum of one *portable fire extinguisher* with a minimum rating of 1-A:10-B:C shall be provided on each *story* of a *dwelling unit* or *sleeping unit* being used as a *short-term rental property* and as required by Section C102.9, secured on a mounting bracket in a conspicuous and unobstructed location along a normal path of travel.

C102.6 Fire protection system maintenance. *Fire alarm systems* and *automatic sprinkler systems*, where provided, shall be inspected, tested, and maintained operational in accordance with this code.

C102.7 Electrical Safety. Use of current taps, relocatable power taps and extension cords shall be in a safe manner and that complies with *International Fire Code* Sections 603.5 and 603.6.

C102.8 Portable heater safety. Portable heaters shall be *listed* and *labeled* and shall be located not less than 3 feet (914 mm) from any combustible material. Portable electric heaters shall be plugged directly into a permanent receptacle. Portable fuel-fired heaters shall not be placed in a sleeping space or within 5 feet (1524 mm) of an *exit*.

C102.9 Outdoor cooking. A 1A:10BC *portable fire extinguisher* and *appliance* operating instructions shall be located within 10 feet of outdoor cooking *appliances*.

C102.10 Clothes dryer maintenance. The lint trap, mechanical and heating components, and the exhaust duct system of clothes dryers shall be maintained free of lint accumulation.

SECTION C103
OCCUPANCY AND USE LIMITS

C103.1 Overcrowding. The number of occupants in a *short-term rental property* shall not exceed the limits established by Section 404 of this code.

C103.2 Prohibited sleeping spaces. Kitchens and rooms or areas not designated on the permit application and *approved* for use as a *sleeping space* shall not be used as *sleeping spaces.*

SECTION C104

MEANS OF EGRESS AND ESCAPE

C104.1 Minimum access. *Sleeping spaces* shall have unrestricted access to both a *means of egress* and where required by Section C104.3, at least one *approved emergency escape and rescue opening*. Escape paths within a *dwelling unit* or *sleeping unit* used as a *short-term rental property* shall not include any intervening lockable doors or other obstructions that are not controlled by occupants of the *short-term rental property*.

C104.2 Exit identification. Where the egress path to an *exit* in a *dwelling unit* or *sleeping unit* used as a *short-term rental property* is not readily apparent, photoluminescent exit signs shall be installed to clearly mark the egress path in the *dwelling unit* or *sleeping unit*.

C104.3 Emergency escape and rescue openings. Each *sleeping space* shall have an e*mergency escape and rescue opening* that complies with the requirements of the code that was in effect at the time of construction applicable to bedrooms, and such openings, where required, shall be maintained operational from the inside without the use of keys or tools. Where bars, grilles, grates or similar devices are placed over an *emergency escape and rescue opening*, the minimum net clear opening size that complies with the code that was in effect at the time of construction shall be maintained.

C104.4 Escape ladders. Where a *sleeping space* in a *dwelling unit* or *sleeping unit* used as a *short-term rental property* is located more than one *story* above *grade plane*, an emergency escape ladder shall be provided at not less than one emergency *escape and rescue opening* on each such *story*.

Exception: An emergency escape ladder is not required for *stories* that have two or more *means of egress*.

SECTION C105
SAFETY PLAN

C105.1 General. The *responsible party* shall prepare, implement, and maintain a written safety plan for each *dwelling unit* or *sleeping unit* use as a *short-term rental property*.

C105.2 Approval. The safety plan shall be submitted to the *Fire Code Official* and approved before a permit is issued.

C105.3 Safety plan elements. *Short-term rental property* safety plans shall include the following:

1. Name and contact information of *responsible party*.
2. The procedure for a transient occupant to report an emergency and the means of communicating that procedure to transient occupants.
3. A graphic illustration of the full floor plan of the *dwelling unit* or *sleeping unit* with a *short-term rental property* that includes the following:
   - 3.1. The location of each *sleeping space*.
   - 3.2. Two escape paths for each *sleeping space*, including the path to the nearest outside *exit* door and to a designated *emergency escape and rescue opening* for the *sleeping space*.
   - 3.3. The location of *portable fire extinguishers*, *smoke alarms*, *carbon monoxide alarms*, and emergency escape ladders if provided.
4. Safety equipment records, including the following:
   - 4.1. Location and manufacturing date of each *smoke alarm*, as marked on the back of the alarm.
   - 4.2. Location and manufacturing date of each *carbon monoxide alarm*, as marked on the back of the alarm.
5. Location of fuel-fired equipment and *appliances*.

C105.4 **Emergency card.** An emergency card shall be permanently or semi-permanently mounted in a conspicuous and central location within *dwelling units* and *sleeping units* used as *short-term rental properties*. The information included on the card shall include all of the following:

1. Phone number to call in the event of an emergency.
2. Property address.
3. Floor plan designating beds in *sleeping spaces* consistent with those shown on the permit application; location of *exits*; location of *emergency escape and rescue openings*, where provided; and location of *portable fire extinguishers.*

SECTION C106
FIRE SAFETY INSPECTIONS

C106.1 **Responsible party inspections.** The *responsible party* shall complete a monthly fire safety inspection of *dwelling units* or *sleeping units* used as *short-term rental property* to verify compliance with this appendix. All indoor and outdoor areas associated with the *dwelling unit* or *sleeping unit* used as a *short-term rental property* shall be inspected.

C106.1.1 **Inspection of automatic sprinkler systems.** Inspection of *automatic sprinkler systems*, where provided, shall include the following on a monthly basis unless otherwise indicated:

1. Control valves in the *dwelling unit* or *sleeping unit* shall be verified as being in the open position.
2. Leaking, damaged, corroded, or painted sprinklers in a *dwelling unit* or *sleeping unit* shall be replaced.
3. Decorations or other materials obstructing sprinkler discharge or attached to sprinklers in a *dwelling unit* or *sleeping unit* shall be removed.
4. Water tanks or other stored water sources, if present in a *dwelling unit* or *sleeping unit*, shall be verified as full.
5. Instruction signs and tags in a *dwelling unit* or *sleeping unit* shall be installed near the main valve.
6. The owner's manual for the system in a *dwelling unit* or *sleeping unit* shall be onsite.
7. Water pumps, if present in a *dwelling unit* or *sleeping unit*, shall be tested annually to confirm proper operation.
8. Waterflow devices that initiate alarms, if present in a *dwelling unit* or *sleeping unit*, shall be tested annually to confirm proper operation.

C106.2 **Official inspections.** Where required by the *fire code official*, an annual inspection shall be conducted to verify compliance with this appendix. The results of each inspection shall be documented and maintained at the *dwelling unit* or *sleeping unit* used as a *short-term rental property* in a conspicuous location for transient occupants to review.

SECTION C107
VIOLATIONS

C107.1 **General.** Failure to comply with this appendix shall constitute an unlawful act in accordance with Section 107.1 and shall result in the issuance of a notice of violation to the *short-term rental* owner in accordance with Section 107.2.

Reason: This proposal correlates with the action of the IFC Code Development Committee on Proposal F280-24. It is the intent to duplicate the IFC Appendix P proposal into the IPMC, as modified to match internal references in the IPMC where appropriate, and this proposal reflects the approved IFC text up to and including actions taken at CAH#2. If there any action taken during the public comment process, this proposal can be adjusted to continue correlation. The intent is to have the IFC CDC be assigned maintenance responsibility by the Code Correlation Committee/ICC Board to keep the IFC and IPMC in sync. For context, the following is the reason statement published in the Group A CAH#1 hearing monograph. I have not included the reasons for modifications made during CAH#2 and committee statements to avoid making things too complicated here. Because regulation of short-term rental properties is probably going to be a joint effort of fire code officials and the code official charged with enforcing the IPMC, it is felt that both codes should include these provisions to help ensure a successful program.

Regulation of short-term rental (STR) properties is largely done by a patchwork of jurisdiction-by-jurisdiction requirements with little consistency from what I've found. My focus in submitting this proposal is gaining a level of consistency and education of STR owners and operators via a understandable consolidation of the "most important" safety requirements in ICC codes. Although the ICC codes, such as the IFC and IPMC, include a large number of safety-related provisions that are applicable to STRs (and served as the basis for much of the appendix content), they are currently dispersed in a way that does not promote understanding or compliance by people who don't live in the code world. "Most important" reflects my personal opinion of code requirements that I felt were appropriate to include/duplicate/reference in the new appendix to have the greatest impact on improving safety (primarily fire safety) if understood and followed by responsible parties. Certainly, others may have different perspectives, and hopefully the framework provided by the proposed appendix can be further populated as needed to address considerations raised by others during the code development process.

Some additional requirements, that are not otherwise provided for by current codes and seem appropriate for regulation of STRs, are also included in the proposal. These include, among others, as escape ladders for second story sleeping areas, declaration of sleeping spaces, and requiring that sleeping spaces are treated as bedrooms even though such spaces in a STR might be repurposed common areas that wouldn't have previously been considered or regulated as a bedroom. It's important to note that while fires are not known to be frequent in STRs, they have resulted in significant life loss. Also note that the content of this appendix deliberately sidesteps some of the most controversial issues surrounding regulation of STRs by a jurisdiction, particularly nuisance complaints related to noise, parking and trash; neighborhood STR density limits; licensing; and collection of fees/lodging taxes.

Although I serve as a consultant to the National Fire Sprinkler Association, and while this proposal includes regulations that affect sprinklers, this proposal was not reviewed or endorsed by NFSA. And, I am not representing NFSA on this issue.

The following is statement is provided for staff to insert under the APPENDIX C header if this proposal is successful:

"The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance or legislation of the jurisdiction."

"About this appendix: This appendix prescribes minimum safeguards for life-safety to protect transient occupants of a short-term rental property. It is intended for distribution to a responsible party to highlight select requirements of the International Fire Code and International Property Maintenance Code plus prescribe additional requirements that are uniquely applicable to short-term rental properties."

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Actually, the proposal is not entirely editorial, but that's the only option for suggesting that there is no impact on the cost of construction. For the most part, this proposal simply consolidates/duplicates a selection of existing ICC code requirements into a single location. That's not to say that there wouldn't be costs associated with upgrading an otherwise non-compliant STR property or the required administrative oversight or safety feature additions, but these are not construction costs.

PM61-25

2025 GROUP B – PROPOSED CHANGES TO THE INTERNATIONAL RESIDENTIAL CODE - BUILDING

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TENTATIVE ORDER OF DISCUSSION
2025 PROPOSED CHANGES TO THE
INTERNATIONAL RESIDENTIAL CODE – BUILDING

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some RB code change proposals may not be included on this list, as they are being heard by another committee.

RB1-25
    G40-25 -25 Part II
RB4-25
    RB39-25
    G32-25 Part II
RB5-25
    G39-15 Part II
    G42-25 Part II
    G46-24 Part II
RB7-25
    ADM3-25 Part II
    ADM6-25 Part II
    ADM9-25 Part II
    ADM11-25 Part II
    ADM16-25 Part II
    ADM14-25 Part II
    ADM15-25 Part II
    ADM17-25 Part II
    ADM18-25 Part II
    ADM19 -25 Part II
    ADM22-25 Part II
    ADM23-25 Part III
RB8-25
    ADM27-25 Part II
    ADM26-25 Part II
    ADM28-25 Part II
    ADM29-25 Part II
    ADM30-25 Part II
    ADM31-25 Part II
    ADM34-25 Part II
    ADM42-25 Part II
    ADM43-25 Part II
RB9-25
RB10-25
    ADM45-25 Part II
RB11-25
    ADM47-25 Part II
RB12-25
    ADM50-25 Part II
    ADM51-25 Part II
    ADM32-25 Part II
    G5-25 Part II
    ADM56-25 Part II
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RB36-25
    G20-25 Part II
    G19-25 Part II
    G24-25 Part III
    G28-25 Part II
RB38-25
    G33-25 Part II
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    G195-25 Part II
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RB54-25
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    S97-25 Part VII
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    ADM1-25 Part II
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    RB3-25
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RB300-25
RB301-25
RB302-25
RB303-25
RB304-25

RB1-25

IRC: R101.1, R101.2, R302.3, R302.3.1, R302.3.5, SECTION 202, R309.2

Proponents: Gregory Burke, FAIA, NCARB, Gregory John Burke | ARCHITECT, PA, representing Self, as President (gjburke@burkearchitects.com)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE

2024 International Residential Code

Revise as follows:

R101.1 Title. These provisions shall be known as the *Residential Code for One-, ~~and~~ Two-, Three-, and Four-family Dwellings* of **[NAME OF JURISDICTION]**, and shall be cited as such and will be referred to herein as "this code."

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one-, ~~and~~ two, three- (triplex) and four-- (fouplex) family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .

SECTION R302
FIRE-RESISTANT CONSTRUCTION

R302.3 Two-, three-, and four-family dwellings. Dwelling units in two-, three-, and four-family dwellings shall be separated from each other in accordance with Sections 302.3.1 through 302.3.5, regardless of whether a lot line exists between the dwelling units.

R302.3.1 Dwelling unit separation. ~~The two *dwelling*~~ *Dwelling units* shall be separated by fire-resistance rated assemblies that are vertical, horizontal, or a combination thereof.

R302.3.2 Fire-resistance rating. Vertical and horizontal assemblies separating *dwelling units* shall have a fire-resistance rating of 1 hour, or a fire-resistance rating of one-half hour in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904. Fire-resistance ratings shall be based on testing in accordance with ASTM E119 or UL 263, or an analytical method in accordance with Section 703.2.2 of the *International Building Code*.

R302.3.3 Continuity. Vertical and horizontal assemblies separating *dwelling units* shall be constructed in a manner that provides continuity of the fire-resistance rating between the *dwelling units*.

R302.3.3.1 Horizontal assemblies. Horizontal assemblies separating *dwelling units* shall extend to and be tight against exterior walls or vertical separation assemblies complying with Section 302.3.2.

R302.3.3.2 Vertical assemblies. Vertical assemblies separating *dwelling units* shall extend to and be tight against any combination of the following:

4. The ceiling beneath an uninhabitable *attic,* provided that the ceiling is constructed using not less than $^{5}/_{8}$-inch (15.9 mm) *Type X gypsum board*, an attic *draft stop* constructed as specified in Section R302.12.1 is provided above and along the vertical assembly terminating at the ceiling, and the structural framing supporting the ceiling is protected by not less than $^{1}/_{2}$-inch (12.7 mm) gypsum board or equivalent.
3. The underside of roof sheathing.
2. A horizontal assembly complying with Section R302.3.3.
1. The foundation.

R302.3.4 Supporting construction. Vertical and horizontal assemblies separating *dwelling units* shall be supported by construction having an equal or greater fire-resistance rating.

R302.3.5 Vertically stacked dwelling units. Where one *dwelling unit* in a two-, three-, or four-family dwelling is located above ~~the other~~ another and an automatic sprinkler system complying with Section P2904 is not provided in both *dwelling units*, both of the following shall apply:

1. Horizontal and vertical assemblies separating the *dwelling units*, including an interior *stairway* serving as the means of egress for the upper *dwelling unit*, shall be constructed in a manner that limits the transfer of smoke.
2. A notification appliance connected to smoke alarms in the other *dwelling unit* shall be provided in each *dwelling unit*.

[RB] BUILDING. Any one-, ~~or~~ two-, three-, or four-family *dwelling* units or *townhouse* , or portion thereof, used or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, or any *accessory structure* . For the definition applicable in Chapter 11, see Section N1101.6.
[RB] DWELLING. Any *building* that contains one or ~~two~~ more ~~*dwelling*~~ *living* *units* used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes.

R309.2 ~~One- and two-family dwellings automatic sprinkler systems~~ Sprinkler Systems. An automatic sprinkler system shall be installed in one-, ~~and~~ two-, three- and four-family *dwellings*.

Exception: An automatic sprinkler system shall not be required for *additions* or *alterations* to *existing buildings* that are not already provided with a sprinkler system.

2024 International Building Code

Revise as follows:

[A] 101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, relocation, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every *building* or *structure* or any appurtenances connected or attached to such *buildings* or *structures*.

Exception: Detached one-, ~~and~~ two-, three-, and four-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate *means of egress*, and their accessory *structures* not more than three *stories above grade plane* in height, shall comply with this code or the *International Residential Code*.

2024 International Existing Building Code

[A] 101.2 Scope. The provisions of this code shall apply to the *repair*, *alteration*, *change of occupancy*, *addition* to and relocation of *existing buildings*.

Exception: Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plane in height, shall comply with this code or the *International Residential Code* .

Revise as follows:

505.2 Window fall prevention on replacement windows. In Group R-2 or R-3 buildings containing dwelling units, and one-, ~~and~~ two-, three-, and four-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices or other window fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable.
2. One of the following applies:
   2.1. The window replacement includes replacement of the sash and frame.
   2.2. The window replacement includes the sash only where the existing frame remains.
3. One of the following applies:
   3.1. In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
   3.2. In one-, ~~and~~ two-, three-, and four-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
5. The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

Exception: Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.

505.3 Replacement window emergency escape and rescue openings. Where windows are required to provide *emergency escape and rescue openings* in Group R-2 and R-3 occupancies and one-, ~~and~~ two-, three-, and four-family dwellings and townhouses regulated by the *International Residential Code,* replacement windows shall be exempt from the requirements of Section 1031.3 of the *International Building Code* and Section 319.2 of the *International Residential Code,* provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. Where the replacement of the window is part of a *change of occupancy,* it shall comply with Section 1011.5.6.

702.4 Window fall prevention . In Group R-2 or R-3 buildings containing dwelling units and one-, ~~and~~ two-, three-, and four-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices or other window fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable.
2. One of the following applies:
   2.1. The window replacement includes replacement of the sash and frame.
   2.2. The window replacement includes the sash only where the existing frame remains.

3. One of the following applies:
   3.1. In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
   3.2. In one-, ~~and~~ two- , three-, and four-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
5. The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

Exception:

Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.

702.5 Replacement window for emergency escape and rescue openings. Where windows are required to provide *emergency escape and rescue openings* in Group R-2 and R-3 occupancies and one-, ~~and~~ two-, three-, and four-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Section 1031.3 of the *International Building Code* and Section R310.2 of the *International Residential Code*, provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. Where the replacement window is part of a *change of occupancy* it shall comply with Section 1011.5.6.

2024 International Fire Code

Revise as follows:

1001.1 General. Buildings or portions thereof shall be provided with a *means of egress* system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of *means of egress* components required to provide an *approved means of egress* from structures and portions thereof. Sections 1003 through 1031 shall apply to new construction. Section 1032 shall apply to existing buildings.

Exception: Detached one-, ~~and~~ two-, three-, and four-family *dwellings* and *townhouses* not more than three stories above *grade plane* in height with a separate means of egress and their accessory structures shall comply with the *International Residential Code*.

2024 International Fuel Gas Code

Revise as follows:

[A] 101.2 Scope. This code shall apply to the installation of fuel-gas *piping* systems, *fuel gas appliances*, *gaseous hydrogen systems* and related accessories in accordance with Sections 101.2.2 through 101.2.6.

Exception: Detached one-, ~~and~~ two-, three-, and four-family dwellings and townhouses not more than three stories above grade plane in height with separate means of egress and their accessory structures not more than three stories above grade plane in height, shall comply with this code or the *International Residential Code.*

2024 International Mechanical Code

Revise as follows:

[A] 101.2 Scope. This code shall regulate the design, installation, maintenance, *alteration* and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions and related processes within *buildings*. This code shall also regulate those mechanical systems, system components, *equipment* and *appliances* specifically addressed herein. The installation of fuel gas distribution piping and *equipment*, fuel gas-fired *appliances* and fuel gas-fired *appliance* venting systems shall be regulated by the *International Fuel Gas Code*.

> **Exception:** Detached one-, ~~and~~ two-, three-, and four-family *dwellings* and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures not more than three stories above grade plane in height shall comply with this code or the *International Residential Code*.

2024 International Plumbing Code

Revise as follows:

[A] 101.2 Scope. The provisions of this code shall apply to the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing systems within this jurisdiction. This code shall regulate nonflammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems. The installation of fuel gas distribution piping and equipment, fuel-gas-fired water heaters and water heater venting systems shall be regulated by the *International Fuel Gas Code* .

> **Exception:** Detached one-, ~~and~~ two-, three-, and four-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plane in height, shall comply with this code or the International Residential Code.

2024 International Swimming Pool and Spa Code

Revise as follows:

[A] 102.7.1 Application of the International Codes. Where the *International Residential Code* is referenced in this code, the provisions of the *International Residential Code* shall apply to related systems in detached one-, ~~and~~ two-, three-, and four-family dwellings and townhouses not more than three stories in height. Other related systems shall comply with the applicable International Code or referenced standard.

Reason: Housing is at a crisis point in the United States. Demand is outpacing supply in a critical way. Skilled construction workers are also at a crisis point. In an attempt to entice developers, builders and local governmental authorities to assist in providing more options for first time buyers or those who are wishing to down-size, the scope change will enable a more robust opportunity for choice, The addition of three-family and four-family dwelling units to the IRC will enable the availability of choice for buyers or renters of these building types. Moving these two dwelling types into the IRC allows for them to be constructed in a similar manner as single-, two-family, and townhouses buildings. In order to make these two types of housing more affordable, the scope change will reduce sprinkler requirments of the NFPA13 or NFPA13R system to NFPA 13D, encoraging the use of a sprinkler system in residential buildings where required by local codes.

More savings to the cost of the buildings can come in the form of reduced egress requirements. A single exit could be required that would have stairs meet the riser/tread dimensions reduced from the commercial maximum requirement of 7 inches/11 inches to the residential requirements of a maximum 7.75/inches/10 inches. In Occupancy Group R2, under the IRC the live load will be reduced to 40 psf from the commercial requirement of 100 psf. Other sections of the code can be impacted such as IBC Chapter 17 for special inspections not being required in the IRC and the potential for smaller HVAC units. All of these considerations would help provide more opportunities for attainable housing when applied to a triplex or fourplex.

The end goal is to provide more available choices for attainable housing for workforces in many communities where an average sized home price has been greatly increased in the past four years due to inflation and supply and demand. Permitting three-family and four-family dwellings to be constructed with the same standards as those permitted in the IRC will help increase the supply of housing types.

Additionally, it should be noted that financial institutions and lenders finance these two types of dwelling units in the same manner as single-family homes. It is not until a building has five or more residential units that the financing is a commercial loan. For this reason alone, three-family and four-family dwelling units should be included in the IRC., It is possible to purchase these dwellings with a FHA Loan. A Table in "Attached Fles" shows the investment potential. Realtors in many states are also permitted to sell up to four units on a residential license.

With proper zoning in place, three-family and four-family dwelling units can be designed and constructed to be compatible in single-family neighborhoods. Most can be constructed within a 35-foot height limit, which is common in many parts of the country. Normally, three-family and four-family dwellings are two, two and one-half or three stories above the grade plane making them compatible to a single-family or two-family home. The footprint of either a three- or a four-family building could be designed and constructed in dimensions of 40 feet by 60 feet.

FHA Duplex, Triplex & Fourplex Guidelines

Here are the criteria you'll need to meet to qualify for any FHA loan including for a multifamily property.

Credit Score	580+
Down payment	3.5%
Loan-to-value (LTV)	96.5%
Mortgage insurance	1.75% upfront, 0.55% per year
Occupancy	Live in one unit
First-time buyer	Not required
Debt-to-income ratio	Below 56.9%
Property type	1-4 legal units
Max loan limits	$637k-$2.2M+ based on # of units and location
Income limit	None
Property condition	Must meet HUD quality guidelines

Bibliography: Parolek, Daniel and Nelson, Arthur C., *Missing Middle Housing, Thinking Big and Building Small to respond to Today's Housing Crisis.* 2020, Washington, D.C., Island Press

Gause, Jo Allen, editor, *Great Planned Communities.* 2002, Washington, D.C., The Urban Land Institute

O'Looney, Brian, *Increments of Neighborhood, a Compendium of Built Types for Walkable and Vibrant Communities.* 2020, Novato, CA., Oro Editions

Lucas, Tim, *"How to Buy a Duplex, Triplex, ot Fourplex With a FHA Loan."* 2024, Columbia, Mo., The Mortgage Research Center

Bigger Pockets Forum*, "Duplexes, Triplexes and Quads are NOT Multifamily!!",* 2018, www.biggerpockets.com/forum.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Construction and the financing possibilities will be decreased due to the economy of scale of the triplex and fourplex dwellings. Since these building types will be included in the IRC, requirements in many jurisdictions will eliminate the need for fire lines and sprinkler systems to be installed. If sprinklers are still required a NFPA 13R system could be used, running off of domestic water supplies, a reduction in cost from the requirments for sprinklers is in accordance with IBC Chapter 9.

Estimated Immediate Cost Impact Justification (methodology and variables):

Reduction in sprinkler system requirements, if any. A NFPA 13R system averages $2.00 per square foot in most of the US. NFPA 13 systems average $3.50 per square foot.

Staff Analysis: The title and scope of a document is subject to review an approval by the ICC Board of Directors. The discussions and decisions of the Code Development Committee and membership will be taken into consideration with this review.

RB2-25

IRC: R101.2, R102.6, R102.6.1, R105.1, SECTION 202, SECTION 202 (New), R301.1.3

Proponents: Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, relocation, enlargement, addition to, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904, and shall be permitted for the repair, alteration, changes of occupancy, addition to and relocation of the following:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .

R102.6 Existing structures. The legal occupancy or use of any *structure* existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *International Existing Building Code*, the *International Property Maintenance Code* or the *International Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

R102.6.1 Additions, alterations, change of use or repairs. *Additions*, *alterations*, relocations, or *repairs* to any *structure* shall conform to the requirements for a new structure without requiring the existing *structure* to comply with the requirements of this code, unless otherwise stated. ~~*Additions, alterations, repairs* and relocations~~ Work performed on existing structures shall not cause an existing building or structure to become less compliant with the provisions of this code for new construction than the *existing building* or structure was prior to the work. ~~*addition*, *alteration* or *repair*. Where additions, *alterations* or changes of use to an existing structure result in a use, occupancy, height or means of egress~~ Where the existing building or structure with the work completed are outside the scope of this code, the building or structure shall comply with the *International Existing Building Code*.

R105.1 Required. Any *owner* or *owner*'s authorized agent who intends to construct, enlarge, add to, alter, *repair*, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, *repair*, remove, relocate, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*.

[RB] ALTERATION. Any construction~~, retrofit or renovation~~ to an *existing* building ~~structure~~ other than *repair* or *addition* that requires a *permit*. Also, a change in a *building*, electrical, gas, mechanical or plumbing system that involves an extension, *addition* or change to the arrangement, type or purpose of the original installation that requires a *permit*. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.
[RB] BUILDING. Any one- or two-family *dwelling* or *townhouse* , or structure within the scope of this code, or portion thereof, used or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, or for any use within the scope of this code, or any *accessory structure*. For the definition applicable in Chapter 11, see Section N1101.6.

Add new definition as follows:

DANGEROUS. Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation or lacks the necessary support of the ground.
2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under permanent, routine or frequent loads; under actual loads already in effect; or under snow, wind, rain, flood, earthquake or other environmental loads when such loads are imminent.

UNSAFE. Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress *facilities*, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of *"Dangerous,"* or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed *unsafe*. A vacant structure that is not secured against entry shall be deemed *unsafe*.

SECTION R301
DESIGN CRITERIA

Revise as follows:

R301.1.3 Engineered design. Where a building of otherwise conventional construction contains structural elements exceeding the limits of Section R301 or otherwise not conforming to this code, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of nonconventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. Engineered design in accordance with the *International Building Code* or, for existing buildings, the *International Existing Building Code* is permitted for *buildings* and structures, and parts thereof, included in the scope of this code.

Reason: This proposal cleans up and clarifies the administrative scope of the IRC with regards to existing residential buildings. Prior revisions for existing buildings were not consistently carried through IRC language, leaving varying phrases that intend to cover the same scope, but contain discrepancies between them.

This will allow building officials and users to more easily identify which existing residential conditions fall within the IRC and which residential conditions should be pushed to the IEBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal codifies common practice and use of the IRC, by explicitly identifying the IRC can be used for existing residential structures.

RB2-25

RB3-25

IRC: R101.2, R102.6, R102.6.1, R105.1, SECTION 202, SECTION 202 (New), R301.1.3, CHAPTER 44 (New), SECTION R4401 (New), R4401.1 (New), BO101.1, BO102.1, BO102.2, SECTION R4402 (New), R4402.1 (New), R4402.2 (New), BO102.9, BO102.8, R4402.5 (New), BO102.6, BO102.6.1, BO102.6.2, BO102.6.3, BO102.4, BO102.5, BO102.7, SECTION R4403 (New), BO104.2.2, BO104.2.1, BO104.2.3, SECTION R4404 (New), BO102.3, BO102.3.1, R4404.2 (New), SECTION R4405 (New), BO104.1, BO104.3, BO104.4, SECTION R4406 (New), BO105.1, BO105.2, BO105.4.3, BO105.4, BO105.4.1, BO105.4.2, BO105.4.2.1, BO105.4.2.2, BO105.4.2.3, BO105.4.2.4, BO105.4.2.5, BO105.5, BO105.5.1, BO105.5.2, BO105.5.3, BO105.5.3.1, BO105.5.3.2, BO105.5.3.3, BO105.5.3.4, BO105.5.3.5, BO105.6, BO105.7, BO105.8, BO105.8.1, BO105.8.2, BO105.8.3, BO105.8.4, BO105.8.5, BO105.8.6, SECTION R4407 (New), BO106.1, BO106.2, BO106.3, R4408 (New), R4408.1 (New), R4408.2 (New), R4408.3 (New), R4409 (New), R4409.1 (New), R4410 (New), BO107.1, R4410.1.1 (New), R4410.2 (New), R4410.2.1 (New), R4410.3 (New), R4410.4 (New), APPENDIX BO

Proponents: Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, relocation, enlargement, addition to, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904, and shall be permitted for repair, alteration, changes of occupancy, addition to and relocation of the following:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .

R102.6 Existing structures. The legal occupancy of any *structure* existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *International Existing Building Code*, the *International Property Maintenance Code* or the *International Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

Delete without substitution:

~~**R102.6.1 Additions, alterations, change of use or repairs.** *Additions*, *alterations* or *repairs* to any *structure* shall conform to the requirements for a new structure without requiring the existing *structure* to comply with the requirements of this code, unless otherwise stated. *Additions*, *alterations*, *repairs* and relocations shall not cause an existing structure to become less compliant with the provisions of this code than the *existing building* or structure was prior to the *addition*, *alteration* or *repair*. Where additions, *alterations* or changes of use to an existing structure result in a use, occupancy, height or means of egress outside the scope of this code, the building shall comply with the *International Existing Building Code* .~~

Revise as follows:

R105.1 Required. Any *owner* or *owner*'s authorized agent who intends to construct, enlarge, alter, *repair*, remove, relocate, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, *repair*, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*.

[RB] ALTERATION. Any construction, ~~retrofit or renovation~~ to an *existing* building ~~structure~~ other than *repair* or *addition* that requires a *permit*. Also, a change in a *building*, electrical, gas, mechanical or plumbing system that involves an extension, *addition* or change to the arrangement, type or purpose of the original installation that requires a *permit*. For the definition applicable in Chapter 11, see Section N1101.6. For the definition applicable in Chapter 24, see Section G2403.

[RB] BUILDING. Any one- or two-family *dwelling* or *townhouse* , or structure within the scope of this code, or portion thereof, used or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, or for any use within the scope of this or any *accessory structure* . For the definition applicable in Chapter 11, see Section N1101.6.

Add new definition as follows:

DANGEROUS. Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation or lacks the necessary support of the ground.
2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under permanent, routine or frequent loads; under actual loads already in effect; or under snow, wind, rain, flood, earthquake or other environmental loads when such loads are imminent.

UNSAFE. Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress *facilities*, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "*Dangerous*," or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed *unsafe*. A vacant structure that is not secured against entry shall be deemed *unsafe*.

Revise as follows:

R301.1.3 Engineered design. Where a building of otherwise conventional construction contains structural elements exceeding the limits of Section R301 or otherwise not conforming to this code, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of nonconventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. Engineered design in accordance with the *International Building Code*, or for existing buildings, the *International Existing Building Code* is permitted for *buildings* and structures, and parts thereof, included in the scope of this code.

Add new text as follows:

CHAPTER 44
EXISTING BUILDINGS AND STRUCTURES

SECTION R4401
GENERAL

R4401.1 Scope. Repairs, alterations, changes of occupancy, additions and relocation of existing buildings shall comply with this chapter.

Revise as follows:

R4401.2 ~~BO101.1~~ Application ~~General.~~ The purpose of these provisions is to encourage the continued use or reuse of legally existing buildings and structures. Work to existing buildings shall comply with the *International Residential Code*, except as modified by this chapter. ~~Structural elements and systems shall comply with Section R102.6.1 and the provisions of this appendix.~~ ~~*Repairs*, *alterations*,~~

~~*additions* and relocation of existing buildings and structures shall comply with the provisions of this code for new construction, except as modified by this appendix.~~

R4401.3 ~~**BO102.1**~~ **Requirements** ~~**General**~~**.** The work shall not cause the *building* or structure to become *unsafe* or adversely affect the performance of the *building*; shall not cause an existing mechanical or plumbing system to become *unsafe*, hazardous, insanitary or overloaded; and unless expressly permitted by these provisions, shall not make the *building* ~~any~~ less compliant with this code or with ~~to any~~ previously *approved* alternative arrangements than it was before the work was undertaken.

R4401.4 ~~**BO102.2**~~ **Identification of work.** The work shall be clearly identified on the *permits* issued under these provisions.

Add new text as follows:

SECTION R4402
COMPLIANCE

Revise as follows:

R4402.1 ~~**R102.6.1**~~ **Additions, alterations, change of occupancy or repairs.** *Additions*, *alterations,* relocations, or *repairs* to any *structure* shall conform to the requirements for a new structure without requiring the existing *structure* to comply with the requirements of this code, unless otherwise stated. ~~*Additions*, *alterations*, *repairs* and relocations~~ Work performed on existing structures shall not cause an existing building or structure to become less compliant with the provisions of this code than the *existing building* or structure was prior to the work ~~*addition*, *alteration* or *repair*. Where additions, *alterations* or changes of use to an existing structure result in a use, occupancy, height or means of egress outside the scope of this code,~~ Where the existing building or structure with the work completed is outside the scope of this code, the building or structure shall comply with the *International Existing Building Code*.

Add new text as follows:

R4402.2 Nonconformities. The work performed shall not create or extend any nonconformity in the existing building to which the work is being done. This section shall apply to structural capacity, non-structural component supports and attachments, accessibility, fire safety, means of egress, or the capacity of mechanical, plumbing or electrical systems.

> **Exception:** Noncomforming non-structural component supports and attachments that serve an addition from within the existing building need not be altered to comply with the *International Residential Code* requirements for new construction, unless the components are part of the addition's life-safety system.

Revise as follows:

R4402.3 ~~**BO102.9**~~ **More restrictive requirements.** *Buildings* or systems in compliance with the requirements of this code for new construction shall not be required to comply with any more restrictive requirement of these provisions.

R4402.4 ~~**BO102.8**~~ **Equivalent alternatives.** Work performed in accordance with the *International Existing Building Code* shall be deemed to comply with the provisions of this code. ~~appendix~~. These provisions are not intended to prevent the use of any alternative material, alternative design or alternative method of construction not specifically prescribed herein, provided that any alternative has been deemed to be equivalent to this code and its use authorized by the *building official*.

Add new text as follows:

R4402.5 Compliance. In addition to the provisions of this chapter, work on existing buildings shall also comply with applicable provisions in other chapters of this code that reference addition, alteration, repair, change of occupancy, or relocation of an existing building, including alteration or repair of specific systems or components. Provisions in other chapters include, but are not limited to, the following:

1. Emergency escape and rescue openings: Sections R319.5, R319.6, and R319.7.
2. Automatic fire sprinkler systems: Sections R309.1 and R309.2
3. Smoke alarms: Section R310.2.2.
4. Carbon monoxide alarms: Sections R311.2.2 and R311.5.
5. Cutting, drilling and notching: Sections R502.8. and R802.7.2
6. Trusses: Sections R505.1.3, R502.12.3, R802.10.4, and G2405.2.
7. Location and site preparation: Section R306.3.1
8. Alterations or repairs of existing basements: Section R319.7
9. Stairways in existing buildings: R318.7.9
10. Energy efficiency: Section N1101.13, and Sections N1109 through N1113.
11. Mechanical: Sections M1202.1, M1202.2, M1308.1, M1411.8, M1601.5, M1801.3, M2101.6, and M2301.1.
12. Fuel gas: Sections G2405.2, G2405.3, G2412, G2417, G2425, G2427, and G2431.1
13. Plumbing: Sections P2502.2, P2503.1, P2603.1, P2603.2, P2906.1.2, P2910.4, P2910.12, P2911.1, P2912.1, P2913.1, P3008.2, P3010, and P3011.
14. Electrical: Sections E3401.2, E3401.4, E3402.1, and E3403.2
15. Flood: Sections R104.3.1, R306

Revise as follows:

R4402.6 **~~BO102.6~~ Replacement windows.** Where an existing window, including the sash and glazed portion, or safety glazing is replaced, the replacement window or safety glazing shall comply with the requirements of Sections ~~BO102.6.1~~ R4402.6.1 through ~~BO102.6.3~~ R4402.6.3, as applicable.

R4402.6.1 **~~BO102.6.1~~ Energy efficiency.** Replacement windows shall comply with the requirements of Chapter 11.

R4402.6.2 **~~BO102.6.2~~ Safety glazing.** Replacement glazing in *hazardous locations* shall comply with the safety glazing requirements of Section R324.

R4402.6.3 **~~BO102.6.3~~ Window fall protection.** Window fall protection shall be installed in accordance with Section R321.2.

R4402.7 **~~BO102.4~~ Smoke alarms.** Smoke alarms shall be provided where required by Section R310.2.2.

R4402.8 **~~BO102.5~~ Carbon monoxide alarms.** Carbon monoxide alarms shall be provided where required by Section R311.2.2.

R4402.9 **~~BO102.7~~ Flood hazard areas.** Work performed in existing buildings located in a flood hazard area as established by Table R301.2 shall be subject to the provisions of Section R104.3.1.

Add new text as follows:

SECTION R4403
MATERIALS

Revise as follows:

R4403.1 ~~**BO104.2.2**~~ **Existing materials.** Materials already in use in a *building* in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the *building official* to be unsafe.

R4403.2 ~~**BO104.2.1**~~ **New and replacement materials.** Except as otherwise required or permitted by this code and in accordance with Section R104.9.1, materials permitted by this code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided that unsafe conditions are not created. Hazardous materials shall not be used where this code would not permit their use in *buildings* of similar occupancy, purpose and location.

R4403.3 ~~**BO104.2.3**~~ **Plumbing materials and supplies.** The following plumbing materials and supplies shall not be used:

1. All-purpose solvent cement, unless *listed* for the specific application.
2. Flexible traps and tailpieces, unless *listed* for the specific application.
3. Solder having more than 0.2-percent lead in the repair of potable water systems.

Add new text as follows:

SECTION R4404
STRUCTURAL

Revise as follows:

R4404.1 ~~**BO102.3**~~ **Structural.** Structural elements and systems that are altered, repaired or replaced shall comply with the structural provisions of this code as modified by this chapter. ~~R102.6.1 and the structural provisions of this appendix.~~ Where new structural elements rely on existing structural elements for resistance to gravity or environmental loads, the supporting existing structural elements down to the foundation shall comply with or be altered to comply with this code as modified by this chapter. All other existing structural elements outside of the work performed shall not become less compliant with this code than before the work was undertaken. ~~The work performed shall not cause the structure to become less compliant with this code than it was before the work was undertaken.~~

R4404.1.1 ~~**BO102.3.1**~~ **Design loads.** The minimum design loads for the existing structure shall be the loads applicable at the time the *building* was constructed. The minimum design loads for new structural components shall comply with this code. Structural elements that are uncovered during the course of the *alteration* and that are found to be unsafe shall be repaired in accordance with Section R102.6.1.

Add new text as follows:

R4404.2 **New structural members and connections.** New structural members and connections shall comply with the detailing provisions of this code for new construction, except as modified by this chapter.

SECTION R4405
REPAIRS

Revise as follows:

R4405.1 ~~**BO104.1**~~ **General.** *Repairs* shall comply with the applicable provisions of this code for new construction as modified by this chapter. ~~or as permitted by this appendix.~~

R4405.2 ~~**BO104.3**~~ **Water closets.** Where any water closet is replaced with a newly manufactured water closet, the replacement water closet shall comply with the requirements of Section P2903.2.

R4405.3 ~~**BO104.4**~~ **Electrical.** Repair or replacement of existing electrical wiring and equipment shall comply with Chapters 34 through 43 .

Add new text as follows:

SECTION R4406
ALTERATIONS

Revise as follows:

R4406.1 **~~BO105.1~~** **General.** *Alterations* to existing buildings shall comply with the provisions of this code for new construction as modified by this chapter.~~, except as permitted by Sections BO105.2 through BO105.8.~~ Engineered design in accordance with Section R301.1.3 shall be permitted to meet the requirements of this section. *Alterations* shall not cause the existing building to become less compliant with the provisions of this code for new construction than the existing building was prior to the work.

R4406.2 **~~BO105.2~~** **Newly constructed elements.** Newly constructed elements, components and systems shall comply with the requirements of this code.

Exceptions:

1. Added openable windows are not required to comply with the light and *ventilation* requirements of Section R325.
2. Newly installed electrical equipment shall comply with the requirements of Section R4406.5 ~~BO105.5~~.

R4406.3 **~~BO105.4.3~~** **Unreinforced masonry parapets.** Unreinforced masonry parapets located in *Seismic Design Category* D2 shall have wall anchors installed at the roofline and additional bracing installed above the roofline whenever a *reroofing permit* is issued and work involves removal of roofing materials from more than 25 percent of the roof area. Such masonry bracing and wall anchors shall be of an *approved* design, unless an evaluation demonstrates compliance of the existing bracing and anchorage.

Exception: Bracing above the roofline shall not be required where the maximum height of unbraced unreinforced masonry does not exceed a height-to-width ratio of 2.5. Height shall be measured from the top of the parapet down to the highest existing brace or anchor point attached to the structure.

R4406.4 **~~BO105.4~~** **Structural.** Altered structural elements and systems shall comply with Section ~~R102.6.1~~R4402.1 and the structural provisions of this chapter~~appendix~~.

R4406.4.1 **~~BO105.4.1~~** **Decreased structural capacity.** Where an *alteration* causes a decrease in capacity in any structural element ~~component~~, that structural element ~~component~~ shall be shown to comply or shall be altered to comply with the applicable provisions of Chapters 3, 4, 5, 6 and 8.

R4406.4.2 **~~BO105.4.2~~** **Increased design loads.** Where an *alteration* causes an increase in loads as described in this section, the existing structural components that support the increased load, including the foundation, shall be shown to comply or shall be altered to comply with the applicable provisions of Chapters 3, 4, 5, 6 and 8. Existing structural components that do not provide support for the increased loads shall not be required to comply with this section.

R4406.4.2.1 **~~BO105.4.2.1~~** **Dead load increase.** *Dead load* shall be considered to be increased for purposes of this section when the weight of materials used for the *alteration* exceeds the weight of the materials replaced, or when new materials or elements are added over existing materials or elements.

Exceptions:

1. *Buildings* in which the increase in *dead load* is due entirely to the *addition* of a second layer of *roof covering* weighing 3 pounds per square foot (psf) (0.1437 kN/m^2) or less over an existing single layer of *roof covering*.
2. Installation of rooftop-mounted photovoltaic (*PV*) panel systems weighing 4 psf (0.1915 kN/m^2) or less over an existing single layer of *roof covering*.

These exceptions shall not be applied simultaneously.

R4406.4.2.2 ~~**BO105.4.2.2**~~ **Live load increase.** An increase in *live load* shall be determined based on Table R301.5.

R4406.4.2.3 ~~**BO105.4.2.3**~~ **Snow load increase.** Snow load shall be considered to be increased for purposes of this section when *alteration* of the roof configuration creates new areas that accumulate drifted snow.

R4406.4.2.4 ~~**BO105.4.2.4**~~ **Wind load increase.** Wind load shall be considered to be increased for purposes of this section when the exposed surface area of any exterior elevation subject to wind pressure is increased by more than 5 percent.

R4406.4.2.5 ~~**BO105.4.2.5**~~ **Seismic load increase.** Seismic load shall be considered to be increased for purposes of this section in existing buildings assigned to *Seismic Design Category* C, D_0, D_1 or D_2 where new materials replace lighter-weight materials in one of the following conditions:

1. Concrete tile or tile *roof covering* of similar weight is installed on more than 50 percent of the total roof area.
2. Brick veneer or *cladding* of similar weight is installed on walls above the second *story*.

R4406.5 ~~**BO105.5**~~ **Electrical equipment and wiring.** Electrical equipment and wiring shall comply with this section.

R4406.5.1 ~~**BO105.5.1**~~ **Materials and methods.** Newly installed electrical equipment and wiring relating to work done in any work area, including in newly installed partitions and ceilings, shall comply with the materials and methods requirements of Chapters 34 through 43.

R4406.5.2 ~~**BO105.5.2**~~ **Electrical service.** Service to the *dwelling unit* shall be not less than 100 ampere, three-wire capacity, and service *equipment* shall be dead front having no live parts exposed that could allow accidental contact. Type “S” fuses shall be installed where fused equipment is used.

Exception: Existing service of 60 ampere, three-wire capacity, and feeders of 30 ampere or larger two- or three-wire capacity shall be accepted if adequate for the electrical load being served.

R4406.5.3 ~~**BO105.5.3**~~ **Additional electrical requirements.** Where the work area includes any of the following areas within a *dwelling unit*, the requirements of Sections BO105.5.3.1 through BO105.5.3.5 shall apply.

R4406.5.3.1 ~~**BO105.5.3.1**~~ **Enclosed areas.** Enclosed areas other than closets, *kitchens*, *basements*, garages, hallways, laundry areas and bathrooms shall have not fewer than two duplex receptacle outlets, or one duplex receptacle outlet and one ceiling- or wall-type lighting outlet.

R4406.5.3.2 ~~**BO105.5.3.2**~~ **Kitchen and laundry areas.** *Kitchen* areas shall have not fewer than two duplex receptacle outlets. Laundry areas shall have not fewer than one duplex receptacle outlet located near the laundry equipment and installed on an independent branch circuit.

R4406.5.3.3 ~~**BO105.5.3.3**~~ **Ground-fault circuit interruption.** Ground-fault circuit interruption shall be provided on newly installed receptacle outlets if required by Chapters 34 through 43.

R4406.5.3.4 ~~**BO105.5.3.4**~~ **Lighting outlets.** Not less than one lighting outlet controlled by a *listed* wall-mounted device shall be provided in every bathroom, hallway, *stairway*, attached garage and detached garage with electric power to illuminate outdoor entrances and exits, and in utility rooms and *basements* where these spaces are used for storage or contain equipment requiring service. The wall-mounted control device shall be located near an entrance to the room.

R4406.5.3.5 ~~**BO105.5.3.5**~~ **Clearance.** Clearance for electrical service equipment shall be provided in accordance with Chapters 34 through 43.

R4406.6 ~~**BO105.6**~~ **Ventilation.** Reconfigured spaces intended for occupancy and spaces converted to habitable or occupiable space in any work area shall be provided with *ventilation* in accordance with Section R325.

R4406.7 ~~**BO105.7**~~ **Ceiling height.** Where a *habitable attic* or *habitable space* is created in an existing building, ceiling heights shall be not less than 6 feet 8 inches (2032 mm). Bathrooms, toilet rooms and laundry rooms shall have a *ceiling height* of not less than 6 feet 4 inches (1930 mm).

Exceptions:

1. For rooms with sloped ceilings, the required floor area of the room shall have a *ceiling height* of not less than 5 feet (1524 mm), and not less than 50 percent of the required floor area shall have a *ceiling height* of not less than 6 feet 8 inches (2134 mm).
2. At beams, girders, ducts or other obstructions, the ceiling height shall be not less than 6 feet 4 inches (1930 mm) from the finished floor.

R4406.8 ~~**BO105.8**~~ **Stairs, handrails and guards.** *Stairs , handrails* and guards shall comply with this section.

R4406.8.1 ~~**BO105.8.1**~~ **Stair width.** Existing *basement stairs* and *handrails* not otherwise being altered or modified shall be permitted to maintain their current clear width at, above and below existing *handrails*.

R4406.8.2 ~~**BO105.8.2**~~ **Stair headroom.** Headroom height on existing *basement stairs* being altered or modified shall not be reduced below the existing *stairway* finished headroom. Existing *basement* stairs not otherwise being altered shall be permitted to maintain the current finished headroom.

R4406.8.3 ~~**BO105.8.3**~~ **Stair landing.** Landings serving existing *basement stairs* being altered or modified shall not be reduced below the existing *stairway* landing depth and width. Existing *basement* stairs not otherwise being altered shall be permitted to maintain the current landing depth and width.

R4406.8.4 ~~**BO105.8.4**~~ **Stair treads and risers.** An existing *stairway* shall not be required to comply with Section R318.7.5 where the existing space and construction does not allow a reduction in pitch or slope. Where *risers* are added to an existing *stair*, the tread and riser dimension of the added *risers* shall match the existing *stair*.

R4406.8.5 ~~**BO105.8.5**~~ **Stairway illumination.** *Stairways* within the work area shall be provided with illumination in accordance with Section R325.7.

R4406.8.6 ~~**BO105.8.6**~~ **Handrails and guards.** If a stair or any portion of a *stair* is altered, a *handrail* and guard, where required, shall be provided in accordance with Sections R318 and R320.

Add new text as follows:

SECTION R4407
ADDITIONS

Revise as follows:

R4407.1 ~~**BO106.1**~~ **General.** Where existing buildings with the *addition* are within the scope of this code, *additions* shall comply with this section and other applicable provisions of this code for new construction except as modified by this chapter. ~~or as permitted by this appendix.~~ Engineered design in accordance with Section R301.1.3 shall be permitted to meet the requirements of this section.

R4407.2 ~~**BO106.2**~~ **Structure for horizontal additions.** Where an *addition* involves new construction attached to an existing building, the new construction shall meet all of the structural requirements of this code for new construction. *Alterations* to the existing building shall comply with the requirements governing *alterations* within this code. In wood light-frame *additions*, connection of the structural components shall be permitted to be provided using wall top plates and *addition* studs that abut the existing building. Wall top plates shall be lapped and spliced in accordance with Section R602.3.2. Abutting studs shall be fastened in accordance with Table R602.3(1).

Exception: The *addition* structure shall be permitted to be connected to the existing building in accordance with accepted engineering practice.

R4407.3 ~~**BO106.3**~~ **Structure for vertical additions.** Where an *addition* involves new construction that adds a *story* to any part of the existing building or vertically increases the height of any part of the existing building, the new construction and the existing building together shall be shown to comply with, or altered to comply with, all of the structural requirements of this code for new construction.

Exception: Where the new structure and the existing structure together are evaluated in accordance with accepted engineering practice and are shown to be sufficient to support the combined loads from the new structure and existing structure, no structural *alterations* are required.

Add new text as follows:

R4408
CHANGE OF OCCUPANCY

R4408.1 General. Existing residential buildings and structures with a change of occupancy shall comply with this code except as modified by this chapter. Where a change of occupancy with the work performed is not within the scope of this code, the provisions of the *International Existing Building Code* shall apply.

R4408.2 Change of occupancy. Where the live load for the proposed new occupancy is higher than the live load for the current occupancy in accordance with Table R301.5, existing framing and foundations shall be shown to comply or altered to comply with Chapters 4 through 6 of this code.

R4408.3 Live/work units. Portions of a dwelling unit converted to a *live/work* unit shall be shown to comply with or altered to comply with Section R322.2 and Section 508.5 of the *International Building Code*.

R4409
HISTORIC BUILDINGS

R4409.1 General. Work performed on existing *historic buildings* that are within the scope of the *International Residential Code* shall comply with this code except as modified by this chapter. Where a *historic building* with the work performed is not within the scope of this code, the provisions of the *International Existing Building Code* shall apply

R4410
RELOCATED BUILDINGS

Revise as follows:

R4410.1 ~~**BO107.1**~~ **General.** These provisions apply to residential buildings or structures within the scope of the *International Residential Code* that meet all the following conditions:

1. The building is relocated from the original property to a new property or to a new location on the same property.
2. The relocated building was originally designed and constructed to remain on the original site of construction.
3. The relocated *building* remains safe for human occupancy as determined by the *International Existing Building Code*, *International Fire Code* and the *International Property Maintenance Code*.

~~Residential buildings or structures moved into or within the *jurisdiction* are not required to comply with the requirements for new construction under this code, provided they comply with all of the following conditions:~~

1. ~~The *building* shall be safe for human occupancy as determined by the International Fire Code and the International Property Maintenance Code.~~

2. ~~Any *repair*, *alteration* or change of use undertaken within the relocated structure shall comply with the requirements of this code applicable to the work being performed.~~

3. ~~Any field fabricated elements shall comply with the applicable requirements of this code.~~

Add new text as follows:

R4410.1.1 Relocatable buildings. Buildings and structures originally designed and constructed to be relocatable to new sites are outside the scope of this section.

R4410.2 Conformance. Any *repair*, *alteration* or *change of occupancy* undertaken within the relocated building shall comply with the applicable provisions of this code for new construction and this chapter. New constructed elements shall comply with the requirements of this code for new construction. Existing elements that are not *repaired*, *replaced*, or *altered* are not required to comply with the requirements of this code for new construction.

R4410.2.1 Unsafe conditions. Elements that are uncovered during the course of the relocation and that are found to be *unsafe* shall be repaired or replaced in accordance with this chapter.

R4410.3 Design criteria. Where climatic and geographic design criteria at the proposed new site of a relocated building is higher than at the original site, the relocated building shall be shown to comply with the structural requirements of this code or shall be altered as needed to comply. Climatic and geographic design criteria for both sites shall be determined in accordance with Section R301.2.

R4410.4 Foundation. The foundation and connection of the relocated building to the foundation shall comply with this code for new construction.

Delete without substitution:

~~APPENDIX BO~~
~~EXISTING BUILDINGS AND STRUCTURES~~

Reason: This proposal creates a chapter dedicated to existing residential buildings and structures. Current existing residential provisions are located throughout the code and within Appendix BO. Having existing residential provisions scattered in multiple locations makes it difficult for users to ensure they have identified and complied with all applicable requirements. This chapter will incorporate the language from Appendix BO and includes pointers to other non-structural IRC sections specifically applicable to existing buildings.

Although the IRC has purported to be a standalone code for both new and existing residential buildings, IRC code provisions have been written for new construction. In many cases, it is difficult if not impossible to apply these provisions to existing buildings. The IRC scope allows use of the IEBC where necessary, but IEBC provisions have been written for commercial construction. By creating a new IRC chapter dedicated to existing residential buildings, provisions that are focused specifically on residential and existing construction can be located in one central location within the IRC.

This will allow users to easily find applicable provisions and facilitate comprehensive reviews and understanding for future IRC code changes.

Cost Impact: Increase

Estimated Immediate Cost Impact:

For jurisdictions not already enforcing Appendix BO: we estimate a lower-bound cost of $2000 and a median cost of $43,000, for the purposes of this proposal. The cost of work can vary widely depending on the scope of work being performed (repair, addition, relocation, etc.) and a meaningful cost is difficult to quantify.

For jurisdictions already enforcing Appendix BO: there will be no change in cost due to this proposal which moves 2024 Appendix BO provisions into the main body of the IRC.

Estimated Immediate Cost Impact Justification (methodology and variables):

The $2,000 lower bound cost is estimated for evaluation of the existing structure to determine if strengthening is needed. The $43,000 median cost assumes that strengthening of structural components such as the wall bracing and load path connections is needed throughout the home. This will often involve opening of wall finish materials to access sheathing and framing. It is an approximate number based on a 2023 NAHB median home cost of $425,000, and an estimated cost of strengthening of approximately 10% of the home cost based on judgment. This cost addresses structural strengthening only, not additional work that might be associated with the work performed.

Non-structural requirements have not been specifically considered in this cost estimate because the current 2024 Appendix BO points back to IRC sections in the main code for items such as smoke alarms and window requirements. As such, in most cases moving the Appendix into the IRC will not result in a cost change for non-structural requirements.

RB3-25

RB4-25

IRC: R101.2

Proponents: Jeffrey Shapiro, P.E., FSFPE, LTFR, representing Lake Travis Fire Rescue (jeff.shapiro@intlcodeconsultants.com)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: Where provided with an automatic sprinkler system complying with Section P2904, detached one- and two-family dwellings and townhouses not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height shall be permitted to be constructed or repurposed in accordance with this code to accommodate any of the following additional uses: ~~The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904~~:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .

Reason: There has been an increased level of discussion lately regarding the permissible use of one- and two-family dwellings and townhouses to accommodate purposes where varying levels of care are provided. While the model codes (ICC and NFPA) are 100-percent clear that newly constructed residential occupancies require fire sprinklers, dwellings that are being repurposed fall into a gray area of following the IEBC, with no clear path to the IRC. The IEBC currently provides an exception to the scope in Section 101.2, which states:"Exception: Detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress, and their accessory structures not more than three stories above grade plane in height, shall comply with this code or the International Residential Code."

The reference to "one- and two-family dwellings and townhouses" doesn't mention the additional listed uses in the IRC scope exception, and these additional uses are only deferred by the IBC to the IRC for "construction," as stated in the text of the exception, implying new. Nevertheless, repurposing a dwelling for the listed uses, should seemingly be permissible under the IRC if all of the applicable requirements are met. This is not intended to resolve the current issue associated with claims of discrimination against occupants who may not be related and may be receiving care. It simply opens an option for some repurposed buildings to be regulated by the IRC rather than the IEBC or IBC. It also clarifies that you cannot repurpose a building to these uses without providing sprinkler protection, just as the IBC doesn't defer new construction unless sprinklers are provided.

Although I serve as a consultant to the National Fire Sprinkler Association, this proposal has not ben reviewed or endorsed by NFSA, and I am not representing NFSA on this issue.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The IRC and IBC already require residential uses to be sprinklered. This proposal simply clarifies that "construction" under the current IRC exception could also include repurposing of an existing dwelling to the listed uses.

RB5-25

IRC: R101.2, R301.5.1 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904:

1. <u>The nonresidential area of the live</u> ~~Live~~/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .

SECTION R301
DESIGN CRITERIA

R301.5 Live load. The minimum uniformly distributed *live load* shall be as provided in Table R301.5.

Add new text as follows:

<u>**R301.5.1** **Live/work unit live loads.** The live loads for the nonresidential area of the live/work units shall be in accordance with *International Building Code* Section 508.5.8</u>

Reason: This proposal attempts to alleviate confusion regarding the nonresidential portion of the live/work unit and how portions of the IBC apply. Some code officials and architects have differed particularly on how live loads apply to the nonresidential portion under the IBC and the residential live loads in accordance with R301.5.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification of the intent of the refernence back to the IBC for the business portion of the live/work units.

RB5-25

RB6-25

IRC: R101.2, R316.3

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, removal and demolition of detached one- and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate means of egress and their *accessory structures* not more than three *stories above grade plane* in height.

Exception: The following shall be permitted to be constructed in accordance with this code where provided with an automatic sprinkler system complying with Section P2904:

1. Live/work units located in *townhouses* and complying with the requirements of Section 508.5 of the *International Building Code*.
2. *Owner*-occupied *lodging houses* with five or fewer *guestrooms*.
3. A care facility with five or fewer *persons* receiving custodial care within a *dwelling unit*.
4. A care facility with five or fewer persons receiving medical care within a *dwelling unit*.
5. A day care facility for five or fewer *persons* of any age receiving care within a *dwelling unit* .
6. A *townhouse unit* or *dwelling* with a *habitable attic* shall be permitted four *stories above grade plane* in height where the *habitable attic* complies with all of the following:
   - 6.1. The aggregate floor area of the *habitable attic* is not greater than one-third the floor area of the *story* below.
   - 6.2. The occupiable space is enclosed by the *roof assembly* above and to the side, knee walls or gable end walls, if applicable, on the sides, and the floor-ceiling assembly below.
   - 6.3. The floor of the *habitable attic* does not extend beyond the *exterior walls* of the *story* below.

SECTION R316
HABITABLE ATTICS

R316.3 Story above grade plane. A *habitable attic* shall be considered a *story above grade plane.*

~~**Exceptions:** A *habitable attic* shall not be considered to be a *story above grade plane* provided that the *habitable attic* meets all the following:~~

1. ~~The aggregate area of the *habitable attic* is either of the following:~~
   - ~~1.1. Not greater than one-third of the floor area of the *story* below.~~
   - ~~1.2. Not greater than one-half of the floor area of the *story* below where the *habitable attic* is located within a *dwelling unit* equipped with an automatic sprinkler system in accordance with Section P2904.~~
2. ~~The occupiable space is enclosed by the *roof assembly* above, knee walls, if applicable, on the sides and the floor-ceiling assembly below.~~
3. ~~The floor of the *habitable attic* does not extend beyond the exterior walls of the story below.~~

4. ~~Where a *habitable attic* is located above a third story, an automatic sprinkler system in accordance with Section P2904 shall be installed in the *habitable attic* and remaining portion of the townhouse unit or dwelling unit or units located beneath the *habitable attic*.~~

Reason: When habitable attics were first introduced in the IRC it was a simple definition for the sake of addressing a special attic space constructed much like an unfinished basement. It recognized the interest of people to construct a bonus space in their attic, within the building thermal envelope. This concept has been lost through cycles of code development. Now that the habitable attic is just another story above grade plane, there is really nothing special about it anymore other than the 30 psf minimum design floor load

This subject now dances around the idea of creating a fourth story above grade plane when installing a sprinkler system and then not calling it a story above grade plane.

Can we stop being silly. A fourth floor habitable attic is literally as far above grade as you could possibly get. Let's start using words a little more sensibly.

For all of time, the scope of IRC buildings and the history of the FHA minimum property standards that preceded it have been based on a limit of three stories above grade plane. In the scope section, there are specific allowances for when a sprinkler is installed. This seems like the most appropriate place to present the allowance of a fourth story above grade habitable attic. The limit of "story above grade plane" only shows up in this scope section, and then is altered by the section on habitable attics. Why put it there? Why not provide all the details for "story above grade plane" in the section discussing it. (NOTE: "story above grade plane" also appears as a limit in the sections for masonry and the appendices for straw clay and hemp lime construction, but those seem like the correct locations for those subjects)

The habitable attic section is strangely written. In the exception allowing a habitable attic to not be a story above grade plane, it requires sprinklers if it is in the fourth story position. In the same exception, it allows 1/2 the area of the floor below instead of 1/3 when a sprinkler is installed. This begs the question: Why would anyone call it NOT a story above grade plane unless it's because you want it to be a fourth story? In that case, you have to be sprinklered, so it's nonsensical to they state "if" it is sprinklered, you can go 1/2 the area

The concept of a habitable attic was always that it be within a conventional attic space. By geometry and history, the 1/3 limitation is appropriate. Especially if the only reason to call it a habitable attic rather than just another story with habitable space is to get it on the fourth story. A habitable attic is now considered a story above grade plane, so there is no need to restrict its area unless it's in the fourth story location. And in that location, and with a reduced floor design live load (30 psf), it is my opinion that it is more appropriate to limit it to 1/3 the area below.

I was working on a much larger proposal for a broad rewrite of all the attic provisions in the IRC, as they have gotten very messy and are located throughout the IRC. Unfortunately, I could not complete it sufficiently in time for the 2027 IRC. There are more than half a dozen different terms used for describing various attics and when you look at all the attic provisions as a whole, it's a mess. It's not conducive to consistent understanding. It's not conducive to learning the IRC. If this proposal were approved, Section 316 for habitable attics would have little use. However, I suggest retaining it was a placeholder for future work in clarifying all the attic provisions with a proposal for the 3030 IRC to provide information for all types of attics and codes for attics.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal does not affect the cost of construction. It does reduce the allowable area of a habitable attic in a fourth story above grade plane location in a dwelling unit with sprinklers. That is not a change in cost, but a change in design freedom. There should be a requirement to state whether a proposal increases or decreases design freedom when submitting a proposal. So I'm providing that.

RB6-25

RB7-25

IRC: R101.3

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

R101.3 Purpose. The purpose of this code is to establish minimum requirements to provide a reasonable level of <u>life</u> safety, health and general welfare through affordability, structural strength, means of egress, stability, sanitation, light and *ventilation*, energy conservation and safety to life and ~~property~~ <u>protection</u> from fire and other hazards and to provide a reasonable level of safety to firefighters and emergency responders during emergency operations.

Reason: The purpose of adding "life" and "protection" to this proposal is to be consistent with other codes. It was decided to delete the "property" and replace with "protection" since the code's purpose is overall protection.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The net effect of the code change proposal will not increase or decrease the cost of construction. This is correllation and editorial change with no changes to technical requirements in the IRC.

RB7-25

RB8-25

IRC: R104.3.1

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

Revise as follows:

R104.3.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, *addition*~~, *alteration*, *repair*~~ or other improvement of *existing buildings* or structures located in ~~a~~ flood hazard ~~area~~ areas ~~as established by Table R301.2~~, the *building official* shall determine if the proposed work constitutes *substantial improvement* or repair of *substantial damage*. Where the building official determines that the proposed work constitutes s*ubstantial improvement* or repair of *substantial damage*, and where required by this code, the building shall comply with Section R306.~~examine or cause to be examined the *construction documents* and shall make a determination with regard to the value of the proposed work. For *buildings* that have sustained damage of any origin, the value of the proposed work shall include the cost to *repair* the *building* or structure to its predamaged condition. If the *building official* finds that the value of proposed work equals or exceeds 50 percent of the market value of the building or structure before the damage has occurred or the improvement is started, the proposed work is a *substantial improvement* or *repair* of *substantial damage* and the *building official* shall require existing portions of the entire building or structure to meet the requirements of Section R306.~~

Reason: This proposal is editorial, to make IRC Section R104.3.1 match the same sections that appear in the IBC, IEBC, IMC, IPC, IFGC, ISPSC, and IPSDC. The IRC defines the term “Flood hazard area," which means it is no longer necessary to refer to Table R301.2. In addition, the IRC now defines the terms “substantial damage” and “substantial improvement,” which means the description of those terms is no longer needed in Section R104.3.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial to make language consistent across similar sections of the IRC and several other codes and remove unnecessary text in light of definitions being added to the IRC. There is no change to the technical content of the provisions. By making similar language more consistent there will be no cost impact when approving this proposal.

RB8-25

RB9-25

IRC: R106.1.3, R602.10

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov)

2024 International Residential Code

Revise as follows:

R106.1.3 Information on braced wall design. For *buildings* and structures utilizing braced wall design, and where required by the *building official*, *braced wall lines* shall be identified on the *construction documents.* Pertinent information ~~including, but not limited to, bracing methods, location and length of *braced wall panels* and foundation requirements of *braced wall panels* at top and bottom shall be provided.~~ shall be provided with additional documentation as required by the *building official*. The documentation shall include the following information:

1. Locations of *braced wall lines*.
2. Spacing of *braced wall lines*, including any offset of the *braced wall panel line*.
3. *Braced wall line* end conditions.
4. Locations and lengths of *braced wall panels*.
5. *Braced wall panel* uplift loads.
6. Construction methods for *braced wall panels*, including framing connections at top and bottom to floor, roof, and/or ceiling framing, and foundation requirements.

R602.10 Wall bracing. *Buildings* shall be braced in accordance with this section or, when applicable, Section R602.12. Where a *building*, or portion thereof, does not comply with one or more of the bracing requirements in this section, those portions shall be designed and constructed in accordance with Section R301.1. Information for the bracing shall be provided on the construction documents in accordance with Section R106.1.3.

Reason: This proposal reorganises the required items into list form to allow for easier verification of compliance. This proposal also elaborates on the required documentation to provide clarity as to exactly what is required to be included. A requirement to include uplift load on the construction drawings is also included, similar to existing requirements for inclusion of other loads on the construction drawings (dead, live, environmental, etc). Since this load must be calculated to determine connection requirements for the braced wall panels, this requirement does not add any additional design burden, simply requires the inclusion of this load on the drawings.

To direct the code book user to the construction document requirements in Chapter 1, a reference was added to Section R602.10.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal reorganises the section into a numbered list for clarity. It also adds a requirement to put the uplift load on the construction drawings, but since this load must be calculated to determine connection requirements for the braced wall panels, this requirement does not add any additional design burden, and thus does not have any cost impact.

RB10-25

IRC: SECTION 202, R106.2 (New), R106.1.1, R106.2.2 (New), R106.2.3 (New), R106.2.4 (New), R106.2.5 (New), R106.2, 106.2.6.1 (New)

Proponents: Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov)

2024 International Residential Code

Revise as follows:

[RB] CONSTRUCTION DOCUMENTS. Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building *permit*. ~~Construction drawings shall be drawn to an appropriate scale.~~ For the definition applicable in Chapter 11, see Section N1101.6.

Add new text as follows:

R106.2 Construction Documents. Construction documents shall be in accordance with Section R106.2.1 though Section R106.2.8.

Revise as follows:

~~**R106.1.1**~~ **R106.2.1 Information on construction documents.** *Construction documents* shall be drawn upon suitable material. Electronic media documents are permitted to be submitted where *approved* by the *building official*. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *building official.*

Add new text as follows:

R106.2.2 Fire protection system shop drawings. Shop drawings for the *fire protection systems* shall be submitted to indicate conformance this code and the *construction documents* and shall be *approved* prior to the start of system installation. Shop drawings shall contain all information as required by the referenced installation standards in Section P2904.

R106.2.3 Means of egress. The *construction documents* shall show in sufficient detail the location, construction, size and character of all portions of the *means of egress* including the path of the exit discharge to the *public way* in compliance with the provisions of this code.

R106.2.4 Exterior wall envelope. *Construction documents* for all *buildings* shall describe the *exterior wall envelope* in sufficient detail to determine compliance with this code. The *construction documents* shall provide details of the *exterior wall envelope* as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, *water-resistive barrier* and details around openings. The *construction documents* shall include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the *construction documents* maintain the weather resistance of the *exterior wall envelope.* The supporting documentation shall fully describe the *exterior wall* system that was tested, where applicable, as well as the test procedure used.

R106.2.5 Exterior balconies and elevated walking surfaces. Where balconies or other elevated walking surfaces have *weather-exposed surfaces*, and the structural framing is protected by an impervious moisture barrier, the *construction documents* shall include details for all elements of the impervious moisture barrier system. The *construction documents* shall include manufacturer's instructions.

Revise as follows:

~~**R106.2**~~ **R106.2.6 Site plan or plot plan.** The *construction documents* submitted with the application for *permit* shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, ~~and~~ distances from *lot lines*~~.~~, the established street grades and the proposed finished grades and, as applicable, *flood hazard areas*, *floodways*, and *design flood elevations*. The site plan shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of *existing structures* and construction that are to remain on the site or plot. The *building official* is authorized to waive or modify the requirement for a site plan where the application for *permit* is for *alteration* or *repair* or where otherwise warranted.

Add new text as follows:

106.2.6.1 Design flood elevations. Where design flood elevations are not specified, they shall be established in accordance with Section R306.1.4.

Reason: Definition of "Construction Documents" do not match in IRC and IBC. Removed language from IRC definition, as it has information that is referenced in other provisions. IRC is missing provisions to state what is to be included on Construction Documents that IBC has, so they have been added to match format and definitions of IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact as this proposal only adds language to definitions, as well as matching definitions between code books.

RB10-25

RB11-25

IRC: R107.1, R107.2, R107.3, R107.4

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

SECTION R107
TEMPORARY STRUCTURES AND USES

Revise as follows:

R107.1 General. The *building official* is authorized to issue a *permit* for temporary structures ~~and temporary~~ uses, equipment or systems. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause.

R107.2 Conformance. Temporary structures ~~and~~ uses, equipment or systems shall conform to the ~~structural strength, fire safety, means of egress, light, *ventilation* and sanitary~~ requirements of this code as necessary to ensure the public health, safety and general welfare.

R107.3 Temporary ~~power~~ service utilities. The *building official* is authorized to give permission to temporarily supply service utilities in accordance with Section R111. ~~and use power in part of an electric installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in NFPA 70.~~

R107.4 Termination of approval. The *building official* is authorized to terminate such *permit* for a temporary ~~structure~~ structures, uses, equipment or ~~use~~ systems and to order the ~~temporary structure or use~~ same to be discontinued.

Reason: This proposal was approved for IBC, IEBC, IFC, IFGC, IMC, IPC, IPSDC, ISPSC, IWUIC.

The IRC committee objected to the use of the term 'system', however, this is already used in several places in R111 and is commonly understood to be a set of things working together. While brought up by the last committee that "system" is not defined in the International Residential Code (IRC), it should not be for the following reasons:

The word "system" is a common word with a well-understood meaning. It is defined in most dictionaries as a set of things working together as a whole or a complex whole consisting of parts that are interconnected and interdependent.

The IRC does not use the word "system" in a technical sense. It simply uses the word to refer to any group of components that work together to achieve a common goal. For example, the IRC refers to the "plumbing system," the "electrical system," and the "mechanical system", all without definition.

Defining the word "system" in the IRC would not add any clarity to the code, alternatively, defining the word "system" in the IRC could actually lead to confusion.

Generally - The word "use" is moved to the front, and the lists are made the same throughout all the codes.

Temporary power - The allowances for temporary connection under inspection and testing address more than just utilities, so the language in this section should match. The phrase "certificate of completion" is not defined, so "approved" would be a better choice.

The section on Conformance includes a laundry list "structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary", that is not needed for the section and includes provisions that are not addressed in all of the codes (e.g. IPC does not address structural strength, means of egress, or light).

While brought up by the last committee that "system" is not defined in the International Residential Code (IRC), it should not be for the following reasons:

The word "system" is a common word with a well-understood meaning. It is defined in most dictionaries as a set of things working

together as a whole or a complex whole consisting of parts that are interconnected and interdependent.

The IRC does not use the word "system" in a technical sense. It simply uses the word to refer to any group of components that work together to achieve a common goal. For example, the IRC refers to the "plumbing system," the "electrical system," and the "mechanical system", all without definition.

Defining the word "system" in the IRC would not add any clarity to the code, alternatively, defining the word "system" in the IRC could actually lead to confusion.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is only removing repeating requirements; therefore, this revision is strictly editorial and will not have any changes to the construction requirements.

RB11-25

RB12-25

IRC: SECTION R109, R109.1.4, R109.1.5 (New), R109.1.5, R109.1.5.1, R109.1.6, R109.1.6.1

Proponents: Theresa Weston, The Holt Weston Consultancy, representing Air Barrier Association of America (ABAA) (holtweston88@gmail.com)

2024 International Residential Code

SECTION R109
INSPECTIONS

R109.1.4 Frame and masonry inspection. Inspection of framing and masonry construction shall be made after the roof, masonry, framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are *approved*.

Add new text as follows:

R109.1.5 Water-resistive barrier inspection. An inspection shall be made of the weather-resistant exterior wall envelope as required by Section R703.1 and flashings as required by Section R703.4 to prevent water from entering the weather-resistive barrier. Inspection is required for water-resistive barrier material and installation, prior to application of exterior insulation, roofing materials or exterior wall cladding, veneer or finishes.

Revise as follows:

~~**R109.1.5**~~ **R109.1.6 Other inspections.** In addition to inspections in Sections R109.1.1 through R109.1.4, the *building official* shall have the authority to make or require any other inspections to ascertain compliance with this code and other laws enforced by the *building official*.

~~**R109.1.5.1**~~ **R109.1.6.1 Fire-resistance-rated construction inspection.** Where fire-resistance-rated construction is required between *dwelling units* or due to location on property, the *building official* shall require an inspection of such construction after lathing or *gypsum panel products* are in place, but before any plaster is applied, or before panel joints and fasteners are taped and finished.

~~**R109.1.6**~~ **R109.1.7 Final inspection.** Final inspection shall be made after the permitted work is complete and prior to occupancy.

~~**R109.1.6.1**~~ **R109.1.7.1 Elevation documentation.** If located in a flood hazard area, the documentation of elevations required in Section R306.1.10 shall be submitted to the *building official* prior to the final inspection.

Reason: This proposal requires an inspection of *water-resistive barrier* installation. The proper installation of water-resistive barriers is required for the performance of the water management of the exterior wall assembly. The need for inspection of the *water-resistive barrier* installation is evidenced by a number of jurisdictions that have begun requiring inspections, including Utah, the District of Columbia, and Rockville, MD.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal would not change the cost of materials or the construction process as it does not make new requirements other than the inspection of the installation. There may be a cost increase on the order of $280 to $500 due the inspection itself.

Estimated Immediate Cost Impact Justification (methodology and variables):

Costs for inspection including schedule disruptions are "one-off" costs and cannot be generally assessed. However an internet search found that an inspection would be in the $280 to $500 range.

RB13-25

IRC: 202 (New), R330.1, SECTION R333 (New), R333.1 (New), R333.2 (New), R333.3 (New), UL Chapter 44 (New)

Proponents: Rebekah Hren, representing SELF (rebekah.hren@gmail.com); Lyn Stoler, representing Impulse Labs (lstoler@impulselabs.com); Bert Muthalaly, CEO / Electra Research, representing Electra Research, Inc. (bert@electra.com); Joshua Land, representing Copper (josh@copperhome.com)

2024 International Residential Code

Add new definition as follows:

<u>**APPLIANCE, BATTERY-POWERED.** An *appliance* incorporating detachable, integral, or separable battery packs for its primary or secondary power source, which is not regulated as an energy storage system (ESS). Examples include battery-powered cooktops, ranges, and refrigerators.</u>

SECTION R330
ENERGY STORAGE SYSTEMS

Revise as follows:

R330.1 General. *Energy storage systems (ESS)* shall comply with the provisions of this section.

Exceptions:

1. *ESS listed* and *labeled* for use in habitable spaces, in accordance with UL 9540 and where installed in accordance with the listing, the manufacturer's instructions and NFPA 70.
2. *ESS* less than 1 kWh (3.6 megajoules).
3. <u>Battery-powered appliances and equipment regulated by Section R333.</u>

Add new text as follows:

<u>SECTION R333</u>
<u>BATTERY-POWERED APPLIANCES AND EQUIPMENT</u>

<u>**R333.1 General.** Battery-operated appliances and equipment that incorporate a primary or secondary battery power source shall comply with Section R333.2 and R333.3..</u>

<u>**R333.2 Equipment Listings.** Battery-powered appliances and equipment shall be *listed* and *labeled* in accordance with UL 2595 or the applicable standard for their use.</u>

<u>**R333.3 Installation.** Battery-powered appliances and equipment shall be installed and operated in accordance with their listing, the manufacturer's instructions, and NFPA 70.</u>

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

<u>UL 2595-2015</u> <u>General Requirements for Battery-Powered Appliances</u>

Attached Files

- **Attach1_IRC Letter of Support battery powered appliances.pdf**
  https://www.cdpaccess.com/proposal/12029/35712/files/download/9390/
- **Attach2_IRC letter of support battery-powered appliances_2025.pdf**
  https://www.cdpaccess.com/proposal/12029/35712/files/download/9338/

Reason: Appliances and equipment with integrated batteries, designed for installation in residential occupancies, are quickly entering the consumer marketplace. These new appliances provide more options for consumers.

These appliances do not meet the definition for an ESS, but they do incorporate batteries to power the appliance. This proposal for a new section is based on the language used in 2024 Group A Agenda item F58-24, Section 322.6.4, for battery-powered equipment and appliances. This proposal includes a new R202 definition, and an exception to R330 (ESS), both of which clarify the distinction between ESS and battery-powered appliances.

This proposed language also correlates with sections of the IRC that require listings for appliances and equipment. For example, Section M1901.2 requires cooking appliances to be listed and labeled, and to comply with UL 858 or UL 1026.There is a trend towards appliances and equipment incorporating batteries to assist with multiple functionalities. For example, for high current-draw appliances like a range, batteries can enable the use of existing 120VAC wiring circuits without expensive re-wiring requirements or electrical panel upgrades, with the battery supplementing grid power supply. Batteries can also provide temporary standby power for refrigerators or freezers during power outages, potentially saving hundreds or thousands of dollars in food waste.

Adding this new section is important because not every device or piece of equipment with a battery is regulated as an ESS based on the scope of the standards that list ESS. This is demonstrated by the F58-24 and F230-24 proposals for the IFC. This proposal helps clarify the safety and installation requirements for battery-powered appliances and equipment.Three examples of manufacturers currently bringing products to market are:

https://www.impulselabs.com/product

https://www.electra.com

https://copperhome.com

New York Power Authority and NYC Housing Authority have selected Copper as the winner of their Induction Stove Challenge. The agencies are planning to award the company a $32 million, seven-year contract to design, prototype, test, and install 10,000 stoves in apartments throughout the city to replace gas appliances without requiring substantial and expensive wiring upgrades.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides more options for construction. It does not increase or decrease the cost of construction.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
UL 2595-2015 General Requirements for Battery-Powered Appliances

RB13-25

RB14-25

IRC: SECTION 202 (New)

Proponents: Stuart Foster, representing self

2024 International Residential Code

Add new definition as follows:

BALANCED DOOR. A door equipped with double-pivoted hardware so designed as to cause a semicounterbalanced swing action when opening.

Reason: This is consistent with the IBC definition for balanced door.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a definition and has not cost impact.

RB14-25

RB15-25

IRC: SECTION 202 (New), R302.2, R302.2.1, R302.2.2, R302.2.3, R302.2.4, R302.2.5, R302.2 (New), R302.2.6, R302.2.2 (New), R302.2.2.1 (New), R302.2.2.1.1 (New), FIGURE R302.2.2.1.1 (New), R302.2.2.1.2 (New), FIGURE R302.2.2.1.2 (New), R302.2.2.1.3 (New), FIGURE R302.2.2.1.3 (New), R302.2.2.2 (New), R302.2.3 (New), R302.2.4 (New), R302.2.4.1 (New), R302.2.4.2 (New), R302.2.4.2.1 (New), R302.2.4.2.2 (New), R302.2.4.3 (New), R302.2.4.3.1 (New), R302.2.4.3.2 (New), R302.2.4.4 (New), R302.2.4.4.1 (New), R302.2.4.4.2 (New), R302.2.4.5 (New), FIGURE R302.2.4.5 (New)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

Add new definition as follows:

<u>**BIRD BLOCKING.** Solid 2x wood blocking fitted between rafter tails where the face of the blocking is in-line to the exterior side of the exterior wall. The blocking shall have a beveled top that matches in angle to the slope of the roof and be tight to the underside of the roof decking. Vent openings are not permitted where required.</u>
<u>**COMMON WALL.** A load bearing wall assembly that is shared by two dwelling units where the fire-resistive assembly is the entire wall thickness. The common wall can be hollow or solid.</u>
<u>**DOUBLE STUD WALL.** Two rows of wood or metal studs, each having top and bottom plates where one row is separated from the other with an air space or a non-load bearing fire-resistive assembly or a combination of both.</u>
<u>**SEPERATION WALL.** A general description that refers to, but not limited to a party wall, double stud wall, common wall, or a shared wall.</u>
<u>**SHARED WALL.** See common wall.</u>

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Delete without substitution:

~~**R302.2 Townhouses.** Walls separating *townhouse units* shall be constructed in accordance with Section R302.2.1 or R302.2.2 and shall comply with Sections R302.2.3 through R302.2.5.~~

~~**R302.2.1 Double walls.** Each *townhouse unit* shall be separated from other *townhouse units* by two 1-hour fire-resistance-rated wall assemblies tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.~~

~~**R302.2.2 Common walls.** Common walls separating *townhouse units* shall be assigned a fire-resistance rating in accordance with Item 1 or 2 and shall be rated for fire exposure from both sides. Common walls shall extend to and be tight against the exterior sheathing of the exterior walls, or the inside face of exterior walls without stud cavities, and the underside of the roof sheathing. The common wall shared by two *townhouse units* shall be constructed without openings, plumbing or mechanical equipment, ducts or vents, other than water-filled fire sprinkler piping in the cavity of the common wall. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.~~

1. ~~Where an automatic sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.~~
2. ~~Where an automatic sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.~~

~~**Exception:** Common walls are permitted to extend to and be tight against the inside of the exterior walls if the cavity between the end of the common wall and the exterior sheathing is filled with a minimum of two 2-inch nominal thickness wood studs.~~

~~**R302.2.3 Continuity.** The fire-resistance-rated wall or assembly separating *townhouse units* shall be continuous from the foundation to the underside of the roof sheathing, roof deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed *accessory structures*.~~

~~**R302.2.4 Parapets for townhouses.** Parapets constructed in accordance with Section R302.2.5 shall be constructed for *townhouses* as an extension of exterior walls or common walls separating *townhouse units* in accordance with the following:~~

1. ~~Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches (762 mm) above the roof decks.~~
2. ~~Where roof decks adjacent to the wall or walls are at different elevations and the higher *roof deck* is not more than 30 inches (762 mm) above the lower *roof deck* , the parapet shall extend not less than 30 inches (762 mm) above the lower roof deck.~~

   ~~**Exception:** A parapet is not required in the preceding two cases where the *roof covering* complies with a minimum Class C rating as tested in accordance with ASTM E108 or UL 790 and the roof deck or sheathing is of *noncombustible materials* or *fire-retardant-treated wood* for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of $^{5}/_{8}$-inch (15.9 mm) *Type X gypsum board* is installed directly beneath the roof decking deck or sheathing, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a distance of not less than 4 feet (1219 mm) on each side of the wall or walls and any openings or penetrations in the roof deck are not within 4 feet (1219 mm) of the common walls. *Fire-retardant-treated wood* shall meet the requirements of Sections R302.15 and R803.2.1.2.~~

3. ~~A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher *roof deck* is more than 30 inches (762 mm) above the lower *roof deck* . The common wall construction from the lower *roof deck* to the underside of the higher *roof deck* shall have not less than a 1-hour fire-resistance rating. The wall shall be rated for exposure from both sides. Openings shall not be permitted in the wall.~~

~~**R302.2.5 Parapet construction.** Parapets shall have the same fire-resistance rating as that required for the supporting wall or walls. On any side adjacent to a roof surface, the parapet shall have noncombustible faces for the uppermost 18 inches (457 mm), to include counterflashing and coping materials. Where the roof slopes toward a parapet at slopes greater than 2 units vertical in 12 units horizontal (16.7-percent slope), the parapet shall extend to the same height as any portion of the roof within a distance of 3 feet (914 mm), and the height shall be not less than 30 inches (762 mm).~~

Add new text as follows:

R302.2 Townhouses. Townhouse dwelling unit separation walls shall be constructed in accordance with Section R302.2.2 and shall comply with Sections R302.2.3 and R302.2.4.1 through R302.2.4.4. Additional requirements where required shall comply with Section R302.2.4.5.

Revise as follows:

R302.2.1 ~~**R302.2.6**~~ **Structural independence.** Each townhouse dwelling *unit* shall be structurally independent.

Exceptions:

1. Foundations supporting exterior walls or ~~common~~ separation walls.
2. Structural roof and wall sheathing from each dwelling unit fastened to the ~~common~~ separation wall framing.
3. Nonstructural wall, ~~and~~ *roof* and eave *coverings*.
4. Flashing at termination of *roof covering* over ~~common~~ separation wall.
5. *Townhouse* dwelling *units* separated by a common wall as provided in Section R302.2.2, ~~Item 1 or 2~~.
6. *Townhouse* dwelling *units* protected by an automatic sprinkler system complying with Section P2904 or NFPA 13D.

Add new text as follows:

R302.2.2 Dwelling unit separation walls. All wall assemblies shall be tested in accordance with ASTM E119, UL 263, or Section 703.2.2 of the International Building Code. Exposure shall be from both sides. The required fire-resistive rating shall be determined by Section R302.2.3 or as indicated otherwise.

R302.2.2.1 Double stud walls. Double stud walls shall be designed and constructed to allow collapse of the structure on either side without collapsing the wall under fire conditions. Double stud walls are composed of wood or metal. Each stud wall in the separation wall assembly shall be load bearing only to their respective dwelling unit. Structural members, such as drop beams at outdoor covered spaces, of one dwelling unit shall not be supported by the stud wall of an adjacent dwelling unit. Finger-jointed refurbished wood studs are not permitted in double stud walls.

R302.2.2.1.1 Type 1. Type 1 double stud calls shall comply with the following:

1. The entire double stud wall system is the fire-resistive assembly. See Figure R302.2.2.1.1 for addition information.
2. The stud wall cavities are *shared* by both dwelling units.
3. The top and bottom plates are not shared.
4. Provide an air gap in between the stud wall rows.
5. Fire blocking shall be installed at the air gap that shall satisfy the requirements of Section R302.11.
6. Type 1 double stud walls shall also comply with Section R302.2.4.1, Item 5.1.

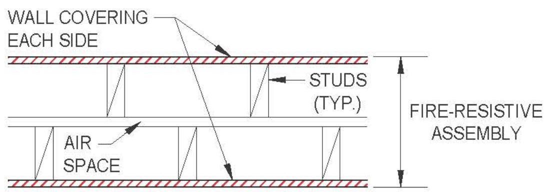
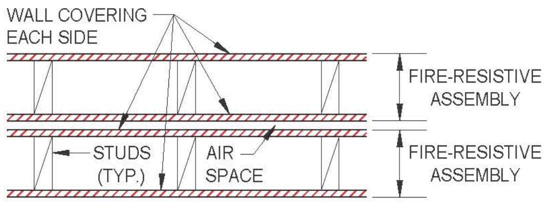


FIGURE R302.2.2.1.1 Type 1 double stud wall

R302.2.2.1.2 Type 2 . Type 2 double stud calls shall comply with the following:

1. Each stud wall row is an independent fire-resistive rated assembly. See Figure R302.2.2.1.2 for additional information.
2. Comply with Section R302.2.3, Item 1, where one or both stud wall coverings have less than 1-hour fire-resistive rating.
3. Comply with Section R302.2.3, Item 2, where both stud wall coverings have an equivalent or greater than 1-hour fire-resistive rating.
4. The top and bottom plates are not shared.
5. Provide an air gap in between the stud wall rows.
6. Fire blocking shall be installed at the air gap that shall satisfy the requirements of Section R302.11.
7. Type 2 double stud walls shall also comply with Section R302.2.4.1, Item 5.1.



Distinguishing Features:
- A double stud wall where the stud wall cavities are not shared.
- Each wall is fire-resistive rated with exposure from both sides.
- Plumbing and mechanical items not allowed in the stud wall cavities.
- Penetration and opening protection required at the interior wall covering.
- Wall covering continuity is maintained through all concealed spaces.

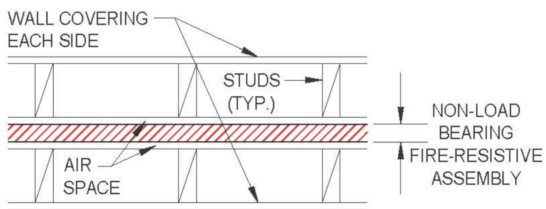
FIGURE R302.2.2.1(2) DOUBLE STUD WALL - TYPE 2

FIGURE R302.2.2.1.2 Type 2 double stud wall

R302.2.2.1.3 Type 3. Type 3 double stud walls shall comply with the following:

1. A non-load bearing fire-resistive assembly is installed in between the stud wall rows. See figure R302.2.2.1.3 for additional information.
2. Type 3 double stud walls shall also comply with additional requirements as shown in Section R302.2.4.1(e)2.
3. Fire-resistive assembly examples include:
   - 3.1. Gypsum board friction-fitted into continuous vertical H-shaped metal studs with breakaway clips attached to each dwelling unit's stud wall. Provide an air gap between the stud wall rows and the gypsum board. Fire blocking shall be installed at air gaps that shall satisfy the requirements of Section R302.11.
   - 3.2. Gypsum board between the stud wall rows is secured to one wall only. Additional requirements shall be applied to the stud wall that is not supporting the gypsum:
     - 3.2.1. The interior wall covering shall have a minimum 5/8 inch (15.875 mm) Type X gypsum and
     - 3.2.2 Requirements as shown in Section R302.2.4.1, Item 5.1.
4. Precast autoclaved aerated concrete blocks or similar.

5. Other non-load bearing fire-resistive assemblies as tested with exposure from both sides that meet or exceed the fire-resistance-rating as shown in Section R302.2.3.



Distinguishing Features:

- A double stud wall where the stud wall cavities are not shared.
- A non-load bearing fire-resistive assembly is placed in between the stud walls.
- Penetrations and openings through the fire-resistive assembly not allowed.
- Plumbing and mechanical items allowed in the stud wall cavities.
- Wall coverings are not part of the fire-resistive assembly.
- Unprotected penetrations and openings allowed at the wall coverings.
- Wall covering continuity in concealed spaces not applicable.

FIGURE R302.2.2.1(3) DOUBLE STUD WALL - TYPE 3

FIGURE R302.2.2.1.3 Type 3 double stud wall

R302.2.2.2 Common walls. Common walls shall comply with the following:

1. The *shaft wall* or *party wall* assemblies in this section are load bearing fire-resistive assemblies.
2. Screeds or full-depth non-load bearing stud walls can be optionally installed on either side of the common wall as required.
3. Penetrations through the common wall other than for dwelling unit structural support not permitted.
4. Common walls shal also comply with the additional requirements as shown in Section R302.2.4.1, Item 5.3.

Common wall exaples include:

1. Concrete Masonry Units (CMU).
2. Double Wythe brick or similar.
3. Pour-in-place concrete.

4. Insulated Concrete Forms (ICF).
5. Tilt wall, laminate, or prefabricated devices erected as a single assembly.
6. Combinations of any of the above.
7. Other load bearing fire-resistive assemblies that meet or exceed the fire-resistance-rating as shown in Section R302.2.3.

R302.2.3 Wall assembly rating for dwelling unit separation walls. Where an automatic sprinkler system in accordance with Section P2904 is provided, the separation wall shall be not less than 1-hour fire-resistance-rated. Where an automatic sprinkler system in accordance with Section P2904 is not provided, the separation wall shall be not less than 2-hour fire-resistance-rated.

R302.2.4 Separation wall continuity. Continuity of seperation walls shall comply with Section R302.2.4.1 through R302.2.4.5.

R302.2.4.1 Wall assembly. Seperation walls shall comply with the following:

1. All separation walls and separation wall segments shall be supported by a continuous foundation.
2. The separation wall shall be continuous and extend the full length of the wall assembly, including wall extensions through and separating attached enclosed accessory structures.
3. Separation walls shall extend to and be tight against the exterior sheathing of the exterior walls or the inside face of the exterior walls without stud cavities.

   Exception: Separation walls are permitted to extend to and be tight against the inside of the exterior wall if the cavity between the end of the separation wall and the exterior sheathing is filled with a minimum of two 2-inch nominal thickness wood studs.

4. Separation walls shall extend to and be tight against the exterior sheathing of the exterior walls or the inside face of the exterior walls without stud cavities.

   Exceptions:

   1. The underside of the cantilever shall be protected by a 2-hour fire-resistive assembly in accordance with ASTM E119, UL 263, or Section 703.2.2 of the international Building Code for a minimum distance of 48 inches (1219.2 mm) each side of the separation wall centerline, and
   2. Fireblocking installed in accordance with Section R302.11 in between the cantilevering members where the fireblocking face is aligned to the exterior side of the exterior wall that is providing support for the cantilevering members for a minimum distance of 48 inches (1219.2 mm) each side of the separation wall centerline.

5. Additional continuity requirements based on separation wall type:
   5.1. Double stud wall Types 1 and 2 as described in Sections R302.2.2.1 shall comply with the following:
      5.1.1. Mechanical, plumbing, ducts, and vents are not permitted in the stud wall cavity.
      Exception: Non-combustible water-filled fire sprinkler piping in the (each) stud wall cavity.
      5.1.2. Membrane penetration protection at the wall coverings shall be in accordance with Section R302.4.2.
      5.1.3. Electrical installations shall be in accordance with Chapter 34 through 43.
      5.1.4. Electrical outlet box membrane protection shall be in accordance with Section R302.4.
      5.1.5. Interior wall covering continuity shall be maintained through concealed spaces, crawl spaces, and attics.
   5.2. Double stud wall Type 3 as described in Section R302.2.2.1 shall comply with the following:
      5.2.1. Penetrations and/or openings prohibited through the fire-resistive assembly.
      5.2.2. Mechanical and plumbing devices permitted in the stud wall cavities.
      5.2.3. Unprotected membrane penetrations at the interior wall covering permitted.
      5.2.4. Interior wall covering continuity where concealed spaces, crawl spaces, and attics is not required.
   5.3. Common walls as described in Section R302.2.2.2 shall comply with the following:
      5.3.1. Through penetrations, such as ledger bolts, shall be in accordance with Section R302.4.1.2.
      5.3.2. Adjacent combustible members entering the common wall from opposite sides shall not have less than a 4 inch (102 mm) distance between embedded ends. Where combustible members frame into hollow walls or walls with hollow units, hollow spaces shall be solidly filled for the full thickness of the wall and for not less than 4 inches (102 mm) above, below, and between the structural members with non combustible materials approved for fireblocking.

R302.2.4.2 Wall assembly vertical termination. Separation wall vertical termination shall comply with R302.2.4.2.1 or R302.2.4.2.2.

R302.2.4.2.1 Double stud wall. Each dwelling unit stud wall shall terminate to the top of all parapets or terminate to the underside of the roof sheathing for that dwelling unit.

R302.2.4.2.2 Common wall. Common walls shall comply with the following:

1. Common walls shall extend to the top of all parapets.
2. Dwelling units without parapets and with attics may optionally have the common wall terminate at the underside of the ceiling joists at the uppermost floor level. An extension to the common wall shall be added on top of the common wall that will have the same fire-resistive rating as that required for the common wall. The entire thickness of the extending wall assembly shall terminate at the underside of the higher roof decking.
3. Dwelling units without parapets and with attics may optionally have the common wall terminate at the underside of the ceiling joists at the uppermost floor level. An extension to the common wall shall be added on top of the common wall that will have the same fire-resistive rating as that required for the common wall. The entire thickness of the extending wall assembly shall terminate at the underside of the higher roof decking.

R302.2.4.3 Roof assembly vertical or horizontal continuity. Choose one method for compliance. The method selected shall be employed on all separation walls throughout the building.See Section R302.2.4.5 for additional requirements.

R302.2.4.3.1 Vertical continuity at the separation wall. Parapets shall comply with the following:

1. Parapets shall be constructed as an extension of exterior walls or as an extension of aseparation wall where the parapet shall extend not less than 30 inches (762 mm) verticallyabove the roof deck.
2. Parapet construction shall comply with the following:
    2.1. Parapets shall have the same fire-resistive rating as that required for the supporting wall or walls.
    2.2. Parapets shall have noncombustible faces, including counterflashing and coping materials, for the uppermost 18 inches (457 mm) for any parapet side adjacent to a roof surface.
    2.3. Where the roof slopes toward a parapet at slopes greater than 2 units vertical in 12 units horizontal (16.7-percent slope), the parapet shall extend to the same height as any portion of the roof within 3 feet (914 mm), and the height shall not be less than 30 vertical inches (762 mm).
3. Parapets shall completely cover any exposed ends of eaves, including gutters.

    Exception: See Section R302.2.4.5, Item 4 and select a compliance method.

R302.2.4.3.2 Horizontal continuity at the separation wall. The following items shall apply to all wall types without parapets:

1. The roof covering shall have a minimum Class C rating as tested in accordance ASTM E108 or UL 790.
2. Roof covering underlayment protection shall be provided up to 48 inches (1219.2 mm) from the separation wall centerline at both sides of the separation wall as measured along the roof plane. Vertical decking seams between decking courses shall be staggered by at least one rafter or one joist.

Choose one method for compliance:

1. Fire-retardant treated sheathing that meet the requirements of Sections R302.15 and R803.2.1.2.
2. Non-fire-retardant treated sheathing with 5/8 inch (15.875 mm) Type X gypsum installed tight to the underside of the roof sheathing and secured with continuous 2x2 ledgers that are attached to the rafter or joist sides with 10d nails or equivalent spaced 12 inches (304.8 mm) on center.
3. Laminate sheathing that meets the requirements of ASTM E119 or UL 263 with the fire-resistive side facing down.
4. Spray applications that meet the requirements of ASTM E2768 that is applied to the underside of the roof decking where the application shall achieve a minimum 30-minute fire-resistive rating.

R302.2.4.4 Roof decks or roof decking at different elevations. Roof decks or roof decking at different elevations shall complwy with Section 302.2.4.4.1 and 302.2.4.4.2.

R302.2.4.4.1 Parapet method. Parapets shall comply with the following:

1. There the higher roof deck is not more than 30 inches (762 mm) vertically above the lower roof deck, the parapet shall extend not less than 30 inches (762 mm) vertically above the lower roof deck.
2. Where the higher roof deck is more than 30 inches (762 mm) vertically above the lower roof deck, a parapet is not required. The exposed wall between roof decks shall be in accordance with Section R302.2.4.4.2 and the horizontal continuity for both the higher and lower roof deck on each side of the exposed wall shall be in accordance with Section R302.2.4.3.2.

R302.2.4.4.2 Non-parapet method. Where parapets are not provided, comply with the following:

1. The wall construction from the lower roof deck to the underside of the higher roof deck shall have not less than a 1-hour fire-resistive rating with exposure from both sides of the wall.
2. Where the separation wall is a double stud wall, the dwelling unit that has the higher roof deck shall have the stud wall extended to the underside of the higher roof deck.
3. Where the separation wall is a common wall, the full thickness of the common wall shall extend to the underside of the higher roof deck.
4. Openings shall not be permitted in the exposed wall.
5. Horizontal continuity for both the higher and lower roof decking on each side of the exposed wall shall be in accordance with Section R302.2.4.3.2.

R302.2.4.5 Other (horizontal) continuity at the separation wall. The following shall apply to all areas near the separation wall, with or without parapets, or where noted. Refer to Figure R302.2.4.5 for additional information.

1. Attic ventilation devices shall not be installed closer than 48 inches (1219.2 mm) from the separation wall centerline for the following areas.
   - 1.1. For Separation walls with parapets: strip vents at the eave and perforated soffits at the eave.
   - 1.2. Separation walls without parapets: ridge vents, air hawks, turbine vents, or similar devices, strip vents or perforated soffits at the eave.
2. Plumbing and mechanical penetrations for separation walls defined in Section R302.2.4.3.2. Penetrations through the roof decking is not permitted within 48 inches (1219.2 mm) from the separation wall centerline.
3. Skylights, solar tubes, and other similar penetrating devices for separation walls defined in Section R302.2.4.3.2. Roof decking openings of this type are prohibited where the opening is located within 5 feet (1524 mm) from the separation wall centerline.

   Exceptions:

   1. Provide a 30 inch (762 mm) height parapet that meets the requirements of Section R302.2.4.3.1 where the parapet ends are 60 inches (1524 mm) beyond and 60 inches (1524 mm) in front of the opening as measured along the plane of the roof decking. See Figure R302.2.4.5, note 5.
   2. Where the roof decks between dwelling units are at different elevations, and the roof deck vertical height difference is 30 inches (762 mm) or less, provide a parapet where the parapet height is 30 inches (762 mm) vertically as measured from the lower roof deck. The parapet shall extend 60 inches (1524 mm) beyond and 60 inches (1524 mm) in front of the opening as measured along the plane of the roof decking.
   3. Where the adjacent dwelling unit roof decking is higher than 30 inches (762 mm) from the dwelling unit with the opening, a parapet is not required. The exterior wall between the lower roof decking and the higher roof decking shall have one additional fire-resistive layer added to the exterior side of the wall that is facing the opening for a linear distance of 60 inches (1524 mm) each side of the opening as measured along the plane of the roof decking that has the opening.
   4. Where the adjacent dwelling unit roof decking is more than 30 inches (762 mm) below the roof deck with the opening, no special parapet requirements is required for the lower roof decking.

4. Eave protection shall be provided in accordance with the following:

    4.1. Fascia, gutters, frieze boards, soffit sheathing, and other similar non-structural coverings are permitted to be continuous through the separation wall centerline.

    4.2. Exposed rafter tails prohibited within 48 inches (1219.2 mm) from the separation wall centerline.

    4.3. Provide a break of the (2x) sub-fascia at the separation wall centerline.

    4.4. Provide a break of the soffit ledger at the separation wall centerline.

    4.5. Provide fireblocking in line with and as an extension to the separation wall in accordance with Section R302.11 for the entire eave cavity and select one additional method for compliance:

        4.5.1. Any non-fire-resistive sheathing that is facing down shall be protected with one layer of 5/8 inch (15.875 mm) Type X gypsum placed directly behind the sheathing for a minimum distance of 48 inches (1219.2 mm) from the separation wall centerline or

        4.5.2. Provide 2x bird blocking in between the rafter tails for each dwelling unit where the bird block face is in line to and flush with the exterior side of the exterior wall for a minimum distance of 48 inches (1219.2 mm) from the separation wall centerline. The 2x bird blocks shall have a beveled top to match the roof pitch and be tight to the underside of the roof decking.

5. Dormers or other similar combustible walls within 5 feet (1524 mm) from the separation wall centerline:

    5.1. Dormer walls that face the dwelling unit separation wall shall comply to Tables R302.1(1) or R302.1(2).

    5.2. Dormer walls shall not be located closer than 24 inches (609.6 mm) from the separation wall centerline.

    5.3. Dormers with overhangs: Overhangs shall not be greater than 6 inches (152.4 mm) where the dormer wall is facing to and is located between 30 inches (762 mm) and 60 inches (1524 mm) from the separation wall centerline. The fascia and eave that face the separation wall shall be protected with 5/8 inch (15.875 mm) Type X gypsum installed behind the fascia and behind the soffit covering. Exposed rafter tails that face the separation wall are not permitted within 60 inches (1524 mm) from the separation wall.

    5.4. Dormers with flush overhangs: Overhangs are not permitted on a dormer where the dormer wall is facing and is located less than 30 inches (762 mm) form the separation wall centerline.

    5.5. Roof covering minimum classification and roof covering underlayment protection shall comply with Section R302.2.4.3.2.

6. Applied crickets:

    6.1. Where applied crickets are against a parapet, the parapet shall be extended a minimum 6 inches (152.4 mm) vertically above any point along the cricket.

    6.2. Applied crickets that cross over a separation wall without parapets shall comply with one of the following methods:

        6.2.1. Where the width of the applied cricket does not extend beyond the roof covering underlayment protection as described in Section R302.2.4.3.2, Item 2, no special provisions are required.

        6.2.2. Where any part of the applied cricket extends beyond the roof covering underlayment protection as described in Section R302.2.4.3.2, Item 2, the separation wall shall be extended tight to the underside of the cricket decking. The cricket roof covering minimum classification and roof covering underlayment protection shall comply with Section R302.2.4.3.2.

7. Fuel-fired decorative appliance terminations through a wall or through the roof decking: Terminations shall comply with Sections G2427.6 and G2427.8 or refer to manufacturer installation instructions for location of the termination in relation to a property line.

8. Chimneys located within 5 feet (1524 mm) from the separation wall centerline:

    8.1. Wood- or steel-stud wall chimney for factory-built wood burning devices:All exterior chimney walls shall be 1-hour fire-resistive rated for exposure from both sides.The minimum height of the chimney shall be the higher of one of the following:

        8.1.1. Five feet (1524 mm) for any part of the chimney, or

        8.1.2. The height as determined in accordance with Section R1005.1.

        Crickets are not included when determining height. Fireblocking shall be installed in accordance with UL 103 and UL 127.

    8.2. Stud wall chimney serving two dwellings units: All items shall comply with the previous section.The separation wall assembly shall maintain continuity and extend into the chimney cavity for the full width and height of the chimney.

    8.3. Masonry chimneys: The minimum height of the chimney shall be the higher of one of the following:

        8.3.1. Five feet (1524 mm) for any part of the chimney, or

        8.3.2. The height as determined in accordance with Section R1003.9.

        Crickets are not included when determining height. Masonry chimneys shall be fitted with spark arrestors in accordance with Section R1003.9.2.

    8.4. Masonry chimney serving two dwelling units: All items shall comply with the previous section. Each masonry chimney shall be free-standing and spaced apart from the adjacent chimney a minimum distance that will allow for access and maintenance of the chimney faces that face each other.

9. Unprotected pergola, arbor, awnings, or similar structures on a roof deck:Combustible and unprotected structures in this category that are closer than 5 feet (1524 mm) from the separation wall centerline shall be protected by extending the separation wall to the same height as the top of the highest member of the unprotected structure that is within 5 feet (1524 mm) from the separation wall centerline.See Section R302.2.4.4.2 for additional information where the extending wall is less than 30 inches (762 mm) from an adjacent horizontal or sloping surface.

    9.1. Double stud walls shall have the stud wall extended for the dwelling unit requiring protection. The extending stud wall assembly rating shall be 1-hour fire-resistive with exposure from both sides.

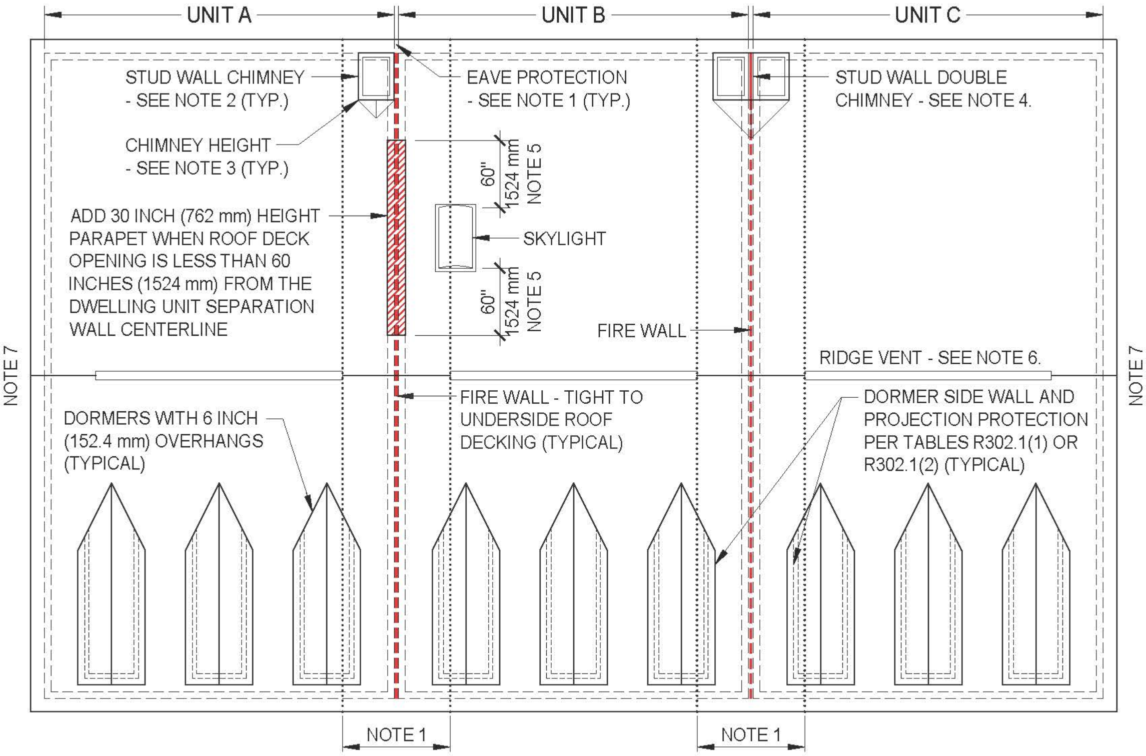
    9.2. The entire thickness of the common wall shall extend to the required minimum height.

10. Roof-mounted solar collection or other similar devices: Any device that has not been ASTM E119 or UL 263 tested for a minimum 1-hour fire-resistive rating shall be located a minimum of 60 inches (1524 mm) from the separation wall centerline.

11. Other devices above the roof decking:

    11.1. Combustible devices shall be 1-hour fire-resistive rated protected from both sides when the combustible device is located less than 60 inches (1524 mm) from the separation wall centerline.

    11.2. Combustible and non-combustible devices that are secured to one dwelling unit shall not project, cantilever, or cross over the projected separation wall centerline.



Townhouses without parapets notes:

1. Provide horizontal continuity for a distance of 48 inches (1219.2 mm) each side of the dwelling unit separation wall centerline (includes roof decking at dormers). Plumbing and mechanical penetrations through the roof decking not allowed in this area. Eaves where shown shall also be protected.
2. All sides of the stud wall chimney shall be 1-hour fire-resistive rated with exposure from both sides.
3. Chimney height shall be minimum 60 inches (1524 mm) tall, or per section R1003.9, or per manufacturers installation instructions - whichever nets the tallest value.
4. Continue the dwelling unit separation wall assembly into the chimney for the full width and height of the chimney.
5. Extend the parapet 60 inches (1524 mm) in front and 60 inches (1524 mm) beyond the opening as measured along the plane of the roof decking.
6. Ridge vents shall be located no closer than 48 inches (1219.2 mm) from the separation wall centerline.
7. Parapets or Horizontal Continuity not required at townhouse ends.

FIGURE R302.2.4.5 DIAGRAMMATIC ROOF CONTINUITY FOR TOWNHOUSES WITHOUT PARAPETS

FIGURE R302.2.4.5 DIAGRAMMATIC ROOF CONTINUITY FOR TOWNHOUSES WITHOUT PARAPETS

Reason: One requires a blueprint to work from. Without a clearly defined blueprint, interpretations will occur.

The blueprint for the wording of Section R302.2, as originally created, was based on the SBC edition from the 1990’s and is now considered outdated.

This proposal establishes definitions of the currently available assemblies used for residential construction and the restrictions associated with each assembly. This proposal also addresses continuity issues near the separation wall where very little definitions currently exists.

The following outline shows a linear progression of my thoughts when developing this proposal.

Objective #1: List and define all possible wall types for double stud walls and common “shaft wall” assemblies.

Objective #2: Restructure section R302.2 to be expandable.

Objective #3: Provide clarification of the different types of assemblies using more verbalism and illustrations.

Objective #4: Restructure section R302.2 into a more linear and logical order.

Objective #5: Provide an outline of (encountered) continuity situations that may come into play with townhouse dwelling units and to provide fire-resistive resolves to these situations.

Background / Our Product:

Single-family dwellings, two-family dwellings, and multi-unit townhouse architectural documents delivered at a rate of over 200 dwelling units per year for over 35 years. Ninety-five percent (95%) of these dwellings are for urban markets (12+ dwelling units per acre), 98% with attached garages, 90% with at least one firewall, and about 35% of the dwellings are in flood prone areas. Our market area is nationwide with a few documents delivered worldwide. My employer, Jack Preston Wood is registered AIBD and NCBDC.

Proposal Notes:

1. Due to extensive restructuring of section R302.2, it was best to completely start over. As an example, the current wording in section R302.2.6 did not change but this subsection was moved to the top as section R302.2.1.
2. Most all wording from the original R302.2 section has been retained. The sentences or partial sentences have been redirected to the appropriate sections. Some of the original wording has been revised to match with the proposed new wording (example: "separation wall"). The AI grammatical suggestions to the original wording was accepted.
3. Where available, any section that describes a specific wall, ceiling, or roof assembly will also describe a similar assembly of equal or greater fire-resistive rating with provisions in the section to add more assemblies over time.
4. Where a section states, "not permitted", an exception is written. Over time, when more exceptions are added, the objective is to remove the phrases "not permitted" and "exception" in future code book editions (see Objective #2).
5. Continuity situations above the roof sheathing are based on actual incidents that I have encountered over the years as a residential designer. Some of these situations have been addressed as "hot fix" publications issued by the local jurisdiction. At least one hot fix that I know of has made it to your publication.
6. Overall, I am slightly more conservative about fire-resistive design than others. Life safety is a priority over cost efficiency.
7. I am not a technical writer. I am a visual thinker that understands how things work, understands how things are put together, and understands the order of assembly. The wording as presented in this, and other proposals is based on my visual understanding and common sense.
8. This proposal hopes to reduce the likelihood of building officials making spot interpretive decisions in the field that will cause delay in the completion of the dwelling.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal will not increase the cost of construction. This proposal will offer a selection of assemblies to choose from that will best suit the needs for the given situation or as a cost effective consideration.

The double stud wall Type 3 assembly in the proposal does not require additional labor to install the fire-resistive wall covering in concealed spaces and attics (wall covering continuity). The cost of material of our specified 2-hour fire-resistive assembly verses the labor cost of the other method(s) cancel each other. Mechanical and plumbing chases, and penetration protection provisions are no longer an issue with the Type 3 wall assembly we specify.

RB15-25

RB16-25

IRC: SECTION R104, R104.4.1, SECTION R202, SECTION 202, SECTION 202 (New)

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Revise as follows:

SECTION R104
DUTIES AND POWERS OF THE CODE ~~BUILDING~~ OFFICIAL

R104.4.1 Warrant. Where the ~~building~~ code official has first obtained a proper inspection warrant or other remedy provided by law to secure entry, an *owner*, the *owner*'s authorized agent, occupant or *person* having charge, care or control of the *structure* or premises shall not fail or neglect, after a proper request is made as herein provided, to permit entry therein by the building code official for the purposes of inspection and examination pursuant to this code.

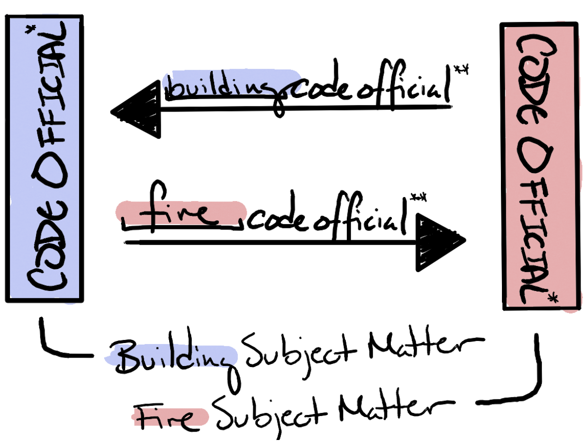
SECTION R202
DEFINITIONS

[RB] ~~BUILDING~~ CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. ~~For the definition applicable in Chapter 11, see Section N1101.6.~~

Add new definition as follows:

FIRE CODE OFFICIAL. The *fire chief* or other designated authority charged with the administration and enforcement of the International Fire Code, or a duly authorized representative.

Reason: To harmonize terminology across the residential code, this code change replaced "building official" with "code official" and revises "building code official" and "authority having jurisdiction", where appropriate, to "code official".



* Within a subject matter, the official having jurisdiction would be referred to as "code official"

** Outside a subject matter, the official having jurisdiction would be referred to as "[subject matter] code official", indicating which subject matter to refer to

This change aligns with language in the IEBC, IFGC, IMC, IPC, IPSDC, IPMC, ISPSC, IWUIC and IZC, will make code writing simpler and easier to coordinate (especially in administrative provisions), and a similar code change is being presented to the IBC/IFC.

The purpose of this code change is to replace every instance of "building official" in the IRC with "code official". In the interest of reciting the 170+

instances of the occurrence the proponent respectfully asks staff to make these changes administratively.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change a terminology change that will have no effect on construction costs.

RB16-25

RB17-25

IRC: SECTION 202, R406.1, BJ104.4.4.1, BK 102.1, BL104.3.6.4

Proponents: Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); Dr. Julian Mills-Beale, representing National Ready Mixed Concrete Association (jmills-beale@nrmca.org); James Farny, Portland Cement Association, representing US cement manufacturers (jfarny@cement.org)

2024 International Residential Code

Revise as follows:

[RB] CEMENT PLASTER. A mixture of ~~Portland~~ portland or blended cement, ~~Portland~~ portland cement or blended cement and hydrated lime, masonry cement or plastic cement and aggregate and other *approved* materials as specified in this code.

CHAPTER 4
FOUNDATIONS

R406.1 Concrete and masonry foundation dampproofing. Except where required by Section R406.2 to be waterproofed, foundation walls that retain earth and enclose interior spaces and floors below *grade* shall be dampproofed from the finished *grade* to the higher of the top of the footing or 6 inches (152 mm) below the top of the *basement* floor. Masonry walls shall have not less than $^3/_8$-inch (9.5 mm) ~~Portland~~ cement parging applied to the exterior of the wall. The parging shall be dampproofed in accordance with one of the following:

1. Bituminous coating.
2. Three pounds per square yard (1.63 kg/m^2) of acrylic modified cement.
3. One-eighth-inch (3.2 mm) coat of surface-bonding cement complying with ASTM C887.
4. Any material permitted for waterproofing in Section R406.2.
5. Other *approved* methods or materials.

Exception: Parging of unit masonry walls is not required where a material is *approved* for direct application to the masonry.

Concrete walls shall be dampproofed by applying any one of the *listed* dampproofing materials or any one of the waterproofing materials listed in Section R406.2 to the exterior of the wall.

APPENDIX BJ
STRAWBALE CONSTRUCTION

BJ104.4.4.1 General. Soil-cement *plaster* shall be composed of *clay subsoil*, sand and not less than 10 percent and not more than 20 percent ~~Portland~~ cement by volume, and shall be permitted to contain reinforcing fibers.

APPENDIX BK
COB CONSTRUCTION (MONOLITHIC ADOBE)

NATURAL COB. Cob not containing admixtures such as ~~Portland~~ cement, lime, asphalt emulsion or oil. Synonymous with " *Unstabilized cob*."

STABILIZED. *Cob* or other earthen material containing admixtures, such as ~~Portland~~ cement, lime, asphalt emulsion or oil, that are intended to help limit water absorption, stabilize volume, increase strength and increase durability.

UNSTABILIZED. Cob or other earthen material that does not contain admixtures such as ~~Portland~~ cement, lime, asphalt emulsion or oil.

APPENDIX BL
HEMP-LIME (HEMPCRETE) CONSTRUCTION

BL104.3.6.4 Prohibited finish coat. *Plaster* containing ~~Portland~~ cement shall not be permitted as a *finish* coat over clay plasters.

Reason: This proposal is part of a series of proposals to the IBC and IRC to update cement terminology in the building codes.

The proposed revisions reflect current cement technology and market conditions, which can vary across regions. Nationally, the market is no longer dominated by portland cement. More than sixty percent of the current cement market consists of blended cements , including portland-limestone cement (PLC) and other blended cements that meet the requirements of ASTM C595/C595M, Specification for Blended Hydraulic Cements (Portland Cement Association, 2025). ASTM C595/C595M is referenced in the International Building Code/ International Residential Code.

Bibliography: Portland Cement Association, 2025. Reducing Carbon at the Cement Plant. https://cementprogress.com/reducing-carbon-at-the-cement-plant/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed change is an editorial update for cement and will not impact the cost of construction. See reason statement.

RB17-25

RB18-25

IRC: SECTION 202

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

[RB] CEILING HEIGHT. The clear vertical distance from the ~~finished~~ completed floor to the ~~finished~~ completed ceiling or bottom of joists where a ceiling covering material is not installed.

Reason: There is sometimes confusion regarding measuring ceiling height in areas without a typical floor "finish" (carpet, tile, etc) and in basements where a ceiling finish material is not installed below the joists above. A concrete floor in a basement is often referred to as "unfinished", yet it is the final "completed" floor for the work being done. An "unfinished basement" must still meet a minimum ceiling height. Inspectors have been known to interpret that the final, "completed" concrete floor in an unfinished basement is not where ceiling height is measured from and they interpret an assumed thickness of a future floor "finish". However, the concrete floor is the final and "completed" floor at that time for the construction taking place. During "finishing" the basement, some owners choose to acid wash and stain the concrete floor as the "finished floor". This proposed change is meant to better describe that ceiling height is simply measured to the "completed" version of the floor and ceiling whether "finished" or "unfinished".

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

If a basement was required to have a greater ceiling height (depth below grade) to accommodate space for a future floor and ceiling "finish", then this proposal would very slightly decrease the cost of construction due to less depth required in the basement. This is a minor savings, thus this proposal is primarily a clarification.

RB18-25

RB19-25

IRC: SECTION 202 (New), R301.2.4, R306.1, R306.1.9, R306.2, R306.3

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

Add new definition as follows:

BASE FLOOD. The flood having a 1-percent chance of being equaled or exceeded in any given year.
BASE FLOOD ELEVATION. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the Flood Insurance Rate Map (FIRM).
COASTAL A ZONE. Area within a special flood hazard area, landward of a V zone or landward of an open coast without mapped coastal high-hazard areas. In a coastal A zone, the principal source of flooding must be astronomical tides, storm surges, seiches or tsunamis, not riverine flooding. During the base flood conditions, the potential for breaking wave height shall be greater than or equal to 1 ½ feet (457 mm). The inland limit of the coastal A zone is (a) the Limit of Moderate Wave Action if delineated on a FIRM, or (b) designated by the authority having jurisdiction.
COASTAL HIGH-HAZARD AREA. Area within the special flood hazard area extending from offshore to the inland limit of a primary dune along an open coast and any other area that is subject to high-velocity wave action from storms or seismic sources, and shown on a Flood Insurance Rate Map (FIRM) or other flood hazard map as velocity Zone V, VO, VE or V1-30.
DESIGN FLOOD ELEVATION. The elevation of the design flood, including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).
FLOOD HAZARD AREA.
The greater of the following two areas:

1. The area within a floodplain subject to a 1-percent or greater chance of flooding in any given year.
2. The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.

LIMIT OF MODERATE WAVE ACTION. Line shown on FIRMs to indicate the inland limit of the 1 ½-foot (457 mm) breaking wave height during the base flood.

SECTION R301
DESIGN CRITERIA

Revise as follows:

R301.2.4 Floodplain construction. *Buildings* and structures constructed in whole or in part in flood hazard areas as established in Table R301.2 shall be constructed in accordance with the flood-resistant construction provisions of this code.~~, and *substantial improvement* and *repair* of *substantial damage* of *buildings* and structures located in whole or in part in flood hazard areas, shall be designed and constructed in accordance with Section R306. *Buildings* and structures that are located in more than one flood hazard area, including A Zones, Coastal A Zones and V Zones, shall comply with the provisions associated with the most restrictive flood hazard area. *Buildings* and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.~~

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

R306.1 General. *Buildings* and structures constructed in whole or in part in flood hazard areas established in Table R301.2, and *substantial improvement* and *repair* of *substantial damage* of *buildings* and structures located in whole or in part in flood hazard areas, shall be designed and constructed in accordance with the provisions contained in this section. *Buildings* and structures that are located in more than one flood hazard area, including A Zones, Coastal A Zones and V Zones, shall comply with the provisions associated with the most restrictive flood hazard area. *Buildings* and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

R306.1.9 Manufactured homes. The bottom of the frame of new and replacement *manufactured homes* on foundations that conform to the requirements of Section R306.2 or R306.3, as applicable, shall be elevated to or above the elevations specified in Section R306.2 ~~(flood hazard areas including A Zones)~~ or R306.3, as applicable to the flood hazard area ~~in coastal high-hazard areas (V Zones and Coastal A Zones)~~. The anchor and tie-down requirements of the applicable state or federal requirements shall apply. The foundation and anchorage of *manufactured homes* to be located in identified floodways shall be designed and constructed in accordance with ASCE 24.

R306.2 Flood hazard areas not designated as coastal high-hazard areas or Coastal A Zones~~(including A Zones)~~. ~~Areas that have been determined to be prone to flooding and that are not subject to high-velocity wave action shall be designated as flood hazard areas. Flood hazard areas that have been delineated as subject to wave heights between 1$^1/_2$ feet (457 mm) and 3 feet (914 mm) or otherwise designated by the *jurisdiction* shall be designated as Coastal A Zones and are subject to the requirements of Section R306.3.~~ *Buildings* and structures constructed in whole or in part in flood hazard areas not designated as coastal high-hazard areas or Coastal A Zones shall be designed and constructed in accordance with Sections R306.2.1 through R306.2.4. Buildings in flood hazard areas designated as coastal high-hazard areas and Coastal A Zones shall be designed and constructed in accordance with Section R306.3.

R306.3 Flood hazard areas designated as coastal~~Coastal~~ high-hazard areas ~~(including V Zones~~ and Coastal A Zones~~, where designated)~~. ~~Areas that have been determined to be subject to wave heights in excess of 3 feet (914 mm) or subject to high-velocity wave action or wave-induced erosion shall be designated as coastal high-hazard areas. Flood hazard areas that have been designated as subject to wave heights between 1$^1/_2$ feet (457 mm) and 3 feet (914 mm) or otherwise designated by the *jurisdiction* shall be designated as Coastal A Zones.~~ *Buildings* and structures constructed in whole or in part inflood hazard areas designated as coastal high-hazard areas and Coastal A Zones, where designated, shall be designed and constructed in accordance with Sections R306.3.1 through R306.3.10.

Reason: Prior to the 2024 IRC, several terms used in the flood provisions were not defined in Section R202 because the terms were “defined” or described where used. That changed in 2024 when definitions for “substantial damage” and “substantial improvement” were added (paired with changes to sections where those terms were described).

This proposal adds definitions taken from the IBC for the terms “design flood elevation” and “flood hazard area.” In proposal by others for 2024 IRC, definitions for these terms were added, but qualified with “for the purposes of Chapter 24” (which is fuel gas). The definitions are there because Chapter 24 mirrors the IFGC, which includes those definitions. It is awkward to have Ch 24-specific definitions in R202 for terms that are used and applicable in R306 and throughout the IRC.

This proposal also adds definitions taken from the IBC for "base flood," "Base Flood Elevation," “Coastal A Zone,” “coastal high hazard area,” and “limit of moderate wave action.” Base flood and BFE are used throughout; the other terms are paired with removal of descriptions of those terms in R306.2 and R306.3. The proposal also more clearly references “coastal A zone” and “coastal high hazard area” as designations within flood hazard areas.

The proposed change to R301.2.4 replaces language that appears in R306.1 with a sentence to phrase the general requirement to be more in line with similar provisions in R301.2.1 (for wind) and the topic sentence in R301.2.2 (seismic).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds definitions taken from the IBC, cleans up repetitive language, and more clearly references flood hazard area designations. There is no change to the technical content of the provisions. By adding definitions of terms already defined elsewhere and making clarifying edits, there will be no cost impact when approving this proposal.

Staff Analysis: The definitions for 'design flood elevation' and 'flood hazard area' current shown in Chapter 2 as a reference to Section G2403, are currently only applicable in IRC Chapter 24. Chapter 24 is copied from the IFGC, and these defintions in the IFGC are scoped to the Structural committee.

RB20-25

IRC: SECTION 202, R302.8 (New), R302.8.1 (New)

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com); Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org); Steven Orlowski, Sundowne Building Code Consultants, LLC, representing Self (sorlowski@sbcc.codes); Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org)

2024 International Residential Code

Revise as follows:

~~**[RB] COMBUSTIBLE MATERIAL.** Any material not defined as noncombustible.~~
[RB] NONCOMBUSTIBLE MATERIAL. ~~A material that passes ASTM E136.~~ <u>See Section R302.8.</u>

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Add new text as follows:

<u>**R302.8 Testing for noncombustibility.** Noncombustible building materials shall be those materials that comply with Section 703.3.1 of the International Building Code.</u>

<u>**R302.8.1 Testing not required.** The following building materials shall not be required to be tested to be acceptable as noncombustible building materials.</u>

1. <u>Steel.</u>
2. <u>Concrete, containing no combustible aggregates or fibers.</u>
3. <u>Masonry, containing no combustible aggregates or fibers.</u>
4. <u>Glass ,excluding plastic glazing.</u>
5. <u>3xxx, 5xxx and 6xxx series aluminum alloys.</u>

Reason: The definition of noncombustible material presently in chapter 2 is best replaced (as has been the case in the IMC and IFGC) by a definitions which is simply a reference to a location in the code where requirements are placed, in this case in a new section 302.8. Note that section 703.3.1 of the IBC contains much additional information regarding the testing for noncombustibility, with the base requirement being to pass ASTM E136, but with the option of using ASTM E2652 instead and with the additional exception for materials with a structural base of a noncombustible material covered by a thin layer of a low flame spread material. All of that information is missing in the IRC and becomes clear with the proposed pointer. Also, the definition contains a requirement which ICC definitions should typically not contain.

The definition of noncombustible material in chapter 24, under the jurisdiction of the IFGC committee, also contains a requirement and is, moreover, no longer correct since the requirements in ASTM E136 have been updated and the language in Chapter 24 is obsolete. Other ICC codes (the IBC, IFC, IWUIC and IEBC, based on the Group A decisions) contain references to where to determine whether a building material is a noncombustible building material and they do not contain definitions explaining what is a "noncombustible material". This proposal recommends that the same apply to the IRC. By placing a note with a reference ("see" followed by a section number) in place of the existing definition stating, in this case, "See Section 302.8" the user can immediately find where to look for what is needed to declare that a material is noncombustible, namely that it meets ASTM E136.

Throughout the IRC there are multiple references to requirements for materials to be noncombustible. It is important to ensure that the correct materials are accepted as such. In fact, several materials can claim to be inherently noncombustible, in many cases without it being truly valid. For example, any plastic or wood materials are always combustible. This issue is an important consideration for building materials (as required in multiple areas of the IRC where requirements are different depending on whether the materials are or are not noncombustible). Some materials exist (often insulation materials) where it is not possible to determine without testing (normally to ASTM E136, as required in section 703.3.1 of the IBC or in the definitions in this code) whether they are truly noncombustible. For example, fiberglass insulation materials will always contain some combustible binder to be useful. The material can pass the ASTM E136 test (and be noncombustible) if it contains a small amount of binder but fail the test with larger amount of binder. That can only be determined by testing and is impossible to note visually.

However, a strict reading of the code requirements (whether in the IRC or the IBC) implies that it is always necessary to conduct a test to determine whether a material is or is not noncombustible. In fact, it has often been the case that actual test results have been required to accept as noncombustible materials such as steel or concrete. It makes no sense to test some such materials for noncombustibility.

A working group under the auspices of the Fire Code Action Committee of ICC (FCAC) was formed and involved members representing a variety of industries: steel, concrete, ready mixed concrete, masonry, aluminum, glass, wood, fire -retardant-treated wood, gypsum, and others. As a result agreement was reached that certain materials do not need to be tested to ASTM E136 for noncombustibility as they will pass the test and common sense indicates they can be excluded from being required to be tested. They include steel, concrete and masonry (in both cases if they contain no combustible aggregates or fibers). Since some new building materials are made with organic (such as foam plastics) components to lower the weight and make them easier to manipulate, it is unclear whether those materials are truly noncombustible materials, and they would need to be tested to know the answer for sure. That is why the requirement has been added that they contain no combustible aggregates or fibers.

Test results from at least two testing labs have been able to show that glass (whether ordinary glass or quartz) truly meets the requirements of ASTM E136 and is a noncombustible material. The same is not true for other glazing materials, which are typically plastic and are combustible; they must be excluded.

That brings up the question of aluminum. Typical building materials are, more often than not, alloys of aluminum and other metals. The Aluminum Association has published a report in Building Safety Journal (August 17th, 2020) where they discuss the “noncombustibility” of aluminum. It is of great interest that the 4 aluminum alloys that they tested “were selected for their widespread use in construction”. Those alloys tested all passed the ASTM E136 test. However, the same report also states that “Aluminum, just like many comparable metals, is not combustible in any general application other than when it is specifically made to be.” That suggests that there may be some aluminum alloys that may or may not be noncombustible. After considerable debate and investigation of test reports, consensus was reached that most of the aluminum alloys used as building materials belong to the 6xxx series of alloys, with less than 1.2% magnesium, and the main ones (such as 6063, 6061, 6005) have all been tested for noncombustibility and have passed. In terms of sheet aluminum products, the series 5xxx alloys (such as 5052, 5083, 5005) are often used in construction, with higher levels if magnesium (the highest being 5083, which contains 4.9% magnesium). Furthermore, the 3xxx series of aluminum alloys have also been tested and shown to be noncombustible. Therefore, consensus was reached that it is safe to include “3xxx, 5xxx, and 6xxx series aluminum alloys” to the list of building materials that do not require testing to be considered noncombustible materials.

This proposal also recommends deleting the definition of "combustible material" from chapter 2 in the IRC since it is an unnecessary one. Nowhere in any code, including the IRC, is there a requirement that a building material be combustible. The code may well require (and often does) that a material must be noncombustible for certain applications. By default, if a material is not noncombustible it is combustible. Moreover, since no actual definition will be contained in the IRC code if this is approved (like in the IBC, IMC and IFGC), the statement that a combustible material is one that is not "defined" as noncombustible would refer to a definition that does not exist in the IRC. Section 302.8 points to the correct requirement for noncombustibility testing.

The references to specific definitions for chapter 24 (which is under the responsibility of the IFGC committee) cannot be addressed by the IRC committee. However, it should be noted as follows:

(a) the definition of "combustible material" in IRC chapter 24 is identical to that in chapter 2 and proposal M7 deleted that definition for the IMC and IFGC (the mechanical code committee is responsible for both). This might be correlated by staff action.

(b) the definition of "noncombustible material" in IRC chapter 24 contains the same incorrect information regarding the requirements for noncombustible materials based on testing to ASTM E136 as the one in chapter 2 of the IFGC and the definition in chapter 2 of the IFGC was replaced by a reference by the action of proposal FG4. Again, this might be correlated by staff action.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This will decrease the cost of construction by not requiring testing for combustibility materials that are clearly noncombustible.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost of conducting an ASTM E136 test is probably around $200 (a guess). Such testing will be unnecessary for several materials.

STAFF NOTE: Both these defintions in the IRC include a pointer to Chapter 24. The pointers to Chapter 11 and Chapter 24 in the definitions are an editorial staff function only. The definitions in IRC Chapter 24 are copied from the IFGC.

Proposal FG4-24 to remove the definition of 'noncombustible materials' from the IFGC was As Modified by the Committee in CAH2. G12-Part III to modify the defintion of 'noncombustible materials' from the IFGC was was As Modified by the Committee in CAH2. Resolution of this conflict will need to be addressed in the Public comments for Group A.

RB20-25

RB21-25

IRC: SECTION 202

Proponents: Scott Kreel, representing Scott Kreel

2024 International Residential Code

Revise as follows:

[RB] DEAD LOADS. The weight of the materials of construction incorporated into the *building*, including but not limited to walls, floors, roofs, ceilings, *stairways*, kitchen islands, built-in partitions, finishes, *cladding*, and other similarly incorporated architectural and structural items, and fixed service equipment.

Reason: I propose that kitchen islands, including their often heavy countertops, be explicitly added to the IRC definition of dead load. These elements are frequently overlooked when calculating dead loads applied to floor joists, despite their significant weight and permanent placement.

Failing to account for kitchen islands in dead load calculations can lead to structural risks, such as compromised floor performance or, in extreme cases, failure. Additionally, improperly designed systems can result in increased floor vibration, reducing occupant comfort and perceived quality of the structure.

While the development of additional floor span tables to account for such loads would be ideal, updating the definition of dead load is a practical and achievable first step. This revision will provide clearer guidance to designers and builders, ensuring safer and more reliable structures without introducing significant complexity.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The cost impacts of this change are minimal since it simply clarifies the definition of dead load. Kitchen islands are already a permanent feature in many homes, and their weight should already be considered in design calculations. Explicitly including them in the definition ensures consistency and accuracy without introducing significant new costs, as any adjustments align with existing best practices.

RB21-25

RB22-25

IRC: 202 (New), R317.6, R317.6.1 (New), R317.6.2 (New), R317.6.3 (New), R317.6.4 (New), UL Chapter 44 (New)

Proponents: Robert Davidson, Davidson Code Concepts LLC, representing Self (rjd@davidsoncodeconcepts.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Robert Marshall, representing FCAC (fcac@iccsafe.org)

2024 International Residential Code

Add new definition as follows:

ELECTRIC VEHICLE (EV) CHARGING STATION. One or more vehicle spaces served by an electric vehicle charging system equipment, electric vehicle supply equipment, electric vehicle power export equipment, or wireless power transfer equipment.

ELECTRIC VEHICLE POWER EXPORT EQUIPMENT (EVPE). The electrical equipment, including the outlet on the vehicle, that is used to provide electrical power at voltages equal to or greater than 30 volts AC or 60 volts DC to an external loads from the vehicle, where the vehicle is the source of supply.

SECTION R317
GARAGES AND CARPORTS

Revise as follows:

R317.6 Electric vehicle charging systems. Where provided, *electric vehicle charging* ~~systems~~ *stations* shall ~~be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be *listed* and *labeled* in accordance with UL 2202. *Electric vehicle supply equipment* shall be *listed* and *labeled* in accordance with UL 2594~~ comply with Sections R317.6.1 through R317.6.4.

Add new text as follows:

R317.6.1 Installation. Electric vehicle charging stations shall be installed in accordance with NFPA 70, the manufacturer's installation instructions, and the listing.

R317.6.2 Equipment listings. Equipment used in electric vehicle charging stations shall be *listed* and *labeled* as applicable in accordance with the following:

1. Electric vehicle charging equipment in accordance with UL 2202.
2. Electric vehicle supply equipment in accordance with UL 2594.
3. Electric vehicle wireless power transfer equipment in accordance with UL 2750.

R317.6.3 Electric vehicle power export equipment. *Electric vehicle power export equipment* shall comply with Section 1208 of the *International Fire Code.*

R317.6.4 Protection from vehicle impact damage. Electric vehicle charging stations shall be protected from vehicle impact damage.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

2750-2023 Wireless Power Transfer Equipment for Electric Vehicles

Reason: The purpose of this proposal is to provide clarity regarding the charging of electric vehicles (EV). The requirements are not new, they are required to be followed now.

The current Section R317.6 has been broken down into separate subsections to address installation, listings, and vehicle impact protection. Additional listings have been provided and correlation with the EV power export requirements that have been added to the fire code is included.

There are four types of equipment used for charging EVs:

1. EV charging system equipment (UL 2202) – conductive charging equipment is located off board of the EV.
2. EV power export equipment (UL 9741) - can be unidirectional or bidirectional. Unidirectional EVPE equipment exports power from the vehicle to an offboard load, such as a receptacle bank. Bidirectional equipment provides power to the vehicle for charging of the onboard battery, and exports power to the grid, premise or load, but export and charging do not occur at the same time.
3. EV supply equipment (UL 2594) - provide power to a charger that is on-board the EV.
4. EV wireless power transfer equipment (UL 2750) - infrastructure equipment (off board an EV) that transfers power to an EV through a magnetic resonance coupling between the off-board equipment and the EV.

The use of the term "electric vehicle charging system" does not encompass all four of the different types of equipment used.
New Section R317.6.1 – Equipment used in a EV charging station needs to be installed in accordance with NFPA 70, as well as with the manufacturer's installation instructions and the listing.
New Section R317.6.2 – Clarifies the different equipment used, and the listing requirements. This includes the wireless power transfer equipment.
New Section R317.6.3 - EV power export equipment (EVPE) has additional requirements established by F175-24 in Group A.
New Section R317.6.4 – Suitable vehicle impact protection is needed for this equipment

This proposal is submitted jointly by the ***ICC Building Code Action Committee (BCAC)*** and the ***ICC Fire Code Action Committee (FCAC)***.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at **BCAC webpage**.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the **FCAC Website**

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no increase in construction costs of buildings with this change as it is an editorial and correlation proposal. It also provides additional options for charging of electric vehicles. A similar proposal has been submitted to the IBC.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
UL 2750-2023 Wireless Power Transfer Equipment for Electric Vehicles

RB22-25

RB23-25

IRC: SECTION 202

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

2024 International Residential Code

Revise as follows:

[RB] EXTERIOR SOFFIT. A material or assembly of materials applied on the underside of exterior overhangs, ~~and~~ attached ~~carport~~ carports, ceilings of raised buildings that create a full story, and porch ceilings.

Reason: This recently added definition's proposal will create stronger understanding where soffit regulations apply. It's important that attachment requirements apply where soffit material is applied with raised buildings undersides. This type of construction, raised homes, is used in many cases near the coast where high wind events are common.

Cost Impact: Increase

Estimated Immediate Cost Impact:

It has been estimated that this will add approximately $200 on an average cost to house.

Based on additional fastener and labor (2 hours).

Estimated Immediate Cost Impact Justification (methodology and variables):

Using RS Means data for carpentry.

By adding this to the scope of the definition it will help to increase the durability of the structure.

RB23-25

RB24-25

IRC: SECTION 202

Proponents: Theresa Weston, The Holt Weston Consultancy, representing Rainscreen Association in North America (holtweston88@gmail.com)

2024 International Residential Code

Revise as follows:

[RB] EXTERIOR WALL COVERING. A material or assembly of materials applied on the exterior side of exterior walls for the purpose of providing a ~~weather-resistive~~ weather-resisting barrier, insulation or for aesthetics, including but not limited to, veneers, siding, *exterior insulation and finish systems*, architectural *trim* and embellishments such as cornices .

Reason: This proposal revises the definition to be consistent with definition in the IBC and to reduce possible industry confusion. Specifically, "weather-resistive barrier" is changed to "weather-resisting barrier". This maintain that the exterior wall covering is exposed to the
weather and to reduce confusion with the defined "water-resistive barrier" which is a specific wall assembly component.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies a definition but does not introduce any new requirements.

RB24-25

RB25-25

IRC: SECTION 202

Proponents: Theresa Weston, The Holt Weston Consultancy, representing Rainscreen Association in North America (holtweston88@gmail.com)

2024 International Residential Code

Revise as follows:

[RB] EXTERIOR WALL COVERING. A material or assembly of materials applied on the exterior side of exterior walls for the purpose of providing a weather-resistive barrier, insulation or for aesthetics, including but not limited to, veneers, siding, *exterior insulation and finish systems*, <u>rainscreen systems</u>, architectural *trim* and embellishments such as cornices .

Reason: Revises the "exterior wall covering" definition to add "rainscreen systems" as an example exterior wall covering to make the definition which is consistent with the IBC. The definition of rainscreen systems was added to the IRC in the 2024 edition. Rainscreen systems are not material specific and have a growing market share.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal makes no changes in requirements, only updates definition

RB25-25

RB26-25

IRC: SECTION 202, R302.1

Proponents: Dan Buuck, National Association of Home Builders, representing National Association of Home Builders (dbuuck@nahb.org)

2024 International Residential Code

Revise as follows:

[RB] FIRE SEPARATION DISTANCE. The distance measured from the building face to one of the following:

1. To the closest interior *lot line*.
2. To the centerline of a street, an alley or public way.
3. To an imaginary line between two *buildings* ~~or townhouse units~~ on the *lot*.

The distance shall be measured at a right angle from the face of the wall.

SECTION R302
FIRE-RESISTANT CONSTRUCTION

R302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of *dwellings, townhouses* and accessory buildings shall comply with Table R302.1(1) based on *fire separation distance* ; or *dwellings* and *townhouses* equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2) based on *fire separation distance* .

For the purposes of determining *fire separation distance*, *dwellings* and *townhouses* on the same *lot* shall be assumed to have an imaginary line between them. Where a new *dwelling* or *townhouse* is to be erected on the same lot as an existing *dwelling* or *townhouse*, the location of the assumed imaginary line with relation to the existing *dwelling* or *townhouse* shall be such that the existing *dwelling* or *townhouse* meets requirements of this section.

~~Where a *lot line* exists between adjacent *townhouse units*, *fire separation distance* of exterior walls shall be measured to the *lot line*. Where a lot line does not exist between adjacent *townhouse units*, an imaginary line shall be assumed between the adjacent *townhouse units* and *fire separation distance* of exterior walls shall be measured to the imaginary line. *Fire separation distance* and requirements of Section R302.1 shall not apply to walls separating *townhouse units* that are required by Section R302.2.~~

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls of *individual dwelling units* and their *accessory* buildings located on the same *lot*.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from *permits* are not required to provide wall protection based on location on the *lot*. Projections beyond the exterior wall shall not extend over the *lot line*.
4. Detached garages accessory to a *dwelling unit* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.

Reason: The text this proposal strikes was added last cycle which requires a fire separation distance to be determined between townhouse units by measuring to the lot line or an imaginary line where a lot line does not exist. The change was meant to address individual townhouse units which connect at a 90-degree angle. The committee disapproved the change because the code has not required fire resistance for walls at right angles. In addition, committee members believed the proposed text did not address the concerns raised during the testimony and in the proposal’s reason statement. In these interior corners, there is no existing or possible future structure built within the fire separation distance measured perpendicular to the wall.

Adding this requirement last cycle seemed to be an attempt to bring the IRC more in line with the IBC's provisions on fire separation. However, requiring an imaginary lot line between townhouse units in the same building is more restrictive than what the IBC requires. See Section 705.3 Exception 1 of the IBC which allows for two or more buildings on the same lot to be considered as portions of one building (if the aggregate area of the buildings meets certain conditions). The IRC should not be more restrictive than the IBC. A townhouse, with its individual units, is one building and should be treated as such. Imaginary lot lines had not previously been applied to a single building in the IRC before last cycle, and this proposal restores how they are applied.

This proposal does not remove the term “townhouse” where it had been added in the second paragraph of R302.1. “Townhouse” is now defined as “a building that contains three or more attached townhouse units” and not the individual unit. Therefore, this provision would apply only when several townhouse buildings are located on the same lot.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

For each instance where two townhouse units meet forming an interior 90-degree corner, accepting this proposal would save $57.60. This estimate does not include the savings from fire-resistant construction at projections. There is also the intangible cost of limiting design that cannot be calculated.

Estimated Immediate Cost Impact Justification (methodology and variables):

Assuming a 3-story townhouse with 8-ft walls, a 5-ft long 1-hr fire-resistant rated wall section would be 120 sq ft.
Type X exterior gypsum, 5/8", taped and finished at $0.43 per sq ft x 120 = <u>$51.60</u>
Type X interior gypsum, 5/8" at $0.38 per sq ft x 120 = <u>$45.60</u>
Existing interior gypsum, ½" at $0.33 per sq ft x 120 = <u>$39.60</u>
$51.60 + $45.60 - $39.60 = $57.60 saved (2018 dollars)

RB26-25

RB27-25

IRC: SECTION 202

Proponents: Mike Fischer, Kellen, representing The Extruded Polystyrene Foam Association (mfischer@kellencompany.com)

2024 International Residential Code

Revise as follows:

[RB] FLAME SPREAD INDEX. A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with ASTM E84 or UL 723. Where ceiling and floor values are reported, the ceiling value is the *flame spread index*.

[RB] SMOKE-DEVELOPED INDEX. A comparative measure, expressed as a dimensionless number, derived from measurements of smoke obscuration versus time for a material tested in accordance with ASTM E84 or UL 723. Where ceiling and total smoke values are reported, the ceiling value is the *smoke-developed index*.

Reason: While ASTM E84 and UL 723 contain the same requirements, there are a few minor differences in how data are captured and reported. This proposal will clarify how the test data from testing under either standard correlates to the FS and SD requirements in the code. It will also aid in code education efforts by improving the language.

Note that Proposal G7-24 was unanimously recommended for approval by the IBC-FS Committee; the Committee took no action in CAH #2. G7-24 made the same change for these definitions in the IBC, IFC, IMC, and the IWUIC.

XPSA recommends this proposal be approval as submitted for consistency across all relevant I-Codes.

The Committee reason statement for G7-24 is captured here:

*"**Committee Reason**: The committee stated that the reason for approval was that the proposal clarifies how the test data from testing under ASTM E84 and UL 723 standards correlates to the FS and SD requirements in the code. The committee agreed with the clarification added to the definitions regarding reporting of ASTM E84 and UL 723 values. The committee concluded that the code change proposal clarifies that the ceiling value is applicable to avoid confusion when ceiling and floor values are reported."*

The reason statement for G7-24 is included here:

1) The purpose of the test is to determine the comparative burning characteristics of the material under test by evaluating the spread of flame over its surface and the density of the smoke developed when exposed to a test fire. These measurements are made as the test flame advances along the ceiling of the sample.

However, materials that melt and drip to the floor of the test chamber and continue burning, often have a second measurement reported, based upon the flame spread advancements of material burning along the floor of the furnace. For materials exhibiting these behaviors, both ceiling and floor measurements are reported for the flame spread, while ceiling and total smoke measurements are reported for the smoke developed. The intent of the code requirement for these materials has been that when both the floor and ceiling measurements are reported, the ceiling measurement applies to the building code. This code change proposal clarifies that the ceiling measurement is applicable to avoid confusion when these two values are reported. UL 723 contains specific direction in Section 7 (Classification) and Section 9 (Reporting) for the determination and reporting of ceiling and floor flame spread and ceiling and total smoke developed.

2) The International Mechanical Code (IMC) definitions are revised to match the IBC, IRC, IFC and IWUIC for consistency. Reference to UL 723 is the smoke-developed index is also added for consistency.

3) There is one other flame spread and smoke-developed index test standard besides ASTM E84 and UL 723. It is the CAN/ULC S102.2 test standard used for loose fill insulation, where the product is mounted and tested on the floor of the tunnel apparatus. Therefore, this test standard is listed as an exception in IBC Section 720.4 and IRC R302.10.

The clarification to the definitions regarding reporting of ASTM E84 and UL 723 values will not impact the reporting of CAN/ULC S102.2, which is currently limited to one product with one floor measurement. While ASTM E84 and UL 723 contain the same requirements, there are a few minor differences in how data are captured and reported. This proposal will clarify how the test data from testing under either standard correlates to the FS and SD requirements in the code. It will also aid in code education efforts by improving the language.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The definition change reflects current practice and adds no requirements.

RB27-25

RB28-25

IRC: SECTION 202 (New)

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

Add new definition as follows:

WALL, FOUNDATION. Vertical component of the building's foundation system, such as a restrained basement wall, stem wall, or retaining wall, that supports and transfers loads from the above-grade portion of the building to the footings below.

Reason: While foundation wall provisions have been in the IRC for some time, there has not been a definition. By adding this definition it provides clarity to users as to when they must follow both the requirements of R403 and R404 for both footings and foundation walls rather than simply complying with the footing provisions of IRC R403.

Section R404 “Foundation and Retaining Walls” provides numerous requirements for vertical elements of the foundation that are above-and-beyond those for footings listed in R403. R404 applies to full basement walls, partial height walls known as “stem walls”, and in some cases retaining walls that are not properly restrained at the top. These walls support vertical and lateral loads from the structure as well as lateral soil loads applied to the face of the walls.

By adding this definition, it clarifies when stem walls and basement foundation walls are required to meet the additional requirements noted in R404 to ensure that forces are properly transferred through these walls to the footings below. This becomes especially critical in higher Seismic Design Categories D0, D1, and D2 as seismic lateral earth pressure can also be applied to these walls.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change is proposed for clarification of existing provisions only.

RB28-25

RB29-25

IRC: SECTION 202 (New), SECTION R312 (New), R312.1 (New), R312.2 (New), R312.2.1 (New), R312.2.2 (New), R312.3 (New), R312.4 (New), R312.5 (New), R312.6 (New), R312.7 (New), R312.7.1 (New), R312.7.2 (New), UL Chapter 44 (New)

Proponents: Bob Torbin, Omega Flex, Inc., representing Self (bob.torbin@omegaflex.net)

2024 International Residential Code

Add new definition as follows:

FUEL GAS ALARM. A single or multiple-station alarm intended to detect fuel gas and alert occupants by a distinct audible signal. It incorporates a sensor, control components and an alarm notification appliance in a single unit.
FUEL GAS DETECTOR. A device with an integral sensor to detect fuel gas and transmit an alarm signal to a connected fuel gas detection system or separate alarm only unit.

Add new text as follows:

SECTION R312
FUEL GAS DETECTORS AND ALARMS

R312.1 General. Fuel gas detectors and alarms shall comply with Section R312 and shall be listed in accordance with either UL 1484 or UL 2075.

Exception: Detector and alarm listed and located in accordance with a performance-based design approved by the building code official and in accordance with the manufacturer's instructions.

R312.2 Where required. Where required by the local jurisdiction, fuel gas detectors and alarms shall be provided in accordance with Sections R312.2.1 and R312.2.2.

R312.2.1 New Construction. For newly constructed dwelling units, fuel gas detectors and alarms shall be provided where either of the following conditions exist:

1. The dwelling unit contains one or more fuel-fired appliances.
2. The dwelling unit has a basement where the fuel gas piping penetrates the foundation wall below ground.

R312.2.2 Existing dwellings. Where the existing dwelling unit meets either of the requirements of Section R312.2.1, fuel gas detectors and alarms shall be installed prior to the transfer of ownership.

R312.3 Location. Fuel gas detectors and alarms shall be located in accordance with the manufacturer's installation instructions and the following:

1. At least one detector and alarm shall be located on the same floor as any permanently installed fuel gas-burning appliance in accordance with the following:
    1.1. In a horizontal flow path between 3 feet (915 mm) and 10 feet (3050 mm) from a permanently installed fuel gas cooking appliance.
    1.2. In a horizontal flow path within 10 feet (3050 mm) from other permanently installed fuel gas-burning appliances or a group of permanently installed fuel gas-burning appliances.
    1.3. Within an area of 600 square feet (56 square meters) of contiguous floor space and not more than 30 feet (9145 mm) from any permanently installed fuel gas-burning appliances or a group of permanently installed fuel gas-burning appliances.
2. One detector and alarm shall be installed in the basement or other subgrade room of dwelling units supplied with fuel gas where the point of entry of the service is below grade.
3. One detector and alarm shall be installed in an attached garage where the fuel gas point of delivery or a fuel gas burning appliance is installed.
4. For dwelling units with bedrooms on a different floor than the fuel gas burning appliances, at least one alarm shall be located outside of each separate sleeping area in the immediate vicinity of the bedrooms.

R312.4 Placement. Detectors and alarms shall be placed and permanently mounted in accordance with the manufacturer's installation instructions and the following:

1. For natural gas, the detector and alarm shall be placed on the ceiling or on the wall with the top of the detector within 12 inches (305 mm) of the ceiling.
2. For LP-gas, the entire detector-alarm unit shall be placed on the wall within 18 inches (457 mm) of the floor.
3. Detectors and alarms shall not be installed in locations directly in the airstream of supply and return registers.
4. For natural gas, detectors shall not be placed directly above doorway openings or in areas of obstructed air flow.

R312.5 Combination units. Combination fuel gas and carbon monoxide detectors and alarms shall be placed in accordance with the fuel gas being sampled.

R312.6 Interconnectivity. In new construction where more than one fuel gas detector and alarm are required, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the dwelling unit. Physical interconnection of fuel gas detectors and alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

R312.7 Power source. Fuel gas detectors and alarms shall receive their power in accordance with Sections R312.7.1 and R312.7.2.

R312.7.1 Primary power. Primary power shall be received from the dwelling unit wiring where such wiring is served from a commercial source. The wiring shall be permanent and without a disconnecting switch other than required for overcurrent protection.

R312.7.2 Alternative power. Fuel gas detectors and alarms shall be permitted to be battery operated whenever the following occurs:

1. Where primary power is interrupted.
2. Where installed in dwelling units without commercial power.
3. When fuel gas detectors and alarms are installed in an existing dwelling unit.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

<u>UL 1484-2022</u>	<u>Standard for Residential Gas Detectors</u>
<u>UL 2075-2024</u>	<u>Gas and Vapor Detectors and Sensors</u>

Reason: The lifesaving value of smoke and carbon monoxide detection devices is well documented and required by the IRC for many years. The National Transportation Safety Board, through its investigations of a multitude of natural gas incidents involving fatalities, recommends that fuel gas detectors/alarms also be included within the IRC. The inclusion of fuel gas detection to this code will improve the safe distribution and use of fuel gas when piping systems and appliances malfunction, or when actions by the homeowner or their contractors accidentally create a release of a fuel gas, or when the homeowner does not detect an odor of a fuel gas inside the house.

In response to recommendation by the National Transportation Safety Board (NTSB) in NTSB Report NTSB/PAR-19/01 PB2019-100722 Building Explosion and Fire Silver Spring, Maryland, and NTSB Report NTSB/PAR-21-01 Atmos Energy Corporation Natural Gas-Fueled Explosion Dallas, Texas, non-mandatory requirements for fuel-gas detectors/alarms are proposed for inclusion within a new section R3XX of the IRC. Further justification for this type of detector and alarm is supported by the 2018 NFPA Report, Natural Gas and Propane Fires, Explosions and Leaks Estimates and Incidents by Marty Ahrens and Ben Evarts. Although the general technical specifications in the proposal are based on the forthcoming 2026 edition of NFPA 715 Standard, Installation for Fuel Gas Detection and Warning Equipment, the specific requirements that are proposed are not beholden to this document. The 2026 edition of NFPA 715 has been modified to include additional options regarding placement and location criteria that is based on new research studies on an analysis of the gas dispersion.

In the U.S., local fire departments respond to an average of 340 natural gas or LP-gas leaks per day with no ignition (2018 NFPA Report). Although gas leaks are much more common than gas ignitions, they can be precursors to devastating fires and/or explosions. The installation of even a single fuel gas detector and alarm would provide advanced warning to home occupants of potential imminent danger and would almost certainly reduce the number of annual deaths associated with fuel gas use.

This Proposal seeks to protect occupants in dwelling units from explosions and fires caused by natural gas or liquefied petroleum gas (LP-Gas) leaks. The proposal is needed based on fire statistics from the 2024 NFPA Report, Structure Fires Involving Flammable Gases by Tucker McGree,

• During the years of 2010–2022, there was an estimated annual average of 11,537 reported home fires were a result of a flammable gas.
• These fires caused an estimated 191 civilian deaths, 747 civilian injuries, and $402 million in property damage each year. An estimated 10,774 fires occurred in homes and 5,166 occurred in non-home structures each year
• All the reported flammable gases, the largest percentage of fires began with the ignition of natural gas, followed by LP-Gas. The incidents where LP-Gas was the first material to ignite had more civilian deaths and injuries associated with them.

Bibliography: NTSB Report NTSB/PAR-19/01 PB2019-100722 Building Explosion and Fire Silver Spring, Maryland

NTSB Report NTSB/PAR-21-01 Atmos Energy Corporation Natural Gas-Fueled Explosion Dallas, Texas

NFPA Report, Natural Gas and Propane Fires, Explosions and Leaks Estimates and Incidents – 2018 by Marty Ahrens and Ben Evarts.

NFPA Report, Structure Fires Involving Flammable Gases – 2024 by Tucker McGree

NFPA 715-2026 Standard for the Installation of Fuel Gas Detection and Warning Equipment

Cost Impact: Increase

Estimated Immediate Cost Impact:

The estimated installation cost per fuel gas detector should be approximately equal to the installation cost of similar smoke and carbon monoxide detection systems in terms of the cost of the individual detector/alarm unit, the cost of installing permanent electrical wiring, or the cost of a battery-only type unit. The cost impact of each fuel gas detection/alarm system installed is estimated to be between $100 (battery operated) to $250/unit (based on manufacturer's estimate for hard-wired units).

Estimated Immediate Cost Impact Justification (methodology and variables):

The proposed amendment to the IRC does not mandate the installation of fuel gas detectors and alarms. The proposal allows the builder and/or the homeowner to install fuel gas detection systems that meet the needs of the affected residents, the fuel gas system configuration within the building, the manufacturer's installation instructions, and other local regulations. The number of fuel gas detectors can vary greatly depending on the general size/floor plan of the house, the location of the gas piping, and the type and number of gas appliance installed. The installation of fuel gas detection system is not intended to meet a one-size-fits-all approach. Therefore, the cost to install a fuel gas detection system can vary greatly.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

UL 1484-2022 Standard for Residential Gas Detectors

UL 2075-2024 Gas and Vapor Detectors and Sensors

RB29-25

RB30-25

IRC: SECTION 202, SECTION R325.2

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Delete without substitution:

~~**[RB] GLAZING AREA.** The interior surface area of all glazed fenestration, including the area of sash, curbing or other framing elements, that enclose *conditioned space*. Includes the area of glazed fenestration assemblies in walls bounding conditioned *basements*.~~

Revise as follows:

[RB] SUNROOM. A one-story structure attached to a *dwelling* with an aggregate area of glazing ~~a *glazing area*~~ in excess of 40 percent of the *gross area* of the structure's exterior walls and roof. For the definition applicable in Chapter 11, see Section N1101.6.

SECTION R325
LIGHT, VENTILATION AND HEATING

R325.2 Bathrooms. Bathrooms, water closet compartments and other similar rooms shall be provided with an aggregate area of glazing ~~*glazing area*~~ in windows of not less than 3 square feet (0.3 m^2), one-half of which shall be openable.

> **Exception:** The glazed areas shall not be required where artificial light and a *local exhaust* system are provided. The minimum *local exhaust* rates shall be determined in accordance with Section M1505. Exhaust air from the space shall be exhausted directly to the outdoors.

Reason: The term "glazing area" and its definition are no longer useful in the IRC. The definition refers to ALL the glazing in the entire building, but only conditioned space, and is a relic from the pre 2006 chapter 11 energy code where a maximum of 15% glazing was permitted. The energy code no longer makes reference to the entire glazed area of a building in this manner. This phrase "glazing area" is provided in italics in the section for bathroom ventilation, but would not apply in the manner the term is defined. The glazing of a bathroom is only in relation to the single bathroom and not the entire building. Here is some added history regarding this subject.

1) The 1998 International One and Two-Family Dwelling Code published by ICC (in the early days) does NOT include a definition for this term and it does NOT include a chapter on energy. However, the 1995 Model Energy Code (MEC) does define this term and use it. In the 2000 IRC, chapter 11 for energy (based on the MEC) this term is used and the definition is included. In the 2006 energy code, this term was no longer used, but the definition remained.

2) In the 2003 IRC a definition for "sunroom addition" was added that made reference to a percentage of glazing. This defined term "glazing area" was used. However, much like with bathrooms, this is not the application of the term for sunrooms. Sunroom glazing area is only in relation to the sunroom and not the entire building. Further to the point, the definition for "glazing area" is in reference to "conditioned space". In the 2015 IRC clear guidance for different types of sunrooms was included in Section 301 for wind design. Here it is made clear that sunrooms may be conditioned spaces or unconditioned spaces.

3) Since the creation of the 2024 IRC, chapter 11 for energy has been moved to an entirely separate and different code development process including it's own definitions found in Chapter 11. If the term and definition for "glazing area" needs to be retained for energy code purposes (See Table N1105.4.2(1)) then the term needs to be defined as necessary in the IECC and Chapter 11 of the IRC, but not in Chapter 2 of the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is intended to remove relic terms no longer useful in the IRC and thus has no cost impact on construction.

RB31-25

IRC: SECTION 202

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Residential Code

Revise as follows:

[RB] GUARD. A ~~building~~ component or ~~a system of building~~ assembly of components located at or near the open sides of an elevated walking ~~surfaces~~ surface that minimizes the possibility of a fall from the elevated walking surface to the ~~lower level~~ floor or grade below.

Reason: This proposal is a coordination proposal to bring the 2027 IRC up to date with the provisions of the 2022 edition of ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI 7-22). Additionally, this proposal coordinates the 2027 IRC with the 2027 IBC, IPMC, and IFC due to action taken in Group A on G9-24. The revised text shown in this proposal matches the text resulting from the outcome of Group A Committee Action Hearings #1 and #2.

The changes do the following: The word "building" is struck in two places as it is unnecessary and does not appear in the ASCE 7 definition. The definition is clear without it. Additionally, the use of the word “building” could cause confusion as the scope of the IRC includes buildings and their accessory structures per Section 101.2, but the word “structures” does not appear alongside the word “building”.

The word "system" is changed to "assembly" to match the ASCE 7 definition. The words in this usage are interchangeable. However, in ASCE 7 the defined term is Guard System, and as such the ASCE 7 definition uses “assembly” to avoid using “system” in both the defined term and in the definition. It is generally considered not good practice to repeat words being defined in the definition itself.

The addition of the word "elevated" matches ASCE 7 text and is consistent with the first part of the definition, referring to the walking surfaces as the elevated surface.

Changing "to a lower level" to "to the floor or grade below" is consist with Group A action. This was done to make the definition consistent with the existing code language describing when the elevation difference is great enough to require a Guard, contained in IBC Section 1015.2 and IRC Section 321.1.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Improving coordination of a definition between I-Codes and with ASCE 7 is not expected to affect the cost of construction.

RB31-25

RB32-25

IRC: SECTION 202 (New), R318.7.5.3, R318.7.6

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Residential Code

[RB] STAIRWAY. One or more *flights* of *stairs*, either interior or exterior, with the necessary landings and connecting platforms to form a continuous and uninterrupted passage from one level to another.
[RB] MEZZANINE. An intermediate level or levels between the floor and ceiling of any *story*.
[RB] FLIGHT. A continuous run of rectangular treads or *winders* or combination thereof from one landing to another.

Add new definition as follows:

LANDING. The portion of a walking surface required for direct access to or from an adjacent door, stair, flight of stairs, ramp run, or elevator.

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.7.5.3 Nosings. Treads~~,~~ and landings~~ and floors~~ of *stairways* shall have a radius of curvature at the *nosing* not greater than $^{9}/_{16}$ inch (14 mm) or a bevel not greater than $^{1}/_{2}$ inch (12.7 mm). A *nosing* projection not less than $^{3}/_{4}$ inch (19 mm) and not more than $1^{1}/_{4}$ inches (32 mm) shall be provided on *stairways*. The greatest *nosing* projection shall not exceed the smallest *nosing* projection by more than $^{3}/_{8}$ inch (9.5 mm) within a flight of stairs and the landing~~s~~ at the top of the flight.

Exceptions:

1. A *nosing* projection is not required where the tread depth is not less than 11 inches (279 mm).
2. Where *risers* are open, the maximum *nosing* projection shall be permitted to exceed $1^{1}/_{4}$ inches (32 mm).

R318.7.5.4 Exterior plastic composite stair treads. *Plastic composite* exterior stair treads shall comply with the provisions of this section and Section R507.2.2.

R318.7.6 ~~Landings for stairways~~Stairway landings. There shall be a ~~floor or~~ landing at the top and bottom of each *flight* of stairs. The width perpendicular to the direction of travel shall be not less than the width of the *flight* served. For landings of shapes other than square or rectangular, the depth at the walk line and the total area shall be not less than that of a quarter circle with a radius equal to the required landing width. Where the *stairway* has a straight run, the depth in the direction of travel shall be not less than 36 inches (914 mm).

Exceptions:

1. The top landing of an interior *stairway*, including those in an enclosed garage, shall be permitted to be on the other side of a door located at the top of the *stairway* , provided that the door does not swing over the stairs.
2. At an enclosed garage, the top landing at the *stair* shall be permitted to be not more than $7^{3}/_{4}$ inches (197 mm) below the top of the threshold.
3. At exterior doors, a top landing is not required for an exterior stairway of not more than two risers, provided that the door does not swing over the *stairway*.

4. Exterior *stairways* to grade with three or fewer *risers* serving a deck, porch or patio shall have a bottom landing width of not less than 36 inches (914 mm), provided that the stairway is not the required access to grade serving the required egress door.

Reason: What is the difference between a landing and a floor? There is clearly a difference that is not understood. An entire floor is not a landing, but the code uses the term “floor-or-landing” as if they are the same. The confused use of the terms interchangeably is due to the lack of a definition for either floor or landing. Landings as are flights are the components of a stairway as defined in the code and include here for your ready reference.

A landing is but a portion of a floor. The attribute of size is not addressed in dictionaries and this alone is justification for a unique definition in the code. A landing may not be a floor at all if it is not at a floor level but only located between flights.

If it is a deck or patio connected to the structure, is it a floor or landing? Clearly only enough area is needed to safely access or depart from the flight of stairs. The code, however, provides an option for a floor of indefinite size though only a landing is needed. An entire floor is not necessary to enter or exit a stairway. If a floor is provided instead of a landing, is it limited to the size of a landing or what portion of the floor is the landing? The code should not support such circular rhetoric..

How big is a floor or should I ask is there a need to describe the limits of a floor's size? If you could define "floor", it would likely not be in terms of its size? A landing is much different. The code specifies landing sizes throughout the code, albeit, sometimes indirectly but this alone makes a landing uniquely different from a floor.

The limit of a landing’s size is what defines where the stairway ends and where a floor begins. This is important because it prescribes the specific area where stairway requirements are applicable such as width, depth, and headroom of landings are uniquely regulated in R318.7 Stairways. The suggested definition clearly identifies the unique quality of landing size as "The portion of a walking surface required..." and quantifies the landing as the amount of space needed to perform the functions of a landing, e.g., change in direction, change in stride, rest, or simply provide the area required to enter or exit a doorway, stair, ramp or elevator.In addition to the definition, we have included comprehensive changes to other requirements with instances of confusing reference to the terms floor or landing. Each has been corrected by deleting floor where "floor or landing" has been used and any related contextual changes necessary. Each of these necessary changes to the code are very clear examples of how the suggested definition for landing can simplify code language and provide for consistent interpretation.

In an effort to correlate with the IBC and the A117.1 standard the proposed definition has been submitted and approved in the proceedings of the A117.1 committee for inclusion in the final ballot of the ICC A117.1 Standard expected in 2025. The text is the same except that "door" is deleted as landings at doors are not mentioned in A117.1. The definition was also approved by the MOE Committee in Group A CAH2.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a new definition and editorial changed needed to correlate with other ICC defined terminology. The changes have no material affect upon the cost of construction.

RB32-25

RB33-25

IRC: SECTION 202

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

[RB] MANUFACTURER'S INSTALLATION INSTRUCTIONS. Published ~~Printed~~ instructions for ~~included with~~ equipment as part of the conditions of their *listing* and *labeling*.

Reason: Manufacturer's installation instructions are increasingly made available in media other than printed versions. This proposal removes the requirement that instructions be "printed" from the definition. Doing so will permit alternative methods for providing instructions, including digital formats that support better sustainability. The proposed change is important in light of events such as the COVID-19 pandemic, which brought attention to the need to deliver information using alternative methods.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Although near-term changes are not anticipated if this proposal is accepted, increasing available options for delivering installation instructions is expected to lead to either no change or a reduction in cost of construction through improved efficiencies.

RB33-25

RB34-25

IRC: SECTION 202, SECTION 202 (New)

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

Delete without substitution:

~~**[RB] MULTIPLE-STATION SMOKE ALARM.** Two or more single-station alarm devices that are capable of interconnection such that actuation of one causes all integral or separate audible alarms to operate.~~
~~**[RB] SINGLE-STATION SMOKE ALARM.** An assembly incorporating the detector, control equipment and alarm sounding device in one unit that is operated from a power supply either in the unit or obtained at the point of installation.~~

Add new definition as follows:

<u>**SMOKE ALARM.** An assembly incorporating the detector, control equipment and alarm sounding device in one unit that is operated from a power supply either in the unit or obtained at the point of installation.</u>

Reason: The IRC does not utilize either definition, single-station smoke alarm or multi-station smoke alarm. This code change reduces the definition of "single-station smoke alarm" to "smoke alarm" to make the code clearer of what is being referred to. Where interconnection is required, the existing definition of single-station smoke alarm is not restrictive.

This is the current text for smoke alarms for reference.

SECTIONR310
SMOKE ALARMS

R310.1 General. Smoke alarms shall comply with NFPA 72, Section R310 and the manufacturer's installation instructions.

R310.1.1 Listings. Smoke alarms shall be *listed* and *labeled* in accordance with UL 217. Combination smoke and *carbon monoxide alarms* shall be *listed* and *labeled* in accordance with UL 217 and UL 2034.

R310.1.2 Installation. Smoke alarms and combination smoke and *carbon monoxide alarms* shall be installed in accordance with their listing and the manufacturer's instructions.

R310.2 Where required. Smoke alarms shall be provided in accordance with this section.

R310.2.1 New construction. Smoke alarms shall be provided in *dwelling units*.

R310.2.2 Alterations, repairs and additions. Where *alterations*, *repairs* or *additions* requiring a *permit* occur, the individual *dwelling unit* shall be equipped with smoke alarms located as required for new *dwellings*.

Exceptions:

1. Work involving the exterior surfaces of *dwellings*, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of a porch or deck.
2. Installation, *alteration* or repairs of plumbing or *mechanical systems*.

R310.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.

3. On each additional *story* of the *dwelling unit,* including *basements* and *habitable attics* and not including *crawl spaces* and uninhabitable *attics*. In *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.
4. Not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by this section.
5. In the hallway and in the room open to the hallway in *dwelling units* where the *ceiling height* of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches (610 mm) or more.
6. Within the room to which a *sleeping loft* is open, in the immediate vicinity of the *sleeping loft*.

R310.3.1 Installation near cooking appliances. Smoke alarms shall be installed not less than 10 feet (3048 mm) horizontally from a permanently installed cooking appliance.

Exception: Smoke alarms shall be permitted to be installed not less than 6 feet (1829 mm) horizontally from a permanently installed cooking appliance where necessary to comply with Section R310.3.

R310.4 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling unit* in accordance with Section R310.3, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual *dwelling unit*. Physical interconnection of smoke alarms shall not be required where *listed* wireless alarms are installed and all alarms sound upon activation of one alarm.

R310.5 Combination alarms. Combination smoke and *carbon monoxide alarms* shall be permitted to be used in lieu of smoke alarms.

R310.6 Power source. Smoke alarms shall receive their primary power from the *building* wiring where such wiring is served from a commercial source and, where primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.

Exceptions:

1. Smoke alarms shall be permitted to be battery operated where installed in *buildings* without commercial power.
2. Smoke alarms installed in accordance with Section R310.2.2 shall be permitted to be battery powered.

R310.7 Fire alarm systems. Fire alarm systems shall be permitted to be used in lieu of smoke alarms and shall comply with Sections R310.7.1 through R310.7.4.

R310.7.1 General. Fire alarm systems shall comply with the provisions of this code and the household fire warning equipment provisions of NFPA 72. Smoke detectors shall be *listed* in accordance with UL 268.

R310.7.2 Location. Smoke detectors shall be installed in the locations specified in Section R310.3.

R310.7.3 Permanent fixture. Where a household fire alarm system is installed, it shall become a permanent fixture of the occupancy, owned by the homeowner.

R310.7.4 Combination detectors. Combination smoke and *carbon monoxide detectors* shall be permitted to be installed in fire alarm systems in lieu of smoke detectors, provided that they are *listed* in accordance with UL 268 and UL 2075.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change clarifies the definition of smoke alarms in the IRC without a technical change.

RB34-25

RB35-25

IRC: SECTION 202 (New), SECTION 317 (New), 317.1 (New), 317.2 (New), R318.1, R321.1.1

Proponents: Steve Thomas, Shums Coda Associates, representing Colorado Chapter Code Development Committee (sthomas@coloradocode.net)

2024 International Residential Code

Add new definition as follows:

OCCUPIABLE ROOFS. An exterior space on a roof that is designed for human occupancy, other than maintenance or *repair*.

Add new text as follows:

SECTION R317
OCCUPIABLE ROOFS

R317.1 Occupiable Roofs. Occupiable roofs shall comply with this section. The occupiable roof shall not be included in the number of stories as regulated in Section R101.2.

R317.2 Enclosures . Elements or *structures* enclosing the occupiable roof areas shall not extend more than 48 inches (1220 mm) above the surface of the occupiable roof.

Exceptions:

1. Stair and mechanical enclosures not exceeding 50 square feet (4.65 m^2) in roof area.
2. Elements or structures enclosing occupiable roof areas located on the same level as a story.

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.1 Means of egress. *Dwelling units* shall be provided with a means of egress in accordance with this section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the *dwelling unit, including occupiable roofs,* to the required egress door without requiring travel through a garage. The required egress door shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

SECTION R321
GUARDS AND WINDOW FALL PROTECTION

R321.1.1 Where required. *Guards* shall be provided for those portions of open-sided walking surfaces, including floors, *stairs*, *ramps* and landings that are located more than 30 inches (762 mm) measured vertically to the floor or *grade* below at any point within 36 inches (914 mm) horizontally to the edge of the open side and at the perimeter of occupiable roofs. Insect screening shall not be considered as a *guard*.

Exception: Portions of an *occupiable roof* located less than 30 inches (762 mm) measured vertically to adjacent unoccupiable roof areas where *approved guards* are present at the perimeter of the roof.

Reason: The IRC is silent on how to apply the code to occupiable roofs. These occupiable spaces are becoming more popular and we need something in the code to address the issue. The proposed language is modeled after the IBC language regarding occupiable roofs. We believe that it is important to have some level of regulations when someone wants to use the roof for an occupiable space. This proposal will provide equivalent requirements to those included in the IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

We believe that most building departments are already requiring occupiable roofs to comply with these proposed requirements. The intent is to provide clarifying language to give the code official language to use for things that are already being done.

RB35-25

RB36-25

IRC: SECTION 202 (New)

Proponents: Jeff Bowlsby, representing Se;lf

2024 International Residential Code

Add new definition as follows:

OTHERWISE SPECIFIED. Where stated without context, this term shall mean either of the following: 1. As alternatively specified within this subject code, referenced code or referenced standard. 2. As alternatively specified in mandatory language by the *registered design professional* where an alternative material, design, method of construction and equipment in accordance with Section R104.2.2 is *approved*.

Reason: This proposed code change includes a new definition for this currently undefined term “otherwise specified” where required context is not stated, to specify the required context in mandatory language, eliminating the terms’s vagueness and ambiguity, and to support uniform code interpretation, application, compliance, and enforcement. This proposed code change resolves these conflicts and conundrums.

Where used in the primary code documents (e.g. the IRC, referenced codes and referenced standards):

1. Use of this undefined term “otherwise specified” without required context does not establish minimum code requirements as set forth in IRC **R101.3 Purpose**.

2. No context is given for the undefined term “otherwise specified”. This undefined term is sometimes used without required context to provide mandatory language, therefore the term does not comply with IRC **R201.4 Terms not defined** and yet is codified. This undefined term is vague and ambiguous, and creates significant difficulties for code interpretation, application, compliance, and enforcement.

Example: 2021 IBC “1408.9 Surface-burning characteristics. Unless otherwise specified, HPL shall have a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in the minimum and maximum thicknesses intended for use in accordance with ASTM E84 or UL 723.” A literal reading of this code section can cause a misinterpretation of this undefined term “otherwise specified” in that an implied ‘specifier’ entity has an implied, unrestricted authority and discretion to “otherwise specify” alternative specifications such as an HPL with a greater flame spread index and smoke-developed index than the limits specified in 1408.9 allow. Surely this is not the intent of the code.

3. Items “otherwise specified” may imply that a ‘specifier’ entity has unrestricted authority and discretion to create alternative specifications which may vary from the minimum requirements of the code because there is no stated condition of approval where this term is used.

Example: ASTM F1667“10.1.4Mechanically deposited zinc coatings applied to fasteners after forming shall have a thickness in accordance with Specification B695, Class 40, unless otherwise specified.” No condition of approval for this alternative specification is stated such as the review and approval requirements for alternatives in IRC **R104.2.2 Alternative materials, design and methods of construction and equipment**. Surely this is not the intent of this reference standard.

4. This undefined term “otherwise specified” provides no helpful references to establish context

For undefined terms, the 2021 IBC Commentarydirects the code user to rely on a dictionary definition, referenced standards and the vague term ‘published textbooks’ to establish the context for defining this term. This undefined term “otherwise specified” is vague and ambiguous, and no definition or context establishing minimum codified requirements for this term can be gleaned from any of these documents.

5. This undefined term “otherwise specified” does not satisfy the requirement of mandatory language for use of defined terms in ICC CP#28-05 Code Development for referenced standards. As applies to referenced standards, ICC CP#28-05 4.6.2.1 requires that “A standard or portions of a standard intended to be enforced shall be written in mandatory language,” and 4.6.2.3 requires that “All terms shall be defined when they deviate from an ordinarily accepted meaning or a dictionary definition.” Where this undefined term “otherwise specified” is used in referenced standards without additional required context written in mandatory language, its use conflicts with and does not satisfy either of these CP#28-05 requirements.

6. The term “specified” implies a ‘specifier,’ whose characteristics are undefined.

No qualifications or restrictions are stated or implied preventing any entity from functioning as a ‘specifier.’ The ‘specifier’ entity implied in this undefined term “otherwise specified” is without context for the specifier’s qualifications or relationship to the permitted work. Therefore, the vague and ambiguous term ‘specifier’ can be (mis)interpreted and (mis)applied in the literal sense by code users to grant an unrestricted authority and discretion to any entity the code user determines to be a ‘specifier’ to ‘specify otherwise.’ A ‘specifier’ may be a licensed or unlicensed designer preparing construction documents, a contractor in a bid qualification, a manufacturer within their product data, a product or material supplier using their purchase order, a property developer or a homeowner, or any other entity. A ‘specifier’ entity may vary with the situation and may include legally or technically unqualified persons or the possibility that some of these ‘specifiers’ may have limited roles on the project.

The ordinarily accepted meaning of ‘specifier’ as used in the broader context of primary code documents is the registered design professional as defined in IRC Section R202. However, this undefined term “otherwise specified” does not limit the ‘otherwise specifying’ of an alternative to the registered design professional even though that professional is professionally responsible for the permitted work.

7. The ubiquitous practice of omitting drawings or specifications from work requiring compliance with the requirements for permit approval, conflicts with the essential purpose and requirements of the primary code documents ‘to establish minimum requirements’ and is not compliant with IRC R101.3. Items requiring review and compliance and intentionally or unintentionally NOT depicted on drawings and specifications submitted for permit approval are oftentimes as important as the items depicted. Because this undefined term “otherwise specified” without additional context implies a ‘specifier’ has the unrestricted authority and discretion to ‘specify otherwise,’ the term can be interpreted in the opposite sense - to ‘intentionally or unintentionally NOT specify something because it is not wanted’ by the ‘specifier,’ even where code compliance may require it. Compliance with codified requirements in primary code documents may simply be intentionally or unintentionally omitted from drawings or specifications submitted for permit approval such as when they are aesthetically objectionable or to reduce construction costs.Some code users will (incorrectly) interpret the intentional or unintentional omissions from the ‘approved for permit’ documents as approved omissions. Silence on whether code compliance and building official review and approval of the item ‘otherwise specified’ is or is not required creates conflicts during construction.

8. Where this undefined term “otherwise specified” is used, these combined factors cause misinterpretation and misapplication of the primary code documents and are a significant obstruction to effective code interpretation, application, compliance, and enforcement.

9. This undefined term “otherwise specified” has surreptitious functional similarities to the IRC R104.2.2 process, but the results of ‘otherwise specified’ are not approved unless the requirements of IRC R104.2.2 are satisfied.

10. This undefined term “otherwise specified” does not specifically mandate that ‘specifying otherwise’ shall comply with the full list of requirements of the IRC R104.2.2 process. Consider that the (mis)interpretation and (mis)application of this term may be a potential and intentional attempt at an unconditional, defacto approach to circumvent the IRC R104.2.2 process simply by “otherwise specifying” an alternative to minimum requirements of the primary code documents which is never presented to the building official for review or approval or for the testing and approval requirementsand authorityof the building official.

11. This undefined term “otherwise specified” does not establish the minimum requirements for WHERE the item ‘otherwise specified’ (alternative) shall be specified. Where the undefined term “otherwise specified” is used in a code or referenced standard, is the item specified within the same code or referenced standard or somewhere else? If the term means an Alternative is specified within an approved code or referenced standard then the context is established. However, this undefined term does not explicitly require in mandatory language: “unless otherwise specified <u>within this code or referenced standard</u>”.

12. This undefined term “otherwise specified” indicates no requirement to identify items “otherwise specified” or Alternatives on construction documents.

13. This undefined term “otherwise specified” in its current form where used without context in the code, referenced codes, or referenced standards, is illegal and void and a partial invalidity as specified in IRC **R102.5 Partial invalidity**, but does not make void or illegal any of the other parts or provisions.

14. More broadly, this undefined term “otherwise specified” is used not only within the IRC, but also within the referenced codes and referenced standards. The number and various types of codified referenced documents using the term is significant enough that coordinating changes to each of the codified referenced documents by proponents will take many years if not decades to correct, justifying this proposed code change for a single new definition in the IRC as the most appropriate and expedient solution, for uniformity of interpretation, application, compliance, and enforcement of the primary code documents.

15. Going forward, the term “otherwise specified” without an ordinarily accepted meaning for context should not be allowed in code

development of the primary code documents. CP#28-05 should also be considered for specific revision to not allow this term in referenced standards for the same reason.

A few examples:

Building Codes

- **2024 IBC @1406.9 Surface-burning characteristics.** Unless otherwise specified, MCM shall have a *flame spread index* of 75 or less and a *smoke-developed index* of 450 or less when tested in the maximum thickness intended for use in accordance with ASTM E84 or UL 723.

- **2024 IBC @1408.9 Surface-burning characteristics.** Unless otherwise specified, HPL shall have a *flame spread index* of 75 or less and a *smoke-developed index* of 450 or less when tested in the minimum and maximum thicknesses intended for use in accordance with ASTM E84 or UL 723.

- **2024 IBC @1607.4 Concentrated live loads.** Floors, roofs and other similar surfaces shall be designed to support the uniformly distributed *live loads* prescribed in Section 1607.3 or the concentrated *live loads*, given in Table 1607.1, whichever produces the greater *load effects*. Unless otherwise specified, the indicated concentration shall be assumed to be uniformly distributed over an area of 21/2 feet by 21/2 feet (762 mm by 762 mm) and shall be located so as to produce the maximum *load effects* in the structural members.

Referenced Codes

- **2024 IPC @ 301.2 Overlap.** Unless otherwise specified, clear floor spaces, clearances at fixtures, maneuvering clearances at doors, and turning spaces shall be permitted to overlap

- **2024 IPC @ 304.4 Door swing.** Unless otherwise specified, doors shall be permitted to swing into turning spaces.

- **2024 IPC @ 305.4 Knee and toe clearance.** Unless otherwise specified, clear floor space shall be permitted to include knee and toe clearance complying with Section 306.

- **2024 IPC @ 305.5 Position.** Unless otherwise specified, clear floor spaces shall be positioned for either forward or parallel approach to an element.

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Referenced Standards (Excepos from current edition of referenced standards listed in IRC Chapter 44)

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- **ASTM A36@ 5.1 Standard Specification for Carbon Structural Steel** Unless otherwise specified, plates used as bearing plates for bridges shall be subjected to mechanical tests and shall conform to the tensile requirements of Section 8.

- **ASTM B88 @ 1.2 Standard Specification for Seamless Copper Water Tube** The tube shall be produced from the following coppers, and the manufacturer has the option to supply any one of them, unless otherwise specified.

- **ASTM C844 @3.2.4 Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster** *framing member, n*—that portion of the framing, furring, blocking, and so forth, to which the gypsum base is attached. Unless otherwise specified, the surface to which abutting edges or ends are attached shall be not less than 11⁄2 in. (38 mm) wide for wood members, not less than 11⁄4 in. (32 mm) wide for steel members, and not less than 6 in. (152 mm) wide for gypsum studs. For internal corners or angles, the bearing surface shall be not less than 3⁄4 in. (19 mm).

- **ASTM C844 @ 14.4 Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster** “…Partitions shall be secured at the floor and ceiling in accordance with the gypsum base manufacturer’s details or as otherwise required.”

- **ASTM C926 @ 6.1 Standard Specification for Application of Portland Cement-Based Plaster** Metallic lath and lath fasteners used to receive plaster shall be installed in conformance with Specification C1063, except as otherwise specified.

- **ASTM C1063 @ 7.3.1.3Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster** Lath shall be installed with the long dimension at right angles to the framing members, unless otherwise specified.

- **ASTM C1280 @ 7.1Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing** Framing members shall be installed so that the surface will be in an even plane, unless otherwise specified, after the gypsum panel products have been applied.

- **ASTM F1667 @ 10.1.2.1Standard Specification for Driven Fasteners: Nails, Spikes, and Staples** Hot-dip galvanized steel wire for the manufacture of fasteners shall have a coating weight in accordance with Specification A641/A641M, Supplementary Requirements, Class 3S, when a heavier coating for exterior use and/or use in treated wood is specified. The minimum zinc coating shall be in accordance with Supplementary Requirements, Class 1, unless otherwise specified.

- **ASTM F1667 @ 10.1.3Standard Specification for Driven Fasteners: Nails, Spikes, and Staples** Electrogalvanized steel fasteners cut and formed from electrogalvanized steel wire or electrogalvanized after forming shall have a regular coating (no minimum weight of coating specified) in accordance with Specification A641/A641M, 9.2, unless otherwise specified.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

New defined term will assist in code interpretation, application, compliance and enforcement

RB36-25

RB37-25

IRC: SECTION 202 (New), R304.1.2, R304.2, R304.2.1, R305.1, R305.1.1, R305.1.2, R305.4, R406.3.2, SECTION R504, R504.1, R504.2, R504.2.2, R504.3, R507.9.1.1, R703.7.2

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

Add new definition as follows:

PRESERVATIVE-TREATED WOOD. Wood products that, when impregnated with chemicals by a pressure process or other means during manufacture, exhibit reduced susceptibility to damage by fungi, insects or marine borers.

Delete without substitution:

~~**[RB] TERMITE-RESISTANT MATERIAL.** Pressure-preservative-treated wood in accordance with the AWPA standards in Section R304.1, naturally durable termite-resistant wood, steel, concrete, masonry or other *approved* material.~~

SECTION R304
PROTECTION OF WOOD AND WOOD-BASED PRODUCTS AGAINST DECAY

Revise as follows:

R304.1.2 Ground contact. All wood in contact with the ground, embedded in concrete in direct contact with the ground or embedded in concrete exposed to the weather that supports permanent structures intended for human occupancy shall be *approved* ~~pressure-~~ preservative-treated wood suitable for ground contact use, except that untreated wood used entirely below groundwater level or continuously submerged in fresh water shall not be required to be ~~pressure-~~preservative treated wood.

R304.2 Quality mark. Lumber and plywood required to be ~~pressure-~~preservative treated wood in accordance with Section R304.1 shall bear the quality *mark* of an *approved* inspection agency that maintains continuing supervision, testing and inspection over the quality of the product and that has been *approved* by an accreditation body that complies with the requirements of the American Lumber Standard Committee treated wood program.

R304.2.1 Required information. The required quality *mark* on each piece of ~~pressure-~~preservative-treated wood that is lumber or plywood shall contain the following information:

1. Identification of the treating plant.
2. Type of preservative.
3. The minimum preservative retention.
4. End use for which the product was treated.
5. Standard to which the product was treated.
6. Identity of the *approved* inspection agency.
7. The designation “Dry,” if applicable.

Exception: Quality *mark*s on lumber less than 1 inch (25 mm) nominal thickness, or lumber less than nominal 1 inch by 5 inches (25 mm by 127 mm) or 2 inches by 4 inches (51 mm by 102 mm) or lumber 36 inches (914 mm) or less in length shall be applied by stamping the faces of exterior pieces or by end labeling not less than 25 percent of the pieces of a bundled unit.

SECTION R305
PROTECTION AGAINST SUBTERRANEAN TERMITES

R305.1 Subterranean termite control methods. In areas subject to damage from termites as indicated by Table R301.2, protection shall be by one, or a combination, of the following methods:

1. Chemical termiticide treatment in accordance with Section R305.2.
2. Termite-baiting system installed and maintained in accordance with the *label*.
3. ~~Pressure-preservative treated~~ Preservative-treated wood in accordance with the provisions of Section R304.1.
4. Naturally durable termite-resistant wood.
5. Physical barriers in accordance with Section R305.3 and used in locations as specified in Section R304.1.
6. Cold-formed steel framing in accordance with Sections R505.2.1 and R603.2.1.

R305.1.1 Quality mark. Lumber and plywood required to be ~~pressure-~~preservative treated wood in accordance with Section R305.1 shall bear the quality *mark* of an *approved* inspection agency that maintains continuing supervision, testing and inspection over the quality of the product and that has been *approved* by an accreditation body that complies with the requirements of the American Lumber Standard Committee treated wood program.

R305.1.2 Field treatment. Field-cut ends, notches and drilled holes of ~~pressure-~~preservative-treated wood shall be retreated in the field in accordance with AWPA M4.

R305.4 Foam plastic protection. In areas where the probability of termite infestation is “very heavy” as indicated in Figure R305.4, extruded and expanded polystyrene, polyisocyanurate and other foam plastics shall not be installed on the exterior face or under interior or exterior foundation walls or slab foundations located below *grade*. The clearance between foam plastics installed above *grade* and exposed earth shall be not less than 6 inches (152 mm).

Exceptions:

1. *Buildings* where the structural members of walls, floors, ceilings and roofs are entirely of *noncombustible materials* or ~~pressure-~~preservative-treated wood.
2. Where in addition to the requirements of Section R305.1, an *approved* method of protecting the foam plastic and structure from subterranean termite damage is used.
3. On the interior side of basement *walls.*

SECTION R406
FOUNDATION WATERPROOFING AND DAMPPROOFING

R406.3.2 Below-grade moisture barrier. A 6-mil-thick (0.15 mm) polyethylene film shall be applied over the below-*grade* portion of exterior foundation walls prior to backfilling. Joints in the polyethylene film shall be lapped 6 inches (152 mm) and sealed with adhesive. The top edge of the polyethylene film shall be bonded to the sheathing to form a seal. Film areas at *grade* level shall be protected from mechanical damage and exposure by a ~~pressure-~~preservative treated wood strip of lumber or plywood ~~strip~~ attached to the wall several inches above finished *grade* level and extending approximately 9 inches (229 mm) below *grade*. The joint between the strip and the wall shall be caulked full length prior to fastening the strip to the wall. Where *approved*, other coverings appropriate to the architectural treatment shall be permitted to be used. The polyethylene film shall extend down to the bottom of the wood footing plate but shall not overlap or extend into the gravel or crushed stone footing.

SECTION R504
~~PRESSURE~~ PRESERVATIVE-TREATED WOOD FLOORS (ON GROUND)

R504.1 General. ~~Pressure preservative-treated~~ Preservative-treated wood *basement* floors and floors on ground shall be designed to withstand axial forces and bending moments resulting from lateral soil pressures at the base of the exterior walls and floor live and *dead loads*. Floor framing shall be designed to meet joist deflection requirements in accordance with Section R301.

R504.2 Site preparation. The area within the foundation walls shall have all vegetation, topsoil and foreign material removed, and any fill material that is added shall be free of vegetation and foreign material. The fill shall be compacted to ensure uniform support of the ~~pressure~~ preservative-treated wood floor sleepers.

R504.2.2 Moisture barrier. Polyethylene sheeting of minimum 6-mil (0.15 mm) thickness shall be placed over the granular base. Joints shall be lapped 6 inches (152 mm) and left unsealed. The polyethylene membrane shall be placed over the ~~pressure~~ preservative-treated wood sleepers and shall not extend beneath the footing plates of the exterior walls.

R504.3 Materials. Framing materials, including sleepers, joists, blocking and plywood subflooring, shall be ~~pressure~~ preservative treated wood and dried after treatment in accordance with AWPA U1 (Commodity Specification A, Special Requirement 4.2), and shall bear the *label* of an accredited agency.

SECTION R507
EXTERIOR DECKS

R507.9.1.1 Ledger details. Deck ledgers shall be a minimum 2-inch by 8-inch (51 mm by 203 mm) nominal, Southern Pine No. 2 grade or better ~~pressure~~ preservative-treated wood ~~Southern pine~~, incised Hem-Fir ~~pressure~~ preservative-treated wood ~~hem-fir~~, or decay-resistant, *naturally durable wood*. Deck ledgers shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer.

SECTION R703
EXTERIOR WALL COVERING

R703.7.2 Plaster. Plastering with *cement plaster* shall be in accordance with ASTM C926. Cement materials shall be in accordance with one of the following:

1. Masonry cement conforming to ASTM C91, Type M, S or N.
2. Portland cement conforming to ASTM C150, Type I, II or III.
3. Blended hydraulic cement conforming to ASTM C595, Type IP, IS (< 70), IL, or IT (S < 70).
4. Hydraulic cement conforming to ASTM C1157, Type GU, HE, MS, HS or MH.
5. Plastic (stucco) cement conforming to ASTM C1328.

Plaster shall be not less than three coats where applied over metal lath or wire lath and shall be not less than two coats where applied over masonry, concrete, ~~pressure~~ preservative-treated wood or decay-resistant wood as specified in Section R304.1 or gypsum backing. If the plaster surface is completely covered by veneer or other facing material or is completely concealed, plaster application need be only two coats, provided the total thickness is as set forth in Table R702.1(1).

On wood-frame construction with an on-grade floor slab system, exterior plaster shall be applied to cover, but not extend below, lath, paper and screed.

The proportion of aggregate to cementitious materials shall be as set forth in Table R702.1(3).

Reason: This proposal adds the definition for "Preservative-Treated Wood" from the IBC which addresses treatments introduced to wood products through a pressure process or other means during manufacture. The AWPA U1 standard, as referenced by the IRC, includes both pressure, and non-pressure, preservative treatments for protection against damage from decay and insects. By adding the IBC definition, it appropriately includes all preservative treatment options addressed in AWPA U1. The newly defined term has been consistently applied throughout the code to clarify requirements.

Additionally, the definition for "Termite-Resistant Material" has been deleted as that term is not used anywhere in the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed by this code change. A definition has only been added to clarify the existing provisions.

RB37-25

RB38-25

IRC: SECTION 202 (New), R306.3.2, R324.3.1, R324.4.5, SECTION R328, R328.1, SECTION M2006, M2006.1, M2006.3

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org)

2024 International Residential Code

Add new definition as follows:

SWIMMING POOL. Any structure or product intended for swimming, bathing or wading; designed and manufactured to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each.

SPA. A structure or product intended for the immersion of persons in temperature-controlled water for the purpose of relaxing, exercise, therapy or treatment; designed and manufactured to be connected to a circulation system; and not intended to be drained and filled with each use.

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Revise as follows:

R306.3.2 Elevation requirements.

1. *Buildings* and structures erected within coastal high-hazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest horizontal structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation, whichever is higher. Where stem wall foundations are permitted in Coastal A Zones in accordance with Section R306.3.3, the bottom of the lowest horizontal structural member supporting the lowest floor is the top of the foundation wall, or top of the portion of the foundation wall, supporting the slab.
2. *Basement* floors that are below *grade*on all sides are prohibited.
3. Attached garages used only for parking, building access or storage, and carports shall comply with Item 1 or shall be at or above *grade* on not less than one side and, if enclosed with walls, such walls shall comply with Item 7.
4. Detached *accessory structures* and detached garages shall comply with either of the following:
   4.1. The bottom of the lowest horizontal structural member supporting the floors shall be elevated to or above the elevation required in Item 1.
   4.2. Floors below the elevations required in Item 1 must be:
      4.2.1. Used only for parking or storage.
      4.2.2. One *story* and not larger than 100 square feet (9.29 m^2).
      4.2.3. Anchored to resist flotation, collapse or lateral movement resulting from design flood loads.
      4.2.4. Constructed of flood damage-resistant materials that comply with Section R306.1.8.
      4.2.5. Equipped with mechanical, plumbing and electrical systems, if applicable, that comply with Section R306.1.6.
5. The use of fill for structural support is prohibited.
6. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, swimming pool decks, patios and walkways.

7. Walls and partitions enclosing areas below the elevation required in this section shall meet the requirements of Sections R306.3.5 and R306.3.6.

SECTION R324
GLAZING

R324.3.1 Impact test. Where required by other sections of the code, glazing shall be tested in accordance with CPSC 16 CFR 1201. Glazing shall comply with the test criteria for Category II unless otherwise indicated in Table R324.3.1(1).

Exception: Glazing not in doors or enclosures for ~~hot tubs, whirlpools~~ spas, saunas, steam rooms, bathtubs and showers shall be permitted to be tested in accordance with ANSI Z97.1. Glazing shall comply with the test criteria for Class A unless otherwise indicated in Table R324.3.1(2).

R324.4.5 Glazing and wet surfaces. Glazing in walls, enclosures or fences containing or adjacent to ~~hot tubs,~~ spas, ~~whirlpools,~~ saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface shall be considered to be a *hazardous location*. This shall apply to single glazing and each pane in multiple glazing.

Exception: Glazing that is more than 60 inches (1524 mm), measured horizontally, from the water's edge of a bathtub, ~~hot tub,~~ spa, ~~whirlpool~~ or swimming pool or from the edge of a shower, sauna or steam room.

SECTION R328
SWIMMING POOLS~~,~~ AND SPAS ~~AND HOT TUBS~~

R328.1 General. The design and construction of swimming pools and spas shall comply with the *International Swimming Pool and Spa Code* .

SECTION M2006
SWIMMING POOL HEATERS

M2006.1 General. Swimming pool ~~Pool~~ and spa heaters shall be installed in accordance with the manufacturer's installation instructions. Oil-fired swimming pool heaters shall be *listed* and *labeled* in accordance with UL 726. Electric swimming pool and spa heaters shall be listed and *labeled* in accordance with UL 1261. Swimming pool ~~Pool~~ and spa *heat pump* water heaters shall be *listed* and *labeled* in accordance with UL 1995 or UL/CSA/ANCE 60335-2-40.

Exception: Portable ~~residential~~ spas ~~and portable residential exercise spas~~ shall be *listed* and *labeled* in accordance with UL 1563 or CSA C22.2 No. 218.1.

M2006.2 Clearances. The clearances shall not interfere with *combustion air*, draft hood or flue terminal relief, or accessibility for servicing.

M2006.3 Bypass valves. Where an integral bypass system is not provided as a part of the swimming pool heater, a bypass line and valve shall be installed between the inlet and outlet piping for use in adjusting the flow of water through the heater.

Reason: The term 'swimming pool' and 'spa' are currently used in R105.2, N1103.11, M1602.2, M2301.1, M2301.2.5, P2911.2.
The intent of this proposal is to coordinate terminology for swimming pools and spas with ISPSC. Wading pools have 18" of water per ISPSC and hot tub and cold baths are a type of spa.

'Swimming pools' is currently defined in the IBC and IPC only.
'Spa' is defined in ISPSC.
'Hot tub' is not defined.
'Pools (swimming) hot tubs and spas' are defined in IZC.
'public swimming pool' is defined in IPC and ISPSC.
'residential swimming pool' is defined in ISPSC.

Generic definitions for Swimming Pool and Spa based on ISPSC scope and current definitions.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) and ICC Plumbing Mechanical Gas Code Action Committee (PMGCAC)

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2-24 PMGCAC has held several virtual meetings open to any interested party. In addition, there were several virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the PMGCAC website at PMGCAC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is using a defintion consistently. This will not change construction requirements.

Staff Analysis: IRC Section G2241 is copied from the Fuel Gas Code. See G29-25.

RB38-25

RB39-25

IRC: SECTION 202

Proponents: Jeffrey Shapiro, International Code Consultants, representing National Fire Sprinkler Association (jeff.shapiro@intlcodeconsultants.com)

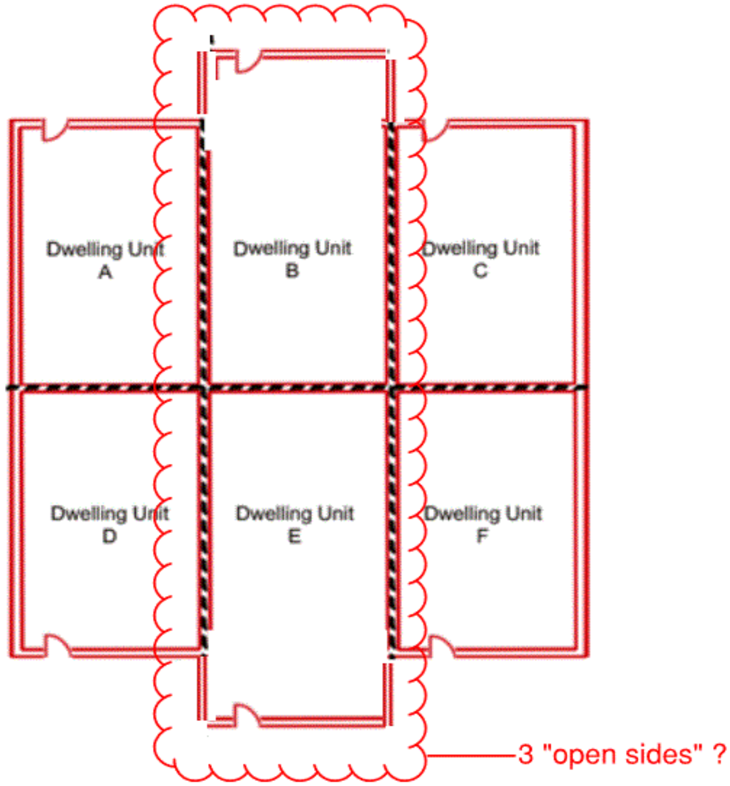
2024 International Residential Code

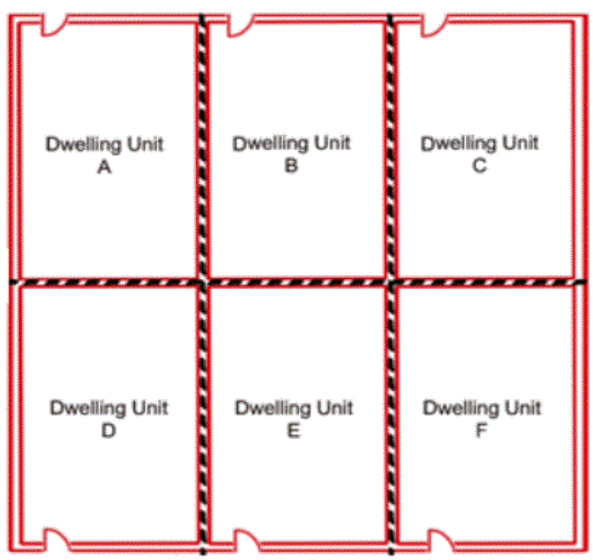
Revise as follows:

[RB] TOWNHOUSE UNIT. A single-family *dwelling unit* in a *townhouse* that extends from foundation to roof and that has a *yard* or *public way* on not less than two sides <u>or on not less than one side where an automatic sprinkler system in accordance with Section P2904 is provided throughout the *townhouse*.</u>

Reason: For the past few code cycles, we have had a lot of discussion regarding what constitutes an "open side." Creative architects can easily manipulate layouts to take advantage of the fact that there is no definition or guidance on what is or isn't an open side with respect to the minimum wall length or percentage of open perimeter that must be provided. In previous code hearings, we discussed how an open side might be as little as a 3-foot wide pathway to a rear exit door. Looking at the attached figure, simply by moving the exterior wall out a bit on the center units, do you go from one side open to three. Some would argue "no" but there's nothing in the code to definitively back that opinion or interpretation.

From the perspective of what does the open side buy with respect to safety if the building is sprinklered and otherwise satisfies the requirements for means of escape and exit openings using only one open side, the answer is not much in my opinion. The back sides of townhouse lots are often difficult, if not impossible, to ladder with ground ladders given fences, plants/trees, and poor access from the street side. Given the relatively little value of requiring the second open side, no guidance on what constitutes "open," and the possible value to townhouse developers to have this design option as a sprinkler incentive in jurisdictions where sprinklers might not otherwise be required because of local amendments, the approach recommended herein puts an end to a lot of misery in applying the code and provides an acceptable level of safety.





Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Depending on the design, a few windows or doors might be eliminated, but this would be entirely optional. Nevertheless, the option being added certainly will be cost neutral or better.

Estimated Immediate Cost Impact Justification (methodology and variables):

You cannot assign a dollar value to an option that may or may not be used in design. Mostly, this provides a design advantage, as opposed to a cost savings.

RB39-25

RB40-25

IRC: SECTION 202 (New), TABLE R301.2, R301.2.5 (New), R301.2.5.1 (New), ICC Chapter 44 (New),

Proponents: Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org); Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); Christopher Brunette, representing Colorado Division of Fire Prevention & Control (chris.brunette@state.co.us)

2024 International Residential Code

Add new definition as follows:

WILDFIRE HAZARD AREAS (WHA). A geographic area designated by the local jurisdiction with fire hazard severity of medium, high, or extreme factors of wildfire exposure.

SECTION R301
DESIGN CRITERIA

Add new text as follows:

R301.2.5 Wildfire-resistant construction. The construction, alteration, inspection, maintenance and repair of buildings and structures located within wildfire hazard areas shall be in accordance with ICC 605 and this code.

R301.2.5.1 Wildfire hazard areas. The authority having jurisdiction shall designate *wildfire hazard areas* in accordance with the *International Wildland-Urban Interface Code*.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

605-2025 Standard for Residential Construction in Regions with Wildfire Hazard

Revise as follows:

TABLE R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

GROUND SNOW LOAD[o]	WIND DESIGN				SEISMIC DESIGN CATEGORY[f]	SUBJECT TO DAMAGE FROM			ICE BARRIER UNDERLAYMENT REQUIRED[h]	FLOOD HAZARDS[g]	AIR FREEZING INDEX[i]	MEAN ANNUAL TEMP[j]	WILDFIRE HAZARD AREAS[p]
	Speed[d] (mph)	Topographic effects[k]	Special wind region[l]	Windborne debris zone[m]		Weathering[a]	Frost line depth[b]	Termite[c]					
—	—	—	—	—	—	—	—	---	—	—	—	—	---
MANUAL J DESIGN CRITERIA[n]													
Elevation			Altitude correction factor[e]	Coincident wet bulb	Indoor winter design relative humidity		Indoor winter design dry-bulb temperature		Outdoor winter design dry-bulb temperature			Heating temperature difference	
—			—	—	—		—		—			—	
Latitude			Daily range	Summer design gains	Indoor summer design relative humidity		Indoor summer design dry-bulb temperature		Outdoor summer design dry-bulb temperature			Cooling temperature difference	
—			—	—	—		—		—			—	

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

a. Where weathering requires a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code, the frost line depth strength required for weathering shall govern. The weathering column shall be filled in with the weathering index, “negligible,” “moderate” or “severe” for concrete as determined from Figure R301.2(1). The grade of masonry units shall be determined from ASTM C34, ASTM C55, ASTM C62, ASTM C73, ASTM C90, ASTM C129, ASTM C145, ASTM C216 or ASTM C652.

b. Where the frost line depth requires deeper footings than indicated in Figure R403.1(1), the frost line depth strength required for weathering shall govern. The jurisdiction shall fill in the frost line depth column with the minimum depth of footing below finish grade.

c. The jurisdiction shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.

d. The jurisdiction shall fill in this part of the table with the wind speed from the ultimate design wind speeds map [Figure R301.2(2)]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.

e. The jurisdiction shall fill in this section of the table to establish the design criteria using Table 10A from ACCA Manual J or established criteria determined by the jurisdiction.

f. The jurisdiction shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.

g. The jurisdiction shall fill in this part of the table with: the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas); and the title and date of the currently effective Flood Insurance Study or other flood hazard study and maps adopted by the authority having jurisdiction, as amended.

h. In accordance with Sections R905.1.2, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the jurisdiction shall fill in this part of the table with "YES." Otherwise, the jurisdiction shall fill in this part of the table with "NO."

i. The jurisdiction shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99 percent) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."

j. The jurisdiction shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."

k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the jurisdiction shall fill in this part of the table with "YES." Otherwise, the jurisdiction shall indicate "NO" in this part of the table.

l. In accordance with Figure R301.2(2), where there is local historical data documenting unusual wind conditions, the jurisdiction shall fill in this part of the table with "YES" and identify any specific requirements. Otherwise, the jurisdiction shall indicate "NO" in this part of the table.

m. In accordance with Section R301.2.1.2 the jurisdiction shall indicate the wind-borne debris wind zone(s). Otherwise, the jurisdiction shall indicate "NO" in this part of the table.

n. The jurisdiction shall fill in these sections of the table to establish the design criteria using Table 1a or 1b from ACCA Manual J or established criteria determined by the jurisdiction.

o. The jurisdiction shall fill in this section of the allowable stress design table using the Ground Snow Loads in Figure R301.2(3).

<u>p. In accordance with Sections R301.2.5 and R301.2.5.1, the jurisdiction shall indicate the widlfire hazard area(s). Otherwise, the jurisdiction shall fill in this part of the table with "NO."</u>

Reason: Wildfires present an increasingly significant risk to residential construction, yet the current version of the International Residential Code (IRC) does not adequately address this peril. The absence of specific guidance within the IRC for mitigating wildfire hazards creates a critical gap in the code. As wildfire exposure intensifies, particularly in regions identified as Wildland-Urban Interface (WUI) areas, the vulnerability of residential homes to wildfire events underscores the need for actionable standards.

Existing Gap in the IRC

The IRC serves as a comprehensive resource for the construction of one- and two-family dwellings and townhouses. However, it does not include specific provisions for wildfire resilience, such as construction techniques, material requirements, or design practices to reduce the risk of wildfire ignition. Without explicit references or requirements addressing wildfire hazards, homeowners and builders in wildfire-prone regions must rely on inconsistent local regulations or supplementary codes, such as the International Wildland-Urban Interface Code (IWUIC). This gap leaves a significant portion of residential construction exposed to preventable risks.

Increased Wildfire Exposure for Residential Buildings

The frequency, intensity, and geographic reach of wildfires are on the rise due to climate change, increased development in WUI areas, and other factors. According to recent data:

- Wildfire seasons are lasting longer, with more acres burned annually.
- Residential developments in WUI regions have expanded, placing more homes directly in harm's way.
- Wildfire-related losses have escalated, with billions of dollars in damages annually and devastating impacts on communities.

This heightened exposure demands proactive measures to improve the resilience of residential buildings against wildfire hazards. Incorporating wildfire-specific standards into the IRC is a crucial step toward addressing this growing threat.

Importance of ICC 605: Standard for Residential Construction in Regions with Wildfire Hazard

The new **ICC 605 Standard for Residential Construction in Regions with Wildfire Hazard**, developed by the International Standards for Mitigating Hazards in Residential and Related Construction (IS-MHRRC), provides comprehensive guidance for enhancing wildfire resilience. This standard offers:

- Prescriptive and performance-based design requirements to reduce ignition risks.
- Material specifications for fire-resistant construction components.
- Construction practices to limit ember penetration and radiant heat exposure.
- Practical strategies for reducing wildfire vulnerability while maintaining cost-effective solutions for builders and homeowners.

By referencing ICC 605 in the IRC, this proposal will:

1. Provide a clear and uniform approach to wildfire mitigation for residential construction.
2. Empower jurisdictions to adopt and enforce consistent wildfire-resilient practices.
3. Enhance the safety and durability of homes in wildfire-prone areas, thereby reducing losses and improving community resilience.

Conclusion

Adding ICC 605 as a referenced standard in the IRC is a necessary and timely update to address the growing threat of wildfires. It fills a critical gap in the code, aligns with modern building science, and supports the broader goal of safeguarding residential structures against all hazards. This proposal ensures that the IRC remains relevant and effective in protecting lives, property, and communities from the devastating impacts of wildfires.

For additional information on the standard, go to the ICC 605 webpage at IS-MHRRC - ICC.

Bibliography:

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0

Adopting ICC 605 for residential construction in wildfire-prone areas will result in an increase in initial construction costs [1-4]. The magnitude of this increase is directly influenced by the extent of defensible space provided and the severity of the wildfire hazard in the area.

1. **Minimum Cost Increase (Extended Defensible Space)**

   When the defensible space is extended to **1.5 times the required minimum**, the increase in construction costs is minimal. This scenario primarily addresses risks associated with **ember exposure** by creating a buffer zone that reduces the likelihood of ignition from windborne embers.

2. **Moderate Cost Increase (Required Defensible Space)**

If the defensible space provided is **equal to the required minimum**, construction costs increase moderately. The additional cost is intended to mitigate risks from **both ember exposure and radiant heat**. With reduced clearance, more robust construction materials and design features are required to protect the structure from these hazards.

3. **Maximum Cost Increase (Less than Required Defensible Space)**

   In situations where defensible space is **less than the required minimum**, the increase in construction costs is highest. This is due to the need for enhanced fire-resistant materials and building practices to protect against **ember exposure, radiant heat, and direct flame contact.**

Estimated Immediate Cost Impact Justification (methodology and variables):

Reference:

[1] Headwaters economics, 2024, Retrofitting a Home for Wildfire Resistance, Costs and Considerations. https://headwaterseconomics.org/wp-content/uploads/2024/06/Wildfire_Retrofit_Report_R5.pdf

[2] Headwaters economics and Insurance institute for business & home safety, 2022, Construction Costs for a Wildfire-Resistant Home, California Edition. https://headwaterseconomics.org/wp-content/uploads/2022_HE_IBHS_WildfireConstruction.pdf

[3] Home innovation research labs, 2020, Cost Impact of Building a House in Compliance with IWUIC. https://www.nahb.org/-/media/NAHB/advocacy/docs/top-priorities/codes/code-adoption/cost-impact-building-house-in-compliance-with-iwuic.pdf?rev=ea1604e447b84da1b41432bb5d291d6a&hash=83D447A8997466E64DF34D8280BC7CD2.

4] Headwaters economics and Insurance institute for business & home safety, 2018, Building a Wildfire-Resistant Home: Codes and Costs. https://headwaterseconomics.org/wp-content/uploads/building-costs-codes-report.pdf

Estimated Life Cycle Cost Impact:

Despite the initial increase in construction costs, the overall **lifecycle cost** of structures built to ICC 605 standards is expected to be **lower**. This reduction results from the binary nature of fire damage—structures either survive with minimal loss or are destroyed entirely. By significantly improving the likelihood of survival during a wildfire incident, the enhanced construction requirements reduce potential repair and replacement costs over the building's lifespan. Furthermore, these measures can lead to indirect cost savings through reduced insurance premiums and minimized community recovery expenditures following a wildfire event.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ICC 605-2025 Standard for Residential Construction in Regions with Wildfire Hazard

RB40-25

RB41-25

IRC: R301.1, R401.1, R501.1, R601.1, R701.1, R801.1, R901.1, R1001.1

Proponents: Steven Orlowski, Sundowne Building Code Consultants, LLC, representing Self (sorlowski@sbcc.codes); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

CHAPTER 3 BUILDING PLANNING

SECTION R301 DESIGN CRITERIA

Add new text as follows:

R301.1 Scope. Design criteria of buildings, structures and parts thereof shall comply with this chapter.

Revise as follows:

~~R301.1~~ **R301.2 Application.** *Buildings* and structures, and parts thereof, shall be constructed to safely support all loads, including *dead loads*, *live loads*, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of *buildings* and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the foundation. *Buildings* and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.

CHAPTER 4 FOUNDATIONS

SECTION R401 GENERAL

Add new text as follows:

R401.1 Scope. Design and construction of the foundation and foundation spaces for buildings shall comply with this chapter.

Revise as follows:

~~R401.1~~ **R401.2 Application.** The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for *buildings*. In addition to the provisions of this chapter, the design and construction of foundations in flood hazard areas as established by Table R301.2 shall meet the provisions of Section R306. Wood foundations shall be designed and installed in accordance with AWC PWF.

Exception: The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

1. In *buildings* that have not more than two floors and a roof.
2. Where interior *basement* and foundation walls are constructed at intervals not exceeding 50 feet (15 240 mm).

Wood foundations in *Seismic Design Category* D_0, D_1 or D_2 shall be designed in accordance with accepted engineering practice.

CHAPTER 5
FLOORS

SECTION R501
GENERAL

R501.1 ~~Application~~Scope. ~~The provisions of this chapter shall control the design and construction of the floors~~Floorsfor *buildings*, including the floors of *attic* spaces used to house mechanical or plumbing fixtures and *equipment*shall comply with this chapter.

CHAPTER 6
WALL CONSTRUCTION

SECTION R601
GENERAL

R601.1 ~~Application~~Scope. ~~The provisions of this chapter shall control the design~~Design and construction of walls and partitions for *buildings*shall comply with this chapter.

CHAPTER 7
WALL COVERING

SECTION R701
GENERAL

R701.1 ~~Application~~Scope. ~~The provisions of this chapter shall control the design~~Design and construction of the interior and *exterior wall covering* for *buildings* shall comply with this chapter.

CHAPTER 8
ROOF-CEILING CONSTRUCTION

SECTION R801
GENERAL

R801.1 ~~Application~~Scope. ~~The provisions of this chapter shall control the design~~Design and construction of the roof-ceiling system for *buildings* shall comply with this code.

CHAPTER 9
ROOF ASSEMBLIES

SECTION R901
GENERAL

R901.1 Scope. ~~The provisions of this chapter shall govern the design~~Design, materials, and construction ~~and quality~~ of *roof assemblies* shall comply with this chapter.

CHAPTER 10
CHIMNEYS AND FIREPLACES

SECTION R1001
MASONRY FIREPLACES

R1001.1 ~~General~~Scope. Design, construction and installation of chimneys, fireplaces and masonry heaters shall comply with this chapter. Masonry fireplaces shall be constructed in accordance with this section and the applicable provisions of Chapters 3 and 4.

Reason: Currently, there is inconsistency among all the I-Codes in how the scoping sections are written at the beginning of each chapter. The Code Correlation Committee requested a task group be formed to review the scoping section in all the I-Codes and determine if there would be a way to harmonize both the language and style across the model codes. The Scoping Task Group was formed and consisted of several members from the various Code Action Committees and interested parties (some with no client interest). The task group reviewed each chapter of the I-codes and after careful consideration, developed a format that could be incorporated and repeated for all the I-Codes.

As you will see in the proposed changes above, most of the chapters began with a style and format that was already consistent and was only slightly changed to give the scoping a more authoritative infliction. Where the chapter contained no scoping provisions, the task group added scoping language based on the content of the chapter. Where the existing scoping sections provided a laundry list of what is contained in the chapter, these list were reformatted into a list form to make it easier for users to see what information was contained.

The Scoping Task group proposes that the recommended changes will improve the code by:
1. Create consistency in language used in the scope for all the I-Codes.
2. Creates a scoping section for chapters that did not have one before to clarify what is covered by the chapter.
3. Clarify the items covered and not covered in the chapter, using consistent format to send the user to different chapter(s) or code(s).
4. Remove redundant administrative language from existing scoping sections.
5. Where there were extensive number of items outlined in the scoping section, the items are now broken out into a list format to make it easier for the reader to indicate what is contained in the chapter.

To the best of the task groups knowledge the proposed changes are editorial in nature and no requirements not already addressed in the existing scoping or in the chapter being referenced were added. As these proposed changes are editorial, there is no cost impact on the cost of construction.

This proposal is submitted with the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

As stated in our reason statement, these proposed code changes are editorial, there is no cost impact on the cost of construction.

RB41-25

RB42-25

IRC: SECTION R301, R301.1 (New), R301.1.1 (New), R301.1, ICC Chapter 44 (New), APPENDIX BB, SECTION BB101, BB101.1

Proponents: Brad Wiseman, Garmin USA, representing Tiny Home Industry Association; Zachariah Giffin, Operation Tiny Home, representing consumers (zackgiffin@gmail.com); Amelia Dicks, representing Wind River Built (amelia@windriverbuilt.com); Nick Mosley, representing California Tiny House, Inc.

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Add new text as follows:

R301.1 **Scope.** Design criteria of buildings, structures and parts thereof shall comply with this chapter.

R301.1.1 **Small residential units.** A dwelling unit that is1,200 square feet (111.5 m^2) or less constructed as a permanent residential structure, shall be constructed in accordance with ICC/THIA 1215 or this code, as applicable.

~~**R301.1**~~ **R301.2** **Application.** *Buildings* and structures, and parts thereof, shall be constructed to safely support all loads, including *dead loads*, *live loads*, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of *buildings* and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets the requirements for the transfer of loads from their point of origin through the load-resisting elements to the foundation. *Buildings* and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

1215-202x	ICC/THIA Design, Construction and Regulation of Tiny Houses for Permanent Occupancy

APPENDIX BB
TINY HOUSES

SECTION BB101
GENERAL

Revise as follows:

BB101.1 Scope. This appendix shall be applicable to *tiny houses* used as single *dwelling units*. *Tiny houses* shall comply with this code except as otherwise stated in this appendix.

Exception: A permanent residential structure constructed in accordance with ICC/THIA 1215.

Reason: The proposed change seeks to include minimum requirements to safeguard public health, safety, general welfare and to address societal and industry challenges for the inspection and regulatory compliance of small residential units, a new defined term that seeks to address structures less than 1,200 square feet that may serve as both primary and accessory residential dwelling space. This change will also serve to improve uniformity in the inspection and regulatory compliance of small residential units.

The proposed change is necessary to update the IRC to explicitly include provisions related to common design elements, construction practices and regulatory compliance requirements commonly associated with small residential units, thereby improving the uniformity and consistency of those design elements, construction practices and regulatory compliance requirements.

The proposed change will also serve to ensure that the provisions of the IRC are properly harmonized with the provisions of the ICC/THIA 1215 standard.

Finally, the proposed change will improve building officials' ability to develop and adopt regulations and practices that allow small residential units as a permissible form of residential building for permanent occupancy.

For additional information, see the ICC webpage for this standard for ICC/THIA 1215.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0.00

Estimated Immediate Cost Impact Justification (methodology and variables):

The ICC/THIA 1215 standard simply provides better focus on small residential units and the specific needs of this type of construction, so this change will not affect the cost of construction. Instead it provides a better regulatory tool which will facilitate the construction of small residential units.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ICC 1215-202x   ICC/THIA Design, Construction and Regulation of Tiny Houses for Permanent Occupancy

RB42-25

RB43-25

IRC: R301.2.1, TABLE R301.2.1(2), TABLE R301.2.1(3) (New)

Proponents: Dave Monsour, THOMAS ASSOCIATES, INC. (DASMA), representing DASMA (Door & Access Systems Manufacturers Assoc.) (dmonsour@thomasamc.com)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Revise as follows:

R301.2.1 Wind design criteria. *Buildings* and portions thereof shall be constructed in accordance with the wind provisions of this code using the ultimate design wind speed in Table R301.2 as determined from Figure R301.2(2). The structural provisions of this code for wind loads are not permitted where wind design is required as specified in Section R301.2.1.1. Where different construction methods and structural materials are used for various portions of a *building*, the applicable requirements of this section for each portion shall apply. Where not otherwise specified, the wind loads listed in Table R301.2.1(1) adjusted for height and exposure using Table R301.2.1(2) shall be used to determine design load performance requirements for wall coverings, curtain walls, *roof coverings*, exterior windows, *skylights*, ~~garage doors~~ and exterior doors other than garage doors. Where loads for garage doors are not otherwise specified, the loads listed in Table R301.2.1(3) adjusted for height and exposure using Table R301.2.1(2) shall be used to determine design load performance requirements. The resulting positive and negative design wind pressures shall not be less than 10 psf.

TABLE R301.2.1(2) HEIGHT AND EXPOSURE ADJUSTMENT COEFFICIENTS ~~FOR Table R301.2.1(1)~~

MEAN ROOF HEIGHT	EXPOSURE		
	B	C	D
15	0.82	1.21	1.47
20	0.89	1.29	1.55
25	0.94	1.35	1.61
30	1.00	1.40	1.66
35	1.05	1.45	1.70
40	1.06	1.49	1.74
45	1.10	1.53	1.78
50	1.13	1.56	1.81
55	1.16	1.59	1.84
60	1.19	1.62	1.87

Add new text as follows:

TABLE R301.2.1(3) GARAGE DOOR WIND LOADS FOR A BUILDING WITH A MEAN ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B (ASD) (psf)[a,b,c]

DOOR SIZE		ULTIMATE DESIGN WIND SPEED, V*ult* (mph)													
		90		95		100		105		110		115		120	
WIDTH (ft)	HEIGHT (ft)	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg
8	**7**	7.8	-8.8	8.6	-9.8	9.6	-10.9	10.6	-12.0	11.6	-13.2	12.7	-14.4	13.8	-15.7
9	**7**	7.7	-8.7	8.6	-9.7	9.5	-10.7	10.5	-11.8	11.5	-13.0	12.6	-14.2	13.7	-15.5
16	**7**	7.4	-8.2	8.2	-9.1	9.1	-10.1	10.0	-11.2	11.0	-12.3	12.0	-13.4	13.1	-14.6
18	**7**	7.3	-8.1	8.1	-9.1	9.0	-10.0	9.9	-11.1	10.9	-12.1	11.9	-13.3	13.0	-14.4
20	**7**	7.2	-8.0	8.1	-9.0	8.9	-9.9	9.9	-11.0	10.8	-12.0	11.8	-13.1	12.9	-14.3

DOOR SIZE		ULTIMATE DESIGN WIND SPEED, V*ult* (mph)											
		130		140		150		160		170		180	
WIDTH (ft)	HEIGHT (ft)	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg	Pos	Neg
8	**7**	16.2	-18.4	18.8	-21.3	21.5	-24.5	24.5	-27.8	27.7	-31.4	31.0	-35.2
9	**7**	16.0	-18.1	18.6	-21.0	21.4	-24.1	24.3	-27.5	27.4	-31.0	30.8	-34.8
16	**7**	15.4	-17.1	17.8	-19.9	20.5	-22.8	23.3	-25.9	26.3	-29.3	29.5	-32.8
18	**7**	15.2	-16.9	17.7	-19.7	20.3	-22.6	23.1	-25.7	26.0	-29.0	29.2	-32.5
20	**7**	15.1	-16.8	17.5	-19.5	20.1	-22.4	22.9	-25.4	25.8	-28.7	28.9	-32.2

For SI: 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = .0479 kPa

a. Interpolation shall be permitted for door widths or ultimate design wind speeds between those given above. For door heights over 7 feet, the values in this table shall be used. For door heights less than 7 feet and for doors less than 56 square feet in area, pressures shall be determined in accordance with Table R301.2.1(1).

b. Positive and negative values signify, respectively, pressures acting toward and away from the exterior surface of the door.

c. Negative pressures assume the door overlaps the building's end zone by 2 feet. For overlaps less than 2 feet, the values in this table shall be used. For overlaps exceeding 2 feet, pressures shall be determined in accordance with Table R301.2.1(1).

Reason: Garage doors are critical in maintaining building structural integrity during windstorms. If the garage door gives way, internal pressure can build up on the roof, leading to building collapse. This phenomenon has been demonstrated in many field and laboratory studies over the years by NIST, IBHS, FEMA, and others. Yet these same organizations, as well as DASMA, report a general lack of wind-rated doors being specified and enforced in many regions throughout the country. This proposal requests a new table for garage door design wind pressures. The table highlights and simplifies existing design wind pressure requirements for garage doors, and does not create any new requirements. We believe this new table will foster greater compliance with existing provisions of the code. A version of this table has been used for many years in Florida (Florida Building Code, Building and the Florida Building Code, Residential), and is included in the 2020 edition of ICC 600 Standard for Residential Construction in High-Wind Regions.

As an example of the complexity of the existing approach, Table R301.2.1(1) divides wall component and cladding pressures into two groups: Zone 4 and Zone 5 (wall end zone). Residential garage doors typically overlap the end zone. Accepted methods for resolving the overlap involve calculations not referenced in the code, which defeats the purpose of Table R301.2.1(1) in providing an easy reference for pre-calculated design wind pressures.

This proposal entails a change to the title of Table R301.2.1(2), since that table will no longer be used only for Table R301.2.1(1).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clarification. The added table simplifies the process of determining design wind pressures for garage doors according to existing IRC requirements.

RB43-25

RB44-25

IRC: R301.2.1.1

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Revise as follows:

R301.2.1.1 Wind ~~limitations and wind~~ design required. ~~The wind provisions of this code shall not apply to the design of buildings where wind design is required in accordance with Figure R301.2.1.1, or where the ultimate design wind speed, V_{ult}, in Figure R301.2(2) equals or exceeds 140 miles per hour (225 kph) in a special wind region.~~

~~**Exceptions:**~~

1. ~~For concrete construction, the wind provisions of this code shall apply in accordance with the limitations of Sections R404 and R608.~~
2. ~~For *structural insulated panels*, the wind provisions of this code shall apply in accordance with the limitations of Section R610.~~
3. ~~For cold-formed steel *light-frame construction*, the wind provisions of this code shall apply in accordance with the limitations of Sections R505, R603 and R804.~~

In regions where wind design is required in accordance with Figure R301.2.1.1 or where the ultimate design wind speed, V_{ult}, in Figure R301.2(2) equals or exceeds 140 miles per hour (225 kph) in a special wind region, the design of <u>structural components and cladding elements of</u> *buildings* for wind loads shall be in accordance with one or more of the following methods:

1. AWC *Wod Frame Construction Manual* (WFCM).
2. ICC *Standard for Residential Construction in High-Wind Regions* (ICC 600).
3. ASCE *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE 7).
4. AISI *Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings* (AISI S230).
5. *International Building Code*.
6. <u>For concrete construction, the wind provisions of this code shall apply in accordance with the limitations of Section R608.2.</u>
7. <u>For structural insulated panels, the wind provisions of this code shall apply in accordance with the limitations of Section R610.2.</u>
8. <u>For cold-formed steel light-frame construction, the wind provisions of this code shall apply in accordance with the limitations of Sections R505.1.1, R603.1.1 and R804.1.1.</u>
9. <u>For exterior wall coverings, soffits, roof coverings and fenestrations, the wind provisions of this code shall apply in accordance with the limitations of Sections R609, R703, R704, and R905.</u>

The elements of design not addressed by the methods in Items 1 through <u>9</u> ~~5~~ shall be in accordance with the provisions of this code.
Where ASCE 7 or the International Building Code is used for the design of the building, the wind speed map and exposure category requirements as specified in ASCE 7 and the International Building Code shall be used.

Reason: This proposal is intended to clarify the wind limitations in the IRC. Currently, the IRC contains an assortment of requirements for wind loads scattered throughout the code. While Section R301.2.1.1 intends to limit the applicability of the IRC to areas where wind design is not required in accordance with Figure R301.2.1.1, it's not very clear what exactly applies in the IRC in regions where wind design is required. Current Section R301.2.1.1 states that the "wind provisions" of this code do not apply where wind design is required but is not clear anywhere in the code as to what the wind provisions in this code do apply to. The use of the phrase "wind provisions of this code" is very confusing. Clearly the prescriptive fastening schedule in Table R602.3(1) should not apply where wind design is required. However, it's not very clear that this table is actually part of the "wind provisions in this code." This proposal makes it clear that the prescriptive provisions in Chapters 4 through 9 do not apply where wind design is required except as identified in the proposed new exceptions. Provisions in the IRC that do apply in wind design required regions have been consolidated into the Exceptions to Section R301.2.1.1. New language clarifies that it is the "structural and cladding design of buildings for wind loads" that is limited in IRC. Therefore, Section R405 (foundation drainage), Section R406 (dampproofing and waterproofing provisions), Section R702 (interior coverings), Section R806 (roof ventilation), Section R807 (attic access) and others would apply as specified in the code.

Additionally, this proposal reorders the language so that the code tells the user directly what is required to be used when located in a wind design required region (WFCM, ICC 600, ASCE 7, AISI S230, and/or IBC). This improves the flow of the code text and is similar to the approach used in the 2000, 2003, 2006 and 2009 IRC.

A new exception is proposed to be added that clarifies that the seismic requirements in the code, including the scope as specified in Section R301.2.2, apply regardless.

New exceptions are also proposed to be added for roof coverings, wall coverings, and fenestrations which have specific wind limitations and/or specific wind design requirements in the IRC. New clarifying language was added to Chapter 9 of the 2024 IRC that provides specific wind requirements and wind limitations in the code for roof coverings. This proposal aligns with the clarifying language in Chapter 9 of the 2024 IRC.

Similar proposals have been submitted previous cycles, that, with a few modifications, had broad support. However, a couple of points could not be agreed upon prior to the item being brought to the floor. This proposal is not intended to change any technical requirements in the IRC related to wind design. It is simply intended to simply clarify the wind limitations in the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply clarifies the limitations of the wind provisions in the IRC to the design of structural and cladding elements.

RB44-25

RB45-25

IRC: R301.2.1.6 (New), Figure R301.2.1.6 (New), TABLE R301.2.1.6 (New)

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Self (jcrandell@aresconsulting.biz); Art DeGaetano, representing Northeast Regional Climate Center, Cornell University (atd2@cornell.edu)

2024 International Residential Code

SECTION R301 DESIGN CRITERIA

Add new text as follows:

R301.2.1.6 Wind-driven rain. Minimum design wind pressures used to evaluate the wind-driven rain resistance of building assemblies and components shall be permitted to be determined in accordance with Figure R301.2.1.6 and Table R301.2.1.6.

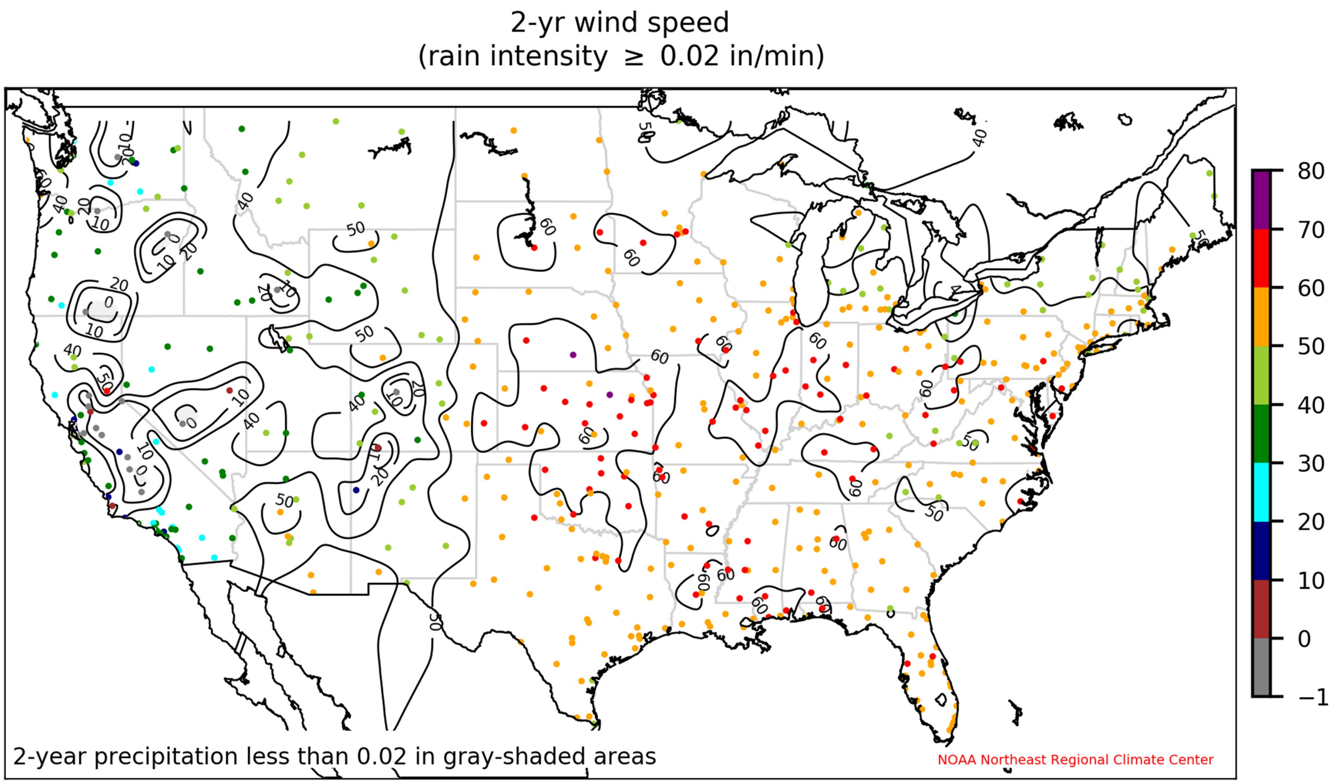


Figure R301.2.1.6 Wind-driven rain wind speed (mph, 3 sec gust)
[For SI: 1 mph = 0.447 m/s]

TABLE R301.2.1.6 MINIMUM WIND-DRIVEN RAIN DESIGN PRESSURE (PSF)[a,b]

		Wind-driven Rain Wind Speed (mph, 3 sec gust) from Figure R301.2.1.6					
		≤ 30	40	50	60	70	80
Wind Exposure	Mean Roof Height (ft)						

B	15	2.86	2.86	2.86	3.21	4.37	5.71
	20	2.86	2.86	2.86	3.50	4.76	6.21
	25	2.86	2.86	2.86	3.72	5.06	6.61
	30	2.86	2.86	2.86	3.95	5.37	7.02
	40	2.86	2.86	2.98	4.28	5.83	7.62
	50	2.86	2.86	3.17	4.57	6.22	8.12
	60	2.86	2.86	3.33	4.79	6.52	8.52
C	15	2.86	2.86	4.01	5.77	7.85	10.3
	20	2.86	2.86	4.24	6.11	8.31	10.9
	25	2.86	2.86	4.43	6.38	8.68	11.3
	30	2.86	2.96	4.62	6.65	9.05	11.8
	40	2.86	3.14	4.90	7.06	9.61	12.6
	50	2.86	3.29	5.14	7.40	10.1	13.2
	60	2.86	3.41	5.33	7.67	10.4	13.6
D	15	2.86	3.35	5.23	7.53	10.3	13.4
	20	2.86	3.51	5.48	7.90	10.8	14.0
	25	2.86	3.64	5.69	8.19	11.2	14.6
	30	2.86	3.77	5.89	8.48	11.6	15.0
	40	2.86	3.96	6.20	8.92	12.1	15.0
	50	2.86	4.13	6.45	9.29	12.6	15.0
	60	2.86	4.26	6.65	9.58	13.0	15.0

For SI: 1 psf = 47.9 Pa; 1 mph = 0.447 m/s; 1 ft = 0.305 m

a. Wind-driven rain wind speed is to be obtained from Figure R301.2.1.6 which provides 3-second gust wind speeds at standard conditions of wind exposure C (open, flat terrain) at a height of 33 ft (10m) above ground.

b. The tabulated pressures are positive components and cladding pressures calculated in accordance with ASCE 7 for a windward wall for the indicated exposure condition and building mean roof height. Wind directionality is not used to reduce the wind-driven rain pressure. The wind speed obtained from Figure R301.2.1.6 used for this pressure calculation is adjusted from a 3-sec gust basis to a 1-min average wind speed using the following wind speed averaging time conversion factors: 0.72 (Exposure B), 0.79 (Exposure C), and 0.82 (Exposure D). Wind-driven rain pressures for different exposure and mean roof height conditions shall be permitted to be calculated in a consistent manner in accordance with ASCE 7 and Figure R301.2.1.6. The calculated pressure shall not be less than 2.86 psf and need not exceed 15.0 psf.

Reason: The code lacks a risk-consistent basis for addressing wind-driven rain and resistance to water intrusion. This proposal provides a wind-driven rain hazard map (i.e., annual extreme 3-sec gust wind speeds coincidental with a minimum rainfall rate threshold) to properly characterize the hazard as it varies across wind-driven rain climatology of the U.S. Coordinating proposals have been submitted for the IBC and IRC.

First, the proposal “permits” and does not mandate use of these wind-driven rain wind speeds and associated minimum design pressures for evaluation water penetration resistance. This approach is necessary because various other code referenced product standards will need time to consider and re-align with this new hazard-based approach to wind-driven rain resistance. The proposed map and table requirements are somewhat more conservative than, but generally consistent with, current industry minimum and maximum pressure values used in practice. But now the selection of a design pressure for specification of water penetration resistance is properly related to variation in actual hazard across the US (and variation in fundamental wind load parameters such as exposure and building height).

The two key components of this proposal are further explained as follows:

Figure 1609.8 / R301.2.1.6 - The wind-driven rain wind speed map is based on the JAMC article referenced in the Bibliography as a joint effort of the University of Florida and Cornell University's Northeast Climate Data Center with support from other interested parties, including the Insurance Institute for Business and Home Safety (IBHS). Additional work to extend the research to develop a US map was funded by NOAA at Cornell University. The climatology of wind-driven rain is developed from recently available 1-min weather observations from National Weather Service Automated Surface Observing Systems (ASOS). One-minute data better represent the joint occurrence of the extremes that define wind-driven rain occurrence than hourly data, which previously was the shortest available temporal resolution. After adjusting the winds speeds to standardize for exposure and anemometer type, the wind data corresponding to specific rainfall thresholds were fit to a statistical distribution to obtain estimates of the recurrence of wind speeds associated with different rainfall intensities. The values serve as the basis for a wind-driven rain climatology for the United States that is analogous to climatologies that exist and inform building codes in Europe and Canada. The wind-driven rain map represents a 3-sec gust wind speed (miles per hour) for a 2-yr mean recurrence interval with a threshold coincidental rainfall rate of 0.02 in/min (0.5 mm/min). For additional information, refer to the JAMC article referenced in Bibliography.

Table 1609.8 / R301.2.1.6 - The main purpose of the mapped wind-driven rain hazard is to provide a wind-driven rain wind speed from which an appropriate, risk-consistent pressure differential can be determined as a means to specify or evaluate water-resistance of wall assemblies and exterior wall covering assemblies or components. The pressure differential may be determined in two ways. One way is to use pre-calculated values as shown in the table. The other way is to calculate the pressure using the ASCE 7 provisions for wind loads, but substituting the appropriate wind-driven rain wind speed from Figure 1609.8 / R301.2.1.6 for the basic wind speed used for structural design purposes in ASCE 7.

The latter method was how the table values were generated (as detailed for transparency and repeatability in the table footnotes). An example of calculating the wind-driven rain wind pressure using Figure 1609.8 / R301.2.1.6 and the wind load provisions of ASCE 7 is as follows:

Wind-driven rain wind speed: 60 mph, 3sec gust (Figure 1609.8 / R301.2.1.6)

Wind Exposure: B (suburban/wooded)

Building Height: 30 feet

Wall Pressure coefficients – GCp = 1.0 (positive); GCpi = -0.18 (negative internal pressure)

Kz = 0.7 (exposure B, 30' height)

Kd = 1.0 (directionality not considered)

Kzt = 1.0 (no topographic wind speed up effects considered)

Ke = 1.0 (no elevation effects considered w/r to lower density of air at higher elevations)

V1-min/V3-sec conversion factor: 0.72

$p = [0.00256\ Kz\ Kzt\ Kd\ Ke\ (0.72 \times V)^2] \times [GCp - GCpi]$

$= 0.00256(0.7)(1.0)(1.0)(1.0)(0.72 \times 60)^2 \times [1.0 + 0.18]$

= (3.34 psf) x [1.18] = **3.95 psf**

The range of calculated pressures are shown in the following supplemental table without inclusion of the minimum and maximum pressure values consistent with the extremes of current practice (and available products such as fenestration or water-resistive barrier systems and flashing methods). This table is provided for transparency and informational purposes.

Pressures (psf) for Water Resistance Evaluation (based on conversion to 1-min average wind speed)											
Wind Exposure	Mean Roof Height (ft)	WDR Wind Speed (MPH - 3 sec gust)									
		10	20	30	40	50	60	70	80	90	100
B	15	0.09	0.36	0.80	1.43	2.23	3.21	4.37	5.71	7.23	8.93
	20	0.10	0.39	0.87	1.55	2.43	3.50	4.76	6.21	7.86	9.71
	25	0.10	0.41	0.93	1.65	2.58	3.72	5.06	6.61	8.37	10.34
	30	0.11	0.44	0.99	1.75	2.74	3.95	5.37	7.02	8.88	10.96
	40	0.12	0.48	1.07	1.90	2.98	4.28	5.83	7.62	9.64	11.90
	50	0.13	0.51	1.14	2.03	3.17	4.57	6.22	8.12	10.27	12.68
	60	0.13	0.53	1.20	2.13	3.33	4.79	6.52	8.52	10.78	13.31
C	15	0.16	0.64	1.44	2.56	4.01	5.77	7.85	10.26	12.98	16.02
	20	0.17	0.68	1.53	2.71	4.24	6.11	8.31	10.86	13.74	16.97
	25	0.18	0.71	1.59	2.84	4.43	6.38	8.68	11.34	14.35	17.72
	30	0.18	0.74	1.66	2.96	4.62	6.65	9.05	11.82	14.97	18.48
	40	0.20	0.78	1.76	3.14	4.90	7.06	9.61	12.55	15.88	19.61
	50	0.21	0.82	1.85	3.29	5.14	7.40	10.07	13.15	16.65	20.55
	60	0.21	0.85	1.92	3.41	5.33	7.67	10.44	13.63	17.26	21.30
D	15	0.21	0.84	1.88	3.35	5.23	7.53	10.25	13.39	16.95	20.92
	20	0.22	0.88	1.97	3.51	5.48	7.90	10.75	14.04	17.77	21.94
	25	0.23	0.91	2.05	3.64	5.69	8.19	11.15	14.56	18.43	22.75
	30	0.24	0.94	2.12	3.77	5.89	8.48	11.55	15.08	19.09	23.56
	40	0.25	0.99	2.23	3.96	6.20	8.92	12.14	15.86	20.07	24.78
	50	0.26	1.03	2.32	4.13	6.45	9.29	12.64	16.51	20.89	25.80
	60	0.27	1.06	2.39	4.26	6.65	9.58	13.04	17.03	21.55	26.61

Second, it is important to note that the failure mode that this proposal addresses is the initiation of a leak (onset of water intrusion) at the most extreme (worst) 1-minute of coincidental wind and rain that would typically occur in a given year on average. Therefore, it provides protection for routine and lesser extreme events that have equal or lower wind-driven rain wind speed (even if the rainfall rate is substantially greater than the threshold used to develop the map). Events that exceed the wind-driven rain wind speed tend to have lower coincidental rainfall rates as based on the natural tendency or shape of the hazard curves in the climatological data (see JAMC article referenced in Bibliography).

Finally, as shown in the tabulated pressure values in the proposal, the lower limit of 2.86 psf (137 Pa) for test pressure is used to correspond with the minimum test pressure used in recognized standards addressing wind-driven rain resistance (e.g., ASTM E331) despite the table above showing that lower pressure could be justified in regions of low wind-driven rain hazard. The upper limit of 15.0 psf (718 Pa) also is based on current accepted practice for worst-case wind-driven rain climate conditions in the U.S. and ensures the availability of solutions (it also ensures equivalency with current accepted practices for regions or conditions considered to have high wind-driven rain hazard). This range of WDR pressures also is consistent with that used in Canada. These limits ensure that this new approach is “calibrated” to accepted practice and that solutions are available while also better aligning solutions with actual variation in U.S. wind-driven rain hazard. Even so, the 15 psfcap will provide substantial protection against significant water intrusion and contents damage in greater wind-driven rain hazard conditions or events (higher wind speed at greater return periods) up to the point where structural failures begin to occur and the general integrity of the building envelope is compromised. Such extreme structural safety-level events are beyond the scope of a serviceability concern underlying the current and proposed approach to water resistance. Regardless, the proposed approach deals with the matter of wind-driven rainwater resistance in a much more risk-consistent fashion based on the variation in hazard across the U.S. (wind-driven rain wind speed) and for different building conditions (e.g., wind exposure and building height).

Bibliography: Belcher, B.N., DeGaetano, A.T., Masters, F.J., Crandell, J., and Morrison, M.J. (2023). Development of an Extreme Wind-Driven Rain Climatology for the Southeastern United States Using 1-Min Rainfall and Peak Wind Speed Data. Journal of Applied Meteorology and Climatology, American Meteorological Society, DOI: https://doi.org/10.1175/JAMC-D-22-0156.1

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0 - While the cost impact indicates “increased cost” (there was no suitable default answer in cdpACCESS), the proposal does not mandate any new requirements. It provides a new means or option to evaluate building wall assemblies and components for water resistance using an improved methodology based on actual wind-driven rain hazard. If voluntarily used, it could result in an increase or decrease cost for material or assembly qualification purposes relative to existing practices. But, the increase or decrease in cost to the end user may be very small. This proposal also does not require any existing materials or methods recognized in the code to alter current requirements, methods, or standards. So, it should be considered cost neutral.

Estimated Immediate Cost Impact Justification (methodology and variables):

$0 - see cost impact statement above.

RB45-25

RB46-25

IRC: R301.2.2.1.1

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Revise as follows:

R301.2.2.1.1 Alternate determination of seismic design category. The seismic design category and short-period design spectral response accelerations, S_{DS} , for a site shall be allowed to be determined in accordance with Section 1613 of the *International Building Code*. The value of S_{DS} determined in accordance with the *International Building Code* is permitted to be used to set the seismic design category in accordance with Table R301.2.2.1.1, and to interpolate between values in Tables R602.10.3(3)~~ and R603.9.2(1)~~ and other seismic design requirements of this code.

Reason: During the course of writing other code change proposals it was identified that the reference to Table R603.9.2(1) appears to be in error. This table does not include any information relative to Seismic Design Categories, so interpolating based on S_{DS} is not possible. Research into past code editions found that this reference appears to have been in error over a number of code cycles and it has not yet been determined what table it originally referenced. As a result the pointer is being deleted.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is deleting an erroneous reference and will have no cost impact.

RB46-25

RB47-25

IRC: R301.2.2.1.1

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

SECTION R301 DESIGN CRITERIA

Revise as follows:

R301.2.2.1.1 Alternate determination of ~~seismic design category~~ Seismic Design Category. ~~The seismic design category and short-period design spectral response accelerations, S_{DS}, for a site shall be allowed to be determined in accordance with Section 1613 of the *International Building Code*.~~As an alternate to determination of the *Seismic Design Category* in accordance with Section R301.2.2.1, the *Seismic Design Category* shall be determined in accordance with all of the following:

1. The short-period spectral response acceleration, S_{DS}, shall be determined in accordance with Section 1613 of the *International Building Code.*
2. Using this S_{DS} value, the *Seismic Design Category* shall be determined in accordance with Table R301.2.2.1.1.

~~The value of and~~ Where S_{DS} is determined in accordance with the *International Building Code* it is permitted to use S_{DS} ~~be used to set the seismic design category in accordance with Table R301.2.2.1.1, and~~to interpolate between values in Tables R602.10.3(3) and R603.9.2(1) and other seismic design requirements of this code.

Reason: This proposal clarifies use of an alternate method to determine the Seismic Design Category (SDC). It clarifies that SDS determined per the IBC is used to assign the SDC in accordance with IRC Table R301.2.2.1.1. Further, it removes any suggestion that an IBC SDC is permitted to be used for IRC design. The importance of this clarification is heightened because the IBC has adopted IBC-SDC Maps.

When using the IRC, Seismic Design Categories (SDCs) are commonly determined using the IRC-SDC maps in Figures R301.2.2.1(1) to (7). An alternative method is provided in Section R301.2.2.1.1, allowing the user to first determine SDS in accordance with the IBC, and then to assign the SDC in accordance with IRC Table R301.2.2.1.1, based on the determined SDS. There are two potential benefits to using this alternative approach. First, where the designer has geotechnical information that specifies the site class (found in ASCE 7 as referenced in IBC), the designer can determine SDS based on this more specific site class information, and this could result in the assignment of a lower SDC. Second, whether or not the designer has site class information, the value of SDS determined per the IBC can be used to interpolate IRC design requirements such as assignment of wall bracing length. This second item retains 2024 IRC language and is not the intended subject of this code change proposal.

Note that when the designer is directed to use IBC provisions to determine SDS, the IBC in turn specifies use of ASCE 7. Note also that the pointer to Section R603.9.2(1) appears to be in error; this sentence is being addressed in a separate code change proposal.

The editorial revisions in this code change proposal make clear that the IRC user can use the IBC to determine SDS, but cannot use the IBC to determine SDC. This is because the SDC maps adopted by the IRC and IBC are different and not interchangeable, as seen in Figures 1 and 2. Although IBC SDC maps should provide conservative information for differentiating SDC C from SDC D, they do not adequately separate SDC D into D0, D1 and D2. Most importantly the IBC maps do not adequately assign the designation of SDC E that is intended for use of the IRC. The IRC mapping assumes short period structures and assigns SDC based on SDS, and this is directly incorporated into the pre-engineered prescriptive seismic designs. IBC mapping triggers SDC E based on S1. While there has always been some difference between the extent of SDC E in the IRC and IBC maps, it appears to have become even more dramatic under 2024 Edition maps, as seen below.

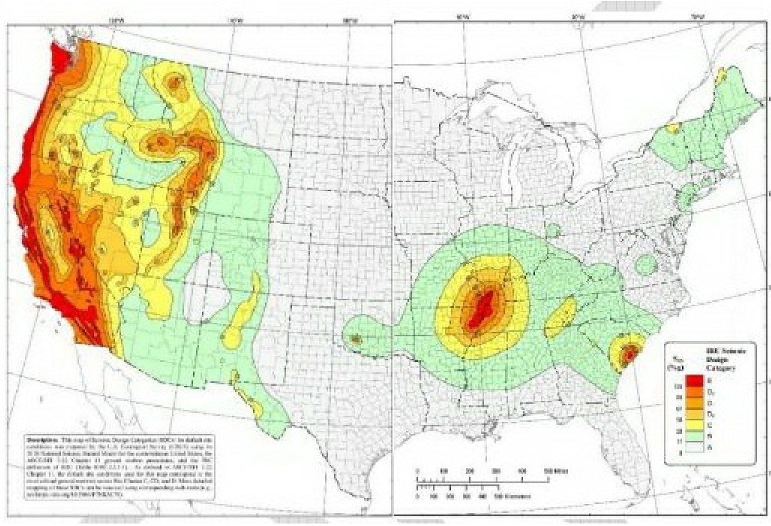


Figure 1. 2024 IRC Seismic Design Categories for the conterminous United States.

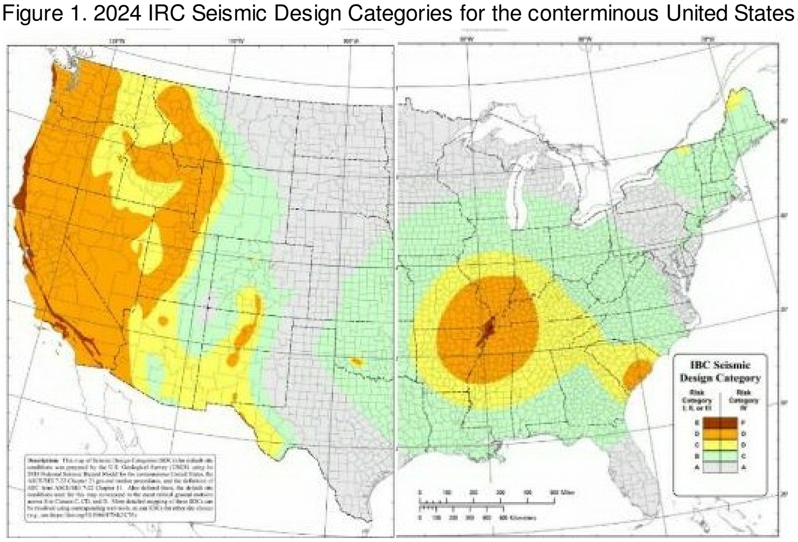


Figure 2. 2024 IBC Seismic Design Categories for the conterminous United States.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal will not increase or decrease the cost of construction because the proposal is only intended to clarify the current code requirements for seismic design.

RB47-25

RB48-25

IRC: R301.2.2.4

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

SECTION R301 DESIGN CRITERIA

Revise as follows:

R301.2.2.4 Masonry construction. Masonry construction in *Seismic Design Categories* D_0, ~~and~~ D_1 , and D_2 and in *townhouses* in *Seismic Design Category* C shall comply with the requirements of Section R606.12 ~~R606.12.1. Masonry construction in *Seismic Design Category* D_2 shall comply with the requirements of Section R606.12.4.~~

Reason: Section R301.2.2.4 is intended as a pointer to seismic design provisions for masonry construction. This is an editorial clarification and simplification with a single pointer to Section R606.12.

The current pointers reference subsections R606.12.1 and R606.12.4. This creates two ambiguities:

A potential misinterpretation could infer that the remaining subsections of Section R606.12 may not be applicable.

Users that go directly to R606.12.4 must also intentionally seek out R606.12.1 to understand the full scope of the seismic requirements.

By revising Section R301.2.2.4 to provide a single pointer to Section R606.12, both of these concerns are addressed.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not increase or decrease the cost of construction because it only clarifies current code provisions seismic categories in masonry construction.

RB48-25

RB49-25

IRC: R301.2.2.10

Proponents: Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Revise as follows:

R301.2.2.10 Seismic restraint of appliances and equipment. In *Seismic Design Categories* D_0, D_1 and D_2 and in *townhouses* in *Seismic Design Category* C, appliances and equipment that are designed to be fixed in position shall be supported and braced or anchored to the structure in accordance with the component manufacturer's recommendations or per Section R301.2.2.10.1.

Exceptions: <u>Other than water heaters, seismic</u> ~~Seismic~~ support, bracing and anchorage are not required for the following:

1. Suspended mechanical ducts, electrical conduit, automatic sprinkler systems and plumbing systems <u>where the operating weight of the system weighs 5 pounds/ft (2.3 kg/ft) or less.</u>
2. Where the appliance or equipment is bearing on an elevated floor or roof and the housing height is not greater than 1.5 times the width of the housing base in either direction.
3. Where the installed weight of a suspended appliance or equipment is <u>20 pounds (9.1 kg)</u> ~~50 pounds (22.7 kg)~~ or less.
4. Where the installed weight is 400 pounds (181.4 kg) or less and the <u>center</u> ~~bottom~~ of the appliance or equipment is 4 feet (1219 mm) or less above the adjacent floor level.

Reason: This proposal is intended to resolve discrepancies between IRC and ASCE 7 provisions regarding non-structural component seismic bracing.

Section R301.2.2.10 was added during the 2024 cycle to provide clear consistent prescriptive provisions on seismic bracing requirements for residential appliances and equipment. The criteria required to qualify for the exceptions were intended to align with comparable criteria in ASCE 7 Chapter 13 for non-structural components. However, slight discrepancies remained between the exception criteria in the IRC and ASCE 7. This proposal correlates the R301.2.2.10 exception criteria with ASCE 7-22 Table 13.1-1.

Following is ASCE 7-22 Table 13.1-1 for reference. The boxed bullet items in the image below identify the specific criteria used as the basis for this proposal.

Table 13.1-1. Nonstructural Components Exempt from the Requirements of This Chapter.

Seismic Design Category (SDC)	Nonstructural Components Exempt from the Requirements of this Chapter
All Categories	• Furniture (except storage cabinets, as noted in Table 13.5-1) • Temporary components that remain in place for 180 days or less • Mobile units and equipment including components that are moved from one point in the structure to another during ordinary use
A	• All components
B	• Architectural Components, other than parapets, provided that the component Importance Factor, I_p, is equal to 1.0 • Mechanical and Electrical Components
C	• Mechanical and Electrical Components, provided that either ◦ The component Importance Factor, I_p, is equal to 1.0 and the component is positively attached to the structure; or ◦ The component weighs 20 lb (89 N) or less
D, E, F	• Mechanical and electrical components positively attached to the structure, provided that ◦ For discrete mechanical and electrical components, the component weighs 400 lb (1,779 N) or less, the center of mass is located 4 ft (1.22 m) or less above the adjacent floor level, flexible connections are provided between the component and associated ductwork, piping, and conduit, and the component Importance Factor, I_p, is equal to 1.0; or ◦ For discrete mechanical and electrical components, the component weighs 20 lb (89 N) or less; or ◦ For distribution systems, the component Importance Factor, I_p, is equal to 1.0 and the operating weight of the system is 5 lb/ft (73 N/m) or less. • Distribution systems included in the exceptions for conduit, cable tray, and raceways in Section 13.6.5, duct systems in 13.6.6, and piping and tubing systems in 13.6.7.3. Where in-line components, such as valves, in-line suspended pumps, and mixing boxes require independent support, they shall be addressed as discrete components and shall be braced considering the tributary contribution of the attached distribution system.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The cost increase should be minimal and will be limited to heavier suspended systems.

- $36-$42 => 25-feet of 20-gage coil strapping
- $6 - $10 => 175-feet of 20-gage galvanized steel wire
- $21-$35 => 10-foot long 14-gage channel strut

Estimated Immediate Cost Impact Justification (methodology and variables):

Construction materials necessary for small system anchorage and bracing are readily available at local hardware stores. A range of common materials (coil strapping, wire bracing, or rigid struts) can be used to achieve the required bracing and stability.

RB49-25

RB50-25

IRC: R301.2.2.11 (New), ICC Chapter 44 (New)

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Add new text as follows:

R301.2.2.11 Seismic alterations. Structural alterations in all *Seismic Design Categories* that are intended exclusively to improve seismic resistance and are not required by other provisions of this code shall be in accordance with applicable provisions *of the International Existing Building Code*, with ICC 1300, or with other approved methods.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

ICC 1300-2024 Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings.

Reason: This proposal adds to IRC Section R301.2.2 "Seismic provisions" a new Section R301.2.2.11 addressing voluntary seismic alterations. The intent is to provide technical resources for voluntary seismic retrofit, to encourage technically appropriate and cost-effective retrofit measures. The first method listed identifies applicable provisions of the IEBC. These include both the engineered voluntary retrofit provisions of IEBC Section 503.13 and the prescriptive retrofit provisions of IEBC Appendix Chapter A3. The second method listed is new standard ICC 1300-2024, *Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings*, which is also added to Chapter 44. The third method listed allows the building official to approve methods deemed to be appropriate. These might include locally developed retrofit plan sets, commonly used in western states.

ICC 1300 is a new retrofit standard that allows one- and two-family dwelling units and townhouses to be assessed and retrofit to provide a higher level of seismic resistance. Damage assessments from earthquakes and application of modern seismic design standards and modeling techniques have shown crawl space homes, homes with living areas over garages, hillside homes, and brick masonry chimneys to be vulnerable to significant earthquake damage. ICC's Residential Seismic Assessment and Retrofit Standard Consensus Committee (IS-RSARC) has developed ICC 1300, based on prestandard FEMA P-1100 prepared by the Applied Technology Council for FEMA. The best available seismic numerical modeling tools and engineering practices were used to identify targeted prescriptive and engineered retrofit measures to best achieve performance objectives. For further information on this standard see the IS-RSARC web page.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides a new voluntary compliance methodology that can be selected at the user's option.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ICC 1300-2024 Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings.

RB50-25

RB51-25

IRC: R301.2.4, R306.1, R306.2, R306.3, R306.4 (New), R306.4.1 (New), R306.4.2 (New), BO102.7, BO103.1(New), BO104.6 (New), BO105.5 (New), BO106.4 (New), BO107.2 (New), BO108, BO108.1, TABLE BO108.1

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Revise as follows:

R301.2.4 Floodplain construction. *Buildings* and structures located ~~constructed~~ in whole or in part in flood hazard areas as established in Table R301.2 shall be constructed in accordance with the flood-resistant construction provisions of code.~~, and *substantial improvement* and *repair* of *substantial damage* of *buildings* and structures located in whole or in part in flood hazard areas, shall be designed and constructed in accordance with Section R306. *Buildings* and structures that are located in more than one flood hazard area, including A Zones, Coastal A Zones and V Zones, shall comply with the provisions associated with the most restrictive flood hazard area. *Buildings* and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.~~

R301.2.4.1 Alternative provisions. As an alternative to the requirements in Section R306, ASCE 24 is permitted subject to the limitations of this code and the limitations therein.

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Delete and substitute as follows:

~~**R306.1 General.** *Buildings* and structures constructed in whole or in part in flood hazard areas established in Table R301.2, and *substantial improvement* and *repair* of *substantial damage* of *buildings* and structures located in whole or in part in flood hazard areas, shall be designed and constructed in accordance with the provisions contained in this section. *Buildings* and structures that are located in more than one flood hazard area, including A Zones, Coastal A Zones and V Zones, shall comply with the provisions associated with the most restrictive flood hazard area. *Buildings* and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.~~

R306.1 General. Buildings located in whole or in part in flood hazard areas established by Table R301.2 shall comply with the following:

1. New construction shall be designed and constructed in accordance with Sections R306.1.1 through R306.1.10 and Section R306.2 or R306.3.
2. Buildings located in more than one flood hazard area shall comply with the provisions associated with the most restrictive flood hazard area.
3. Buildings located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.
4. Substantial improvement and repair of substantial damage of existing buildings shall be designed and constructed in accordance with Sections R306.1.1 through R306.1.10 and Section R306.2 or R306.3.
5. Repair, alteration, additions and foundations of existing buildings shall comply with Section R306.4.

Revise as follows:

R306.2 Flood hazard areas including A Zones. Areas that have been determined to be prone to flooding and that are not subject to high-velocity wave action shall be designated as flood hazard areas. Flood hazard areas that have been delineated as subject to wave heights between 1 $^1/_2$ feet (457 mm) and 3 feet (914 mm) or otherwise designated by the *jurisdiction* shall be designated as Coastal A Zones and are subject to the requirements of Section R306.3. *Buildings* and structures ~~constructed~~ located in whole or in part in flood hazard areas shall be designed and constructed in accordance with Sections R306.2.1 through R306.2.5 ~~R306.2.4~~.

R306.3 Coastal high-hazard areas including V Zones and Coastal A Zones, where designated. Areas that have been determined to be subject to wave heights in excess of 3 feet (914 mm) or subject to high-velocity wave action or wave-induced erosion shall be designated as coastal high-hazard areas. Flood hazard areas that have been designated as subject to wave heights between 1 $^1/_2$ feet (457 mm) and 3 feet (914 mm) or otherwise designated by the *jurisdiction* shall be designated as Coastal A Zones. *Buildings* and structures located ~~constructed~~ in whole or in part in coastal high-hazard areas and Coastal A Zones, where designated, shall be designed and constructed in accordance with Sections R306.3.1 through R306.3.10.

Add new text as follows:

R306.4 Existing buildings and structures. In flood hazard areas, repairs, alterations, additions and foundations of existing buildings and structures shall comply with Section R306.4.1, R306.4.2 or R306.4.3.

R306.4.1 Repairs. As applicable to the flood hazard area, comply with the following:

1. Existing buildings and structures shall be brought into compliance with requirements of Section R306.1 and R306.2 or R306.3 for new construction when the buildings have sustained substantial damage or when repairs constitute substantial improvement.
2. Replacement of exterior equipment and exterior appliances damaged by flood shall meet the requirements of Section R306.1.6.

R306.4.2 Alterations. As applicable to the flood hazard area, the following shall comply with Section R306.1 and Section R306.2 or R306.3 for new construction:

1. Alterations that constitute substantial improvement of an existing building and all aspects of the existing building.
2. New foundations, foundations raised or extended upward, and replacement foundations.

R306.4.3 Additions and foundations. For existing buildings and structures located in flood hazard areas:

1. Additions, and additions combined with other proposed work, that constitute substantial improvement of the existing building shall comply with the requirements of Section 306 for new construction, and all aspects of the existing building shall be brought into compliance with the requirements of Section R306 for new construction.
2. Additions, and additions combined with other proposed work that do not constitute substantial improvement of the existing building are not required to comply with the requirements of Section R306 for new construction provided that both of the following apply:
   - 2.1. The addition shall not create or extend a nonconformity of the existing building with the requirements of Section R306.
   - 2.2. The lowest floor of the addition shall be at or above the lower of the lowest floor of the existing building or the lowest floor elevation required in Section R306.

3. For new foundations, foundations raised or extended upward, and replacement foundations, the foundations shall be in compliance with the requirements of Section R306 for new construction. Existing buildings with slab-on-ground foundations shall not be elevated on new, raised, extended, or replaced foundations unless the existing slabs are assessed in accordance with ACI 562 and, if required in accordance with the assessment, strengthened in accordance with ACI 562 and ACI 318 to meet the load requirements of Chapter 4.

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

SECTION BO102
COMPLIANCE

Delete and substitute as follows:

~~**BO102.7 Flood hazard areas.** Work performed in existing buildings located in a flood hazard area as established by Table R301.2 shall be subject to the provisions of Section R104.3.1.~~

BO102.7 Flood hazard areas. Work on existing buildings located in flood hazard areas shall comply with the flood hazard area provisions of Section R306 and this appendix, as applicable. The building official shall determine if the work proposed for existing buildings in flood hazard areas constitutes substantial improvement or repair of substantial damage.

SECTION BO103
DEFINITIONS

Add new definition as follows:

FLOOD HAZARD AREA. The greater of the following two areas

1. The area within a floodplain subject to a 1-percent or greater chance of flooding in any given year.
2. The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.

SECTION BO104
REPAIRS

Add new text as follows:

BO104.1.1 Flood hazard areas. Repairs to existing buildings located in *flood hazard areas* shall comply with Section R306.4 and this appendix.

SECTION BO105
ALTERATIONS

BO105.1.1 Flood hazard areas. Alterations to existing buildings located in *flood hazard areas* shall comply with Section R306.4 and this appendix.

SECTION BO106
ADDITION

BO106.1.1 Flood hazard areas. Additions and foundations for existing buildings located in flood hazard areas shall comply with Section R306.4 and this appendix.

SECTION BO107
RELOCATED BUILDINGS

BO107.2 Flood hazard areas. When relocated within, or moved into, *flood hazard areas*, the foundations of residential buildings shall comply with the flood-resistant construction requirements of Section R306 for new construction.

BO108
HISTORIC BUILDINGS

BO108.1 Flood hazard areas. In *flood hazard areas*, where the work proposed constitutes *substantial improvement* or repair of *substantial damage*, the existing building shall be brought into compliance with the flood-resistant construction requirements of Section R306 for new construction.

Exception: If a historic building will continue to be a historic building after the proposed work is completed, then the proposed work is not considered *substantial improvement* or repair of *substantial damage*. For the purposes of this exception, a historic building is any of the following:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
2. Determined by the Secretary of the US Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

Revise as follows:

SECTION ~~BO108~~ BO109
REFERENCED STANDARDS

~~BO108.1~~ BO109.1 General. See Table ~~BO108.1~~ BO109.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, the standard title and the section or sections of this appendix that reference the standard.

TABLE ~~BO108.1~~ BO109.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTION HEREIN REFERENCED
ACI 562-21	Assessment, Repair, and Rehabilitation of Existing Concrete Structures—Code Requirements	BO106.4
IEBC—24	*International Existing Building Code®*	BO102.8
IFC—24	*International Fire Code®*	BO107.1
IPMC—24	*International Property Maintenance Code®*	BO107.1

Reason: Communities that participate in the NFIP have always had to determine whether work on existing dwellings in floodplains constitutes substantial improvement and whether damage to existing dwellings in floodplains constitutes substantial damage. Sec. R306 already specifies that “substantial improvement and repair of substantial damage” shall comply with the section. The definition of “substantial improvement” includes alterations, repairs, and additions. Sec. R104.3.1 requires the code official to make substantial improvement and substantial damage determinations.

The IEBC has explicit provisions for repair, alteration, and additions of existing buildings in flood hazard areas. This proposal clarifies the IRC in Sec. R306 and Appendix BO, largely based on the IEBC. The IEBC provides clarity for building officials and applicants as to what requirements apply to repairs, alterations, and additions to existing buildings.

R301.2.4: rather than maintain word-for-word duplication with Sec. R306.1, the proposal replaces that language with a sentence to phrase the general requirement to be more in line with similar provisions in R301.2.1 (for wind) and the topic sentence in R301.2.2 (seismic).

R306.1: proposal reformats the text as a list, with some clarifications, prompted by the addition of a pointer to new Section R306.4 for repairs, alterations, additions and foundation work.

New R306.4 for existing buildings.

- R306.4.1 for repairs. The proposed language is based on IEBC 401.3 (repairs that constitute substantial improvement) and IEBC 405.2.6 (have sustained substantial damage). The provision for replacement of exterior equipment damaged by flood is companion to a separate proposal for the IEBC.
- R306.4.2 for alterations. The proposed language is based on IEBC 503.2 prescriptive compliance for alterations (except not retaining the inverse statement for alterations that do NOT constitute substantial improvement).
- R306.3 for additions and foundations. The provisions for additions to dwellings and foundation work on buildings in flood hazard areas. The basis for the proposed added text is IEBC 502.2, prescriptive compliance for additions, with the addition of evaluation of slabs-on-ground when existing dwellings will be raised on foundations (same is proposed to be added to IEBC). Raised, extended, and new foundations are included with additions because the "addition" is defined as "An extension or increase in floor areas, number of stories, or height of a building or structure" (emphasis added). FEMA and others have reported on evidence of problems and failures of elevation projects when slabs are not evaluated and strengthened before raising. A separate proposal adds the evaluation of slabs to the IEBC.

The proposal also amends IRC Appendix BO, Existing Buildings and Structure, to more fully incorporate flood requirements and better coordinate with the IRC.

- BO102.7: Describe the requirements, rather than refer only to R104.3.1.
- BO103, Definitions: Add the definition for "flood hazard area." A separate proposal would add the same to Sec. R202. If that proposal passes, this definition in Appendix BO is not needed.
- BO104.1.1: for clarity, refer to the proposed added Sec. 306 for repairs.
- BO105.1.1: for clarity, refer to the proposed added Sec. 306 for alterations.
- BO106.1.1: for clarity, refer to proposed added Sec. 306 for additions and foundations.
- BO107.2: add for relocated buildings, equivalent to IEBC 1402.6.
- BO108.1: add for historic buildings, equivalent to IEBC 1201.4. The I-Code definition for "historic building" allows designation under local law and local designation of historic districts. The NFIP does not recognize designation by local historic preservation programs unless the communities are designated by the US Department of Interior as Certified Local Governments. Certified local programs, like certified state programs, must abide by federal requirements when they designate historic buildings and historic districts. The exception means all historic structures in flood hazard areas must comply when work is substantial improvement or the structures incur substantial damage – except those that qualify under the NFIP definition. That preserves consistency with the NFIP regulations.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides more detail in the IRC on how to achieve compliance with existing requirements for substantial improvement and repair of substantial damage in flood hazard areas. Providing additional detail on meeting requirements already in the code will not impact the cost of construction.

Staff Analysis: The proposed referenced standard, ACI 562-21, Assessment, Repair, and Rehabilitation of Existing Concrete Structures —Code Requirements, is currently referenced in the IEBC.

RB51-25

RB52-25

IRC: TABLE R301.5

Proponents: Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov); Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com)

2024 International Residential Code

SECTION R301 DESIGN CRITERIA

Revise as follows:

TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (in pounds per square foot)

USE	UNIFORM LOAD (psf)	CONCENTRATED LOAD (lb)
Uninhabitable attics without storage[b]	10	—
Uninhabitable attics with limited storage[b, g]	20	—
Habitable attics and attics served with fixed stairs	~~30~~40	—
Balconies (exterior) and decks[e]	40	—
Fire escapes	40	—
Guards	—	200[h, i]
Guard in-fill components[f]	—	50[h]
Handrail[d]	—	200[h]
Passenger vehicle garages	50	2,000[a]
Areas other than sleeping areas	40	—
Sleeping areas	~~30~~40	—
Stairs	40[c]	300[c]

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm^2, 1 pound = 4.45 N.

a. Elevated garage floors shall be capable of supporting the uniformly distributed live load or a 2,000-pound concentrated load applied on an area of $4^1/_2$ inches by $4^1/_2$ inches, whichever produces the greater stresses.

b. Uninhabitable attics without storage are those where the clear height between joists and rafters is not more than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.

c. Individual stair treads shall be capable of supporting the uniformly distributed live load or a 300-pound concentrated load applied on an area of 2 inches by 2 inches, whichever produces the greater stresses.

d. A single concentrated load applied in any direction at any point along the top. For a guard not required to serve as a handrail, the load need not be applied to the top element of the guard in a direction parallel to such element.

e. See Section R507.1 for decks attached to exterior walls.

f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.

g. Uninhabitable attics with limited storage are those where the clear height between joists and rafters is 42 inches or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses.

   The live load need only be applied to those portions of the joists or truss bottom chords where all of the following conditions are met:

   1. The attic area is accessed from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is not less than 30 inches.
   2. The slopes of the joists or truss bottom chords are not greater than 2 units vertical in 12 units horizontal.
   3. Required insulation depth is less than the joist or truss bottom chord member depth.

   The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.

h. Glazing used in handrail assemblies and guards shall be designed with a load adjustment factor of 4. The load adjustment factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

i. Where the top of a guard system is not required to serve as a handrail, the single concentrated load shall be applied at any point along the top, in the vertical downward direction and in the horizontal direction away from the walking surface. Where the top of a guard is also serving as the handrail, a single concentrated load shall be applied in any direction at any point along the top. Concentrated loads shall not be applied concurrently.

Reason: In the post COVID environment, many people are working from home and setting up home offices or exercise equipment in their extra bedrooms. The homeowners are unaware there is a different strength in the floor system in the sleeping areas than in the rest of the house. When these rooms are designed with a lighter structural load with the assumption that these will be used for sleeping and bedroom furniture there is a risk that the change in use will overload the structure. While changing the load requirements will not cover all scenarios such as putting heavy safes on the second floor, it will allow the homeowner to use the house as the want without concern to which rooms or areas of the floor are weaker than others.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There could be a cost savings buy making joist sizes more consistent and getting reduced pricing based on quantity. There could also be a slight cost increase due to larger member sizes. The end result is a wash.

RB52-25

RB53-25

IRC: TABLE R301.5

Proponents: Thomas Zuzik Jr, Railingcodes.com, representing Feeney Inc. - Oakland, CA (https://feeneyinc.com) (coderep@railingcodes.com)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Revise as follows:

TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (in pounds per square foot)

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Habitable attics and attics served with fixed stairs	30	—
Balconies (exterior) and decks[e]	40	—
Fire escapes	40	—
Guards	—	200[h, i]
Guard in-fill components[f, i]	—	50[h], 12[i]
Handrail[d]	—	200[h]
Passenger vehicle garages	50	2,000[a]
Areas other than sleeping areas	40	—
Sleeping areas	30	—
Stairs	40[c]	300[c]

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm^2, 1 pound = 4.45 N.

a. Elevated garage floors shall be capable of supporting the uniformly distributed live load or a 2,000-pound concentrated load applied on an area of 4$^1/_2$ inches by 4$^1/_2$ inches, whichever produces the greater stresses.

b. Uninhabitable attics without storage are those where the clear height between joists and rafters is not more than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.

c. Individual stair treads shall be capable of supporting the uniformly distributed live load or a 300-pound concentrated load applied on an area of 2 inches by 2 inches, whichever produces the greater stresses.

d. A single concentrated load applied in any direction at any point along the top. For a guard not required to serve as a handrail, the load need not be applied to the top element of the guard in a direction parallel to such element.

e. See Section R507.1 for decks attached to exterior walls.

f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.

g. Uninhabitable attics with limited storage are those where the clear height between joists and rafters is 42 inches or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses.

The live load need only be applied to those portions of the joists or truss bottom chords where all of the following conditions are met:

1. The attic area is accessed from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is not less than 30 inches.

2. The slopes of the joists or truss bottom chords are not greater than 2 units vertical in 12 units horizontal.

3. Required insulation depth is less than the joist or truss bottom chord member depth.

The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.

h. Glazing used in handrail assemblies and guards shall be designed with a load adjustment factor of 4. The load adjustment factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

i. Where the top of a guard system is not required to serve as a handrail, the single concentrated load shall be applied at any point along the top, in the vertical downward direction and in the horizontal direction away from the walking surface. Where the top of a guard is also serving as the handrail, a single concentrated load shall be applied in any direction at any point along the top. Concentrated loads shall not be applied concurrently.

j. Guard in-fill components, except the handrail, shall be designed to withstand a horizontally applied concentrated load of 12 pounds (.0534kN) from a sphere passing through the guard where openings greater than 1.25-inches (31.75 mm) exist in a guard's infill. The sphere shall have a diameter equal to the applicable infill opening limitation in Section R321.1.3.

Attached Files

- **ICC Test Rail Pic B.png**
  https://www.cdpaccess.com/proposal/12052/35618/files/download/9300/
- **ICC Test Rail Pic A.png**
  https://www.cdpaccess.com/proposal/12052/35618/files/download/9299/
- **ICC Test Rail Pic C.png**
  https://www.cdpaccess.com/proposal/12052/35618/files/download/9292/
- **ICC Test Rail Pic S.png**
  https://www.cdpaccess.com/proposal/12052/35618/files/download/9291/

Reason: For over 30-years building officials, engineers, designers, contractors, manufacturers and fabricators have been debating whether or not the sphere measurements delineated for guard opening limitations, currently in the 2024 IRC Section R321.1.3 and prior editions, is simply a opening size measurement or is it an opening size measurement combined with a measured force load, citing "openings that allow passage". With a lack of language delineating no force load be applied, then the opposite is to define a specific infill penetration spread load in the model codes to cover this conflict with inspectors who routinely use many different non-codified techniques to determine if a guard meets a requirement that is not in the ICC-IRC model code.
This proposal is based on testing research done by the proponent to correlate a pound-force load on a sphere in relation to ASTM E935-00 "Test Method D - Application of horizontal static load to determine resistance to cone penetration by infill area of picket and panel railing systems", first published by ASTM in the designation: E 935 - 91 "Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings[1]", and then include this corelated cone load to a sphere load as a specific design load for infill spread for the model 2027 IRC. For those of you who are not familiar with this "Test Method" it was developed by the same group who also developed the method for testing the 1sqft area load test, published in one form or another, and first published in the model IRC

since the 2001 supplement (Proposal RB14-01 added by this same proponent), to the current 2024 model IRC in table "R301.5 Guard in-fill component [h]".

The information for this reason statement in the monograph is limited to the very basic's. For those parties interested in more detailed information on this proposal beyond the summary, we are publishing on going information though out the 2025 group "B" process at (https://railingcodes.com/infill/) to provide more up to date information and details, as this proposal progresses through the 2027 code cycle process.

ESTABLISHED ASTM TESTING METHOD HISTORY

The initial publication of ASTM E935 in 1983 included 2 test methods, "Test Method A - Horizontal Static Load Application" and "Test Method B - Vertical Static Load Application". Two additional test methods were then added to E935 in the 1991 publication of ASTM E935-91, which also includes the title changes to Test Methods A and B. In the 1991 publication, Test Method A was renamed "Application of Horizontal Static Load to Top Rail" and Test Method B was renamed "Application of Vertical Static Load to Top Rail", and the first of the 2 new test methods added in 1991 was "Test Method C - Application of Horizontal Static Load to Infill Areas of Picket and Panel Railing Systems", and the second was "Test Method D – Application of Horizontal Static Load to Determine Resistance to Cone Penetration by Infill Area of Baluster and Panel Railing Systems.", Test Method D was specifically developed to be able to test the spread between infill elements in guard systems. ASTM E935-91 cites ASTM E985 "Specifications for Permanent Metal Railing Systems and Rails for Buildings" for the specific loads to be used for each test method in E935.

ASTM E935-00 was Reapproved in 2006 and

- is the latest edition which included the test method for guard infill deflection as; "Test Method D – Application of Horizontal Static Load to Determine Resistance to Cone Penetration by Infill Area of Baluster and Panel Railing Systems".
- E935-00 also cites, as did the 1991 test method, to use
  - E985-00 for the load that will be applied for Test Method D, and
  - in section 7.1.8 "The minimum horizontal test load to be applied by a penetration cone to the infill area of a baluster or panel railing system (see Test Method D of Test Methods E935) shall be 220 N (50 lbf)."

Specifics of importance in ASTM E935-00, in Test Method D

- Test Method D specifies when testing to use a cone that is 1.25% the size of the opening limitation.
  - This translates to using a 5-inch Cone for testing an opening limitation of 4-inches in guard infill.
- The test method specifies that the cone's point be truncated to 1-inch in diameter.
  - For this reason we have limited the load requirement in this proposal to openings that allow a sphere 1.25-inches in diameter to pass through.
  - Openings smaller than the 1.25-inch sphere are exempt from this requirement

The current edition of ASTM E935-21 does not include "Test Method D". E935 was re-written to be more inline with only the sections of the "code" which were being used and removed sections that were never adopted and published as E935-13. The revisions in E935-13 of the Test Method Document outlined the test methods in Section 10 Procedure. Though some may argue that a lack of adoption means that "Test Method D" is not valid, we believe and present the fact that 3 of the 4 test methods first developed over 40 and 30 years ago are still used and that it took 30 years to add the 4th test method to clarify minimum compliance for infill spreading when the building code industry see's the need for the code to clarify the detail.

Identifying openings in Guard Infill most vulnerable to Spreading through Penetration

To simplify this code submittal which will apply to guard infill, the proposal will be focusing on wire cables as they are the most vulnerable and scrutinized type of guard infill for opening spreading/deflection concerns. Furthermore, we are narrowing the monograph reason statement even further to focus on the most vulnerable common wire cable used in the built environment, imported 1/8-inch diameter 1x19 type 316 stainless steel, arguably the most flexible type of infill commonly used in guard systems. Even though this proposal adds the requirement to all types of guard infill, and we are researching and testing different types of guard materials and construction, the ongoing results will be being published on the proponents website for public review. We stipulate for this proposal that the minimum required by code language should be based on the results of the most vulnerable and with wire cable guard infill being the most scrutinized by code officials and is likely the most affected by the addition of this proposed new model code requirement, we focused on finding this infill types pass/fail point for Test Method D of ASTM E935-00.

SAFE INFILL – SAFE CABLE DESIGN LOADS

The tensioning, stiffness and resistance that the guard infill preforms to is directly related to the material, and with wire cable this is directly related to safe cable design loads. Per industry manufacture Loos & Co. Inc., 1/8-inch diameter, 1x19 type 316 stainless steel imported wire cable, lists the minimum break point at 1,780lbf on their website. The cable's minimum break point is applied to the industry-based safety factors for designated Safe Workload and the Maximum Cable Pretension load for Cable Rail Installations. This results in a safe workload limit of 356lbf, based on 20% of the cable's minimum break load and a Maximum Cable Pretension limit of 445lbf which is 25% of the cable's minimum break load.

TRANSLATING THE ASTM E935-00 Test Method D PENETRATION CONE TEST METHOD TO SPHERE CODE

The proponent of this proposal erected a guard section 28 feet long, with cable infill and installed load cells to measure the lbf for each cable's tension that the cone and sphere were pulled between. The wire infill cables were tensioned uniformly until the infill met enough tension so the 50lbf on the cone's load cell sensor was met, (minus the drag load), without exceeding the cables work load maximum limit and pretension load. Once the guard's infill section met the Part D Test Method of E935-00, the proponent changed out the 5-inch cone designated in ASTM E935-00 with a 4-inch sphere. The 4-inch sphere was then pulled logging the tension through to failure while recording the results. Those results produced data which was then used to establish the proposed pound-force load to be applied to the sphere for the requirements listed in the code proposal.

There will be questions for how code officials might be able to verify that the infill will meet the designated new load. To start with, how are code officials inspecting the current loads for guards in IRC R301.5 table? There are more than a few ways this can be done, of which one is manufactures specifications for guard systems. As for guards with cable infill, some cable fitting manufactures already publish charts in their installation instructions for tensioning based on cable construction, size, length, clear span, and centerline vertical spacing. There are a few ways that verifying these parameters are met if the field with simple hand tools. However, this information is different based on more than a few parameters as our research through testing is showing.

The amount of work product, information and documentation for this proposal has been document for public viewing with information, pictures and videos of the results and testing done to correlate the proposed code change on the proponents website at https://railingcodes.com/infill/

Of Note the proponent will begin holding monthly or bi-monthly working sessions, though zoom in the middle of February 2025, to discuss the proposal and the on going research as this proposal progresses through the 2027 code cycle. Those interested in joining in the group meetings can fill out a form on the proponents website.

Bibliography: ASTM Editions:

- ASTM E935-83 Initial edition Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings[1]A
- ASTM E935-91 Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings[1]
- ASTM E935-00ε1 Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings[1]
- ASTM E935-13 Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for buildings[1]
- ASTM E985-91 Standard Specification for Performance of Permanent Metal Railing Systems and Rails for Buildings[1]
- ASTM E985-00 Standard Specification for Performance of Permanent Metal Railing Systems and Rails for Buildings[1]

ICC Evaluation Service:

- ICC ES-AC273 Acceptance Criteria for Handrails and Guards.
  - Originally approved 2004.
  - Last Approved 2017
  - Editorially revised May 2021

ICC 2001 Supplement Monograph

- RB14-01 T.R301.4 (IBC 1607.7.1.2)

Websites:

- Loos & Co. Inc - Stainless Steel Strand, Bare 1x19, Import
  - https://loosco.com/product/cable/stainless-steel-strand-bare-1x19-import/
- Railingcodes.com - Proponent Research & Testing Information
  - https://railingcodes.com/infill/

- Feeney Inc. - Guard system for Testing Provided by
    - https://feeneyinc.com/product/metal/

Cost Impact: Increase

Estimated Immediate Cost Impact:

The estimated cost impact is between $0.00 & $320.00

Estimated Immediate Cost Impact Justification (methodology and variables):

The proponent of this proposal does not believe that there will be a cost increase, let alone any significant increase in cost because we believe that an estimated 98%, if not higher, of the guards being installed today are being built to comply and already meet or exceed the minimum requirements set forth in this code change proposal. However, per ICC requirements if we see any possible increase we need to provide justification of that cost increase in details.

So for those guards that possibly don't meet the minimums proposed, they can do so at minimum cost with minor changes to the design and installation of the guard system.

As stipulated in the proposal's main reason statement the most affected type of guard infill is, imported 1x19 1/8-inch diameter stainless steel cable, and the following examples are based on an installation of the cable infill guard system on an exterior deck 24 feet wide by 15 feet projection of 2 sides, and the other 24 foot side being a building.

The following summaries are supported by the breakdowns that follow after the 2 summary examples.

- WOOD POST GUARD INSTALLATION:
    - The 24ft guard section is divided by 4ft, this equals 6 sections, which then translates to 7 support posts.
      Next if we divide the same 24ft section by 3ft we now have 8 sections, which translates to 9 support posts.
      This is an additional 2 posts at an estimated $80.00 each
    - Then if we look at the 2 sides being 15ft and divide that by 4ft, this equals 4 sections, which translates to 5 support posts
      Next is we divide the same 15ft section by 3ft we now have 5 sections, which translates to 6 support posts per side.
      This is an additional 2 posts at an estimated $80.00 each
    - This example summary produces (4) posts at $80.00 each for a estimated total of $320.00

- WIDE SPAN POST GUARD INSTALLATION:
    - The 24ft section is divided by 5ft, this equals 5 sections, which then translates to 6 support posts.
      Next we add a midspan vertical tension baluster into each of the 5 sections
      This is an additional 5 balusters estimated at $47.49 each
      This minuses 1 post at an estimated $80.00 each
    - Then if we look at the 2 sides being 15ft and divide that by 5ft, this equals 3 sections, which translates to 4 support posts
      Next we add a midspan vertical tension baluster into each of the 3 sections on each side
      This is an additional 6 balusters estimated at $47.49 each
      This minuses 2 posts at an estimated $80.00 each
    - This example summary produces
      (3) less posts at $80.00 each and equals a credit of $240.00
      and adds (11) balusters at $47.49 each and equals a total of $522.39
      This equals $522.39 - $240.00 for an additional estimated cost of $282.39
      The $282.39 is less than the $320.00 estimated cost increase

Cost Reference Supporting Documentation:

- Wood post costs
    - Wood Post Added to Wood Deck Estimated Cost
      Wood post prices pulled from lowes.com at the time of code proposals submittal.
      Severe Weather 4-in x 4-in x 6-ft 2 Southern yellow pine
      Ground contact pressure treated lumber
      Lowe's Item #312530 | Model #Y240406-GC $9.18 each
      Simpson Strong-Tie 2-in x 4-in 14-gauge ZMAX Tension tie
      Lowe's Item #2132165 | Model #DTT2Z $10.88 each
      Deck Plus 1/2-in x 7-in Coated Coarse Thread Hex Bolt
      Lowe's Item #756045 | Model #260735 $4.05 each x (2) = $8.10
      Deck Plus 1/2-in Coated Standard Washer
      Lowe's Item #756041 | Model #260724 $0.49 each x (4) = $1.96

Deck Plus 1/2-in x 13 Coated Steel Hex Nut

Lowe's Item #756033 | Model #260704 $4.05 each x (2) = $0.59

Per post estimated added cost:

Material Estimated at $31.30 plus local sales tax

$25.00 Installation Labor cost

Combined Estimate of $56.30 Each Post

Misc. Contingency labor/materials $23.70

Proposal Budget per post $80.00

- Option for keeping wide metal or wood post spans:
  - Adding Vertical Mid-Span Baluster based on Feeney Inc. Retail Pricing

Feeney 42-in-level baluster $40.00 each

Mounting Hardware estimated at $2.49 each

Labor cost added per baluster for installation $5.00

Estimated $47.49 added for each baluster.

Labor costs will vary depending on the area of the country the work is being done.

Estimated Life Cycle Cost Impact:

We estimate no increase in life cycle cost

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Guards are a fixed building material that requires no change in the cost of the life cycle with this type of requirement.

RB53-25

RB54-25

IRC: TABLE R301.5

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Revise as follows:

TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (in pounds per square foot)

USE	UNIFORM LOAD (psf)	CONCENTRATED LOAD (lb)
Uninhabitable attics without storage[b]	10	—
Uninhabitable attics with limited storage[b, g]	20	—
Habitable attics and attics served with fixed stairs	30	—
Balconies (exterior) and decks[e]	40	—
Fire escapes	40	—
Guards	—	200[h, i]
Guard in-fill components[f]	—	50[h]
Handrail[d]	—	200[h]
Passenger vehicle garages	50	2,000[a]
Areas other than sleeping areas	40	—
Sleeping areas	30	—
Stairs	40[c]	300[c]

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm^2, 1 pound = 4.45 N.

a. Elevated garage floors shall be capable of supporting the uniformly distributed live load or a 2,000-pound concentrated load applied on an area of 4$^1/_2$ inches by 4$^1/_2$ inches, whichever produces the greater stresses.

b. Uninhabitable attics without storage are those where the clear height between joists and rafters is not more than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.

c. Individual stair treads shall be capable of supporting the uniformly distributed live load or a 300-pound concentrated load applied on an area of 2 inches by 2 inches, whichever produces the greater stresses.

d. A single concentrated load applied in any direction at any point along the top. For a guard not required to serve as a handrail, the load need not be applied to the top element of the guard in a direction parallel to such element.

e. See Section R507.1 for decks attached to exterior walls.

f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area not to exceed 12 inches by 12 inches, including openings and spaces between infill components ~~equal to 1 square foot.~~ This load need not be assumed to act concurrently with any other live load requirement.

g. Uninhabitable attics with limited storage are those where the clear height between joists and rafters is 42 inches or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses.

   The live load need only be applied to those portions of the joists or truss bottom chords where all of the following conditions are met:

   1. The attic area is accessed from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is not less than 30 inches.

   2. The slopes of the joists or truss bottom chords are not greater than 2 units vertical in 12 units horizontal.

   3. Required insulation depth is less than the joist or truss bottom chord member depth.

   The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.

h. Glazing used in handrail assemblies and guards shall be designed with a load adjustment factor of 4. The load adjustment factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

i. Where the top of a guard system is not required to serve as a handrail, the single concentrated load shall be applied at any point along the top, in the vertical downward direction and in the horizontal direction away from the walking surface. Where the top of a guard is also serving as the handrail, a single concentrated load shall be applied in any direction at any point along the top. Concentrated loads shall not be applied concurrently.

Reason: Between the 2005 and 2010 edition of ASCE 7, loading for infill of guards changed from "one square foot" to "12 inches by 12 inches". This was a critical change to better describe the intent of the application of this load. Since the 2012 edition, the IBC has referenced ASCE 7 for guard infill design loads. The goal of this proposal is to align the IRC with the IBC and ASCE 7 for how infill loads are to be applied for evaluation.

This is important, because "one square foot" could be any shape. It would allow the load to be placed on a single baluster in the shape of 24 inches tall and 6 inches wide, and makes the IRC more restrictive in guard design than is permitted under the IBC . I do not believe that is the intent, as revealed in the ASCE 7.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change "could" lower the cost of construction if builders are currently required to make a single baluster strong enough to resist the entire load. This cost savings is not worth justifying. The motivation to this change is to make the words match the most likely application being interpreted.

RB54-25

RB55-25

IRC: TABLE R301.7, ASTM Chapter 44 (New)

Proponents: Quyen Thai, representing City of Tacoma (qthai@cityoftacoma.org)

2024 International Residential Code

SECTION R301
DESIGN CRITERIA

Revise as follows:

TABLE R301.7 ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS[b, c]

STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
Rafters having slopes greater than 3:12 with finished ceiling not attached to rafters	*L*/180
Interior walls and partitions	*H*/180
Floors	*L*/360
Ceilings with brittle finishes (including plaster and stucco)	*L*/360
Ceilings with flexible finishes (including gypsum board)	*L*/240
All other structural members[f] ~~, excluding guards and handrails~~	*L*/240
Exterior walls—wind loads[a] with plaster or stucco finish	*H*/360
Exterior walls—wind loads[a] with other brittle finishes	*H*/240
Exterior walls—wind loads[a] with flexible finishes	*H*/120[d]
Lintels supporting masonry veneer walls[e]	*L*/600

Note: *L* = span length, *H* = span height.

a. For the purpose of the determining deflection limits herein, the wind load shall be permitted to be taken as 0.7 times the component and cladding (ASD) loads obtained from Table R301.2.1(1).

b. For cantilever members, *L* shall be taken as twice the length of the cantilever.

c. For aluminum structural members or panels used in roofs or walls of sunroom *additions* or patio covers, not supporting edge of glass or sandwich panels, the total load deflection shall not exceed *L*/60. For continuous aluminum structural members supporting edge of glass, the total load deflection shall not exceed *L*/175 for each glass lite or *L*/60 for the entire length of the member, whichever is more stringent. For sandwich panels used in roofs or walls of sunroom *additions* or patio covers, the total load deflection shall not exceed *L*/120.

d. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of *H*/180.

e. Refer to Section R703.8.2. The *dead load* of supported materials shall be included when calculating the deflection of these members.

f. Guards, regardless of material, shall comply wiht the deflection criteria in ASTM E985.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

E985-00e1	Standard Specification for Permanent Metal Railing Systems and Rails for Buildings

Reason: This proposal introduces a deflection limit for guards that is compatible with current testing standards.

In the proposal last cycle that eliminated the deflection requirement for guards and handrails (RB44-22), the proponent indicated that requiring a guard to meet the L/240 was not feasible, as many current guards would not meet that requirement. However, under the current, code, there is no limit. We believe that it is critical that guards be restrained from deflecting more than a certain expected limit.

ICC Acceptance Criteria AC 273 for wood and metal guards points to ASTM E935.   ASTM E935 limits the deflection to the lesser of:

H/24 + L/96, or

H/12

Where:

H = guard height (inches)

L = tributary length of guard top rail (inches)

For a 3-foot high guard with posts at 4 feet on center, a post would be allowed to deflect 2 inches:

H/24 + L/96 = 36/24 + 48/96 = 2 inches

H/12 = 36/12 = 3 inches

If the L/240 limit were applied (noting that Footnote b says to use twice the length of the cantilever), the allowable deflection would be 36/240 = 0.15 inches.

In most cases, sizing the members to comply with the structural requirements (shear and bending moment) will govern, and deflection will not be an issue. However, even though 2 inches is still a relatively large deflection for such a short post, we believe that the ASTM standard will provide a reasonable limit.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

By nature, this is more or less editorial since the requirement was removed but expectations are still there to ensure guard rails are strong enough to withstand loads. Majority of existing guard rail systems should already meet/comply with this proposal and would not be impacted compared to if the prior versions of the deflection load was required at L/240, then majority of guard rails would need to be reevaluated and modified to strengthen the guards and would therefore be an increase in cost. But, since this code proposal is more in line with what is existing, there should be no increase nor decrease in cost.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ASTM E985-00e1   Standard Specification for Permanent Metal Railing Systems and Rails for Buildings

RB55-25

RB56-25

IRC: R302.1, TABLE R302.1(1), TABLE R302.1(2)

Proponents: Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Gregory Benton, NYS, representing Department of State, Division of Building Standards and Codes (gregory.benton@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.1 Exterior ~~walls~~ fire separation distance. Construction, projections, openings and penetrations of exterior walls~~of, *dwellings,* *townhouses*~~, *and* horizontal combustible assemblies ~~and accessory buildings~~ shall comply with Table R302.1(1) based on *fire separation distance*; or *dwellings* and *townhouses* equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2) based on *fire separation distance.*

For the purposes of determining *fire separation distance*, *dwellings* and *townhouses* on the same *lot* shall be assumed to have an imaginary line between them. Where a new *dwelling* or *townhouse* is to be erected on the same lot as an existing *dwelling* or *townhouse*, the location of the assumed imaginary line with relation to the existing *dwelling* or *townhouse* shall be such that the existing *dwelling* or *townhouse* meets requirements of this section.

Where a *lot line* exists between adjacent *townhouse units*, *fire separation distance* of exterior walls shall be measured to the *lot line*. Where a lot line does not exist between adjacent *townhouse units*, an imaginary line shall be assumed between the adjacent *townhouse units* and *fire separation distance* of exterior walls shall be measured to the imaginary line. *Fire separation distance* and requirements of Section R302.1 shall not apply to walls separating *townhouse units* that are required by Section R302.2.

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls of *individual dwelling units* and their *accessory* buildings located on the same *lot*.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from *permits* are not required to provide wall protection based on location on the *lot*. Projections beyond the exterior wall shall not extend over the *lot line*.
4. ~~4~~. Detached garages accessory to a *dwelling unit* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.

TABLE R302.1(1) EXTERIOR HORIZONTAL ASSEMBLIES AND WALLS

EXTERIOR ~~WALL~~ ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the International Building Code with exposure from both sides	0 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Projections and horizontal assemblies	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood[a, b]	≥ 2 feet to < 5 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
	Not allowed	NA	< 3 feet

EXTERIOR ~~WALL~~ ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Openings in walls	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where vent openings that communicate with the attic are not installed in the overhang or gable wall.

TABLE R302.1(2) EXTERIOR HORIZONTAL ASSEMBLIES AND WALLS—DWELLINGS AND TOWNHOUSES WITH AN AUTOMATIC SPRINKLER SYSTEM

EXTERIOR ~~WALL~~ ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the International Building Code with exposure from the outside	0 feet
	Not fire-resistance rated	0 hours	3 feet[a]
Projections and horizontal assemblies	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood[b, c]	2 feet[a]
	Not fire-resistance rated	0 hours	3 feet
Openings in walls	Not allowed	NA	< 3 feet
	Unlimited	0 hours	3 feet[a]
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet[a]

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

a. For residential subdivisions where all dwellings and townhouses are equipped throughout with an automatic sprinkler system installed in accordance with Section P2904, the fire separation distance for exterior walls not fire-resistance rated and for fire-resistance-rated projections and horizontal assemblies shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

c. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where vent openings that communicate with the attic are not installed in the overhang or gable wall.

Reason: According to Exception #2 in Section R302.1 of the 2024 IRC, neither fire separation nor fire-resistance is required between accessory buildings or between them and their dwelling units. That section also allows combustible carports, decks, pavilions, gazebos, and other buildings that lack certain exterior walls to have no fire-resistance and zero fire separation distance to other structures on the same lot and to the lot's boundaries.

Consequently:

Regardless of their size, those accessory structures can be placed anywhere on the dwelling's lot without any of the fire separation considerations that are required for exterior walls. They can have zero-clearance to other buildings. They can even join fire-separated buildings without jeopardizing compliance to the IRC.

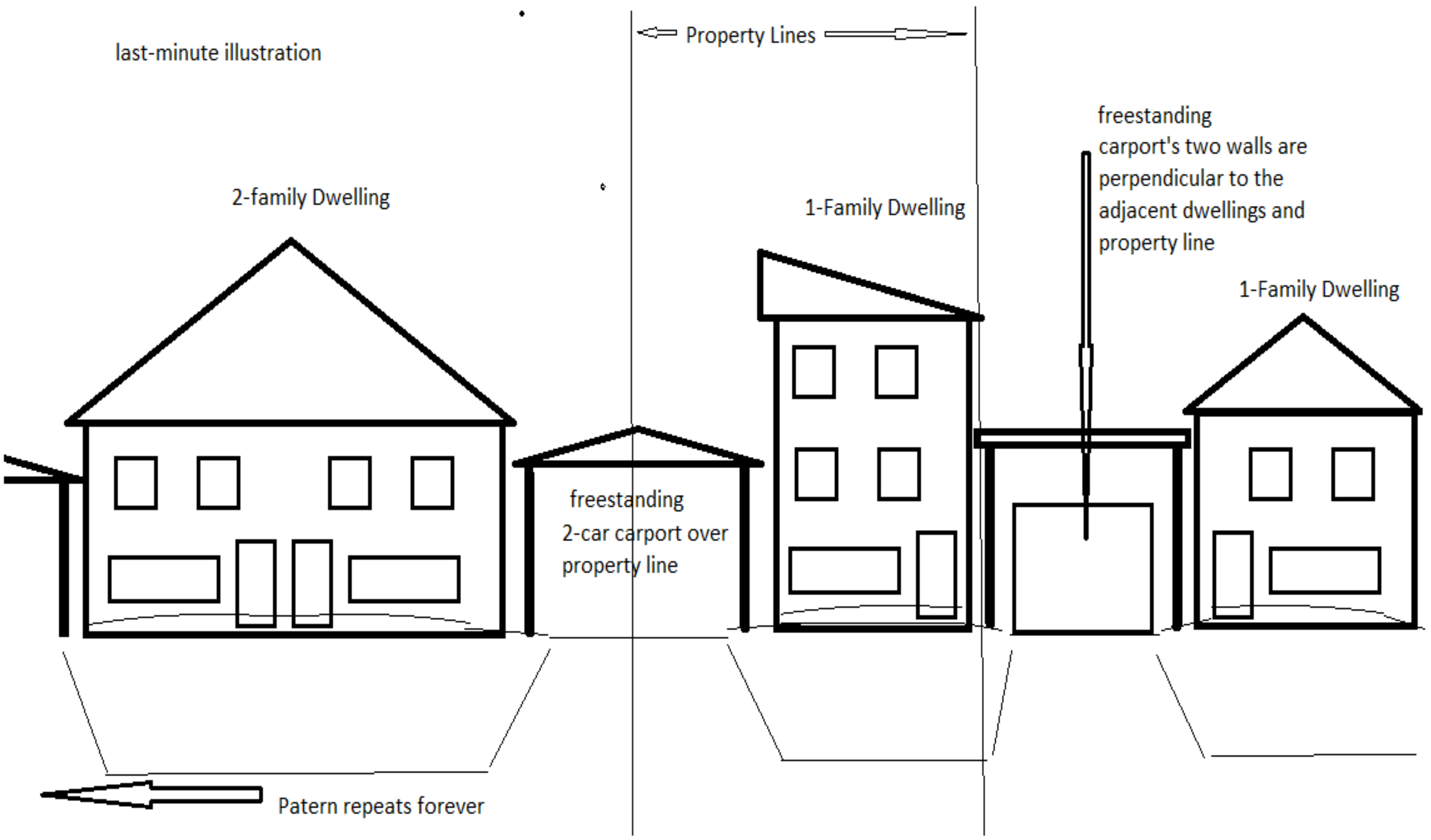
For example, a freestanding open combustible accessory structure, which is its own separate "building", can effectively connect a detached garage to a dwelling without causing the garage to lose its detached status. That's a consequence of no fire separation and no fire-resistance being required between accessory structures and between them and their dwellings. Note that the provisions in Sections R302.5, R302.6, and R311.2.1 of the 2024 IRC only apply to dwelling units and garages that are in the same "building".

Furthermore, carports can include up to two exterior walls according to Section R317.2 of the IRC. If those walls are perpendicular to the walls of adjacent buildings and the carports are freestanding, then Section R302.1 currently allows those carport walls to abut the adjacent buildings without any fire-resistance. Carports that are placed that way between two buildings can effectively become garages that doesn't lose their status as carports.

The hazard being presented is substantial. To understand why, consider a freestanding hallway. It can currently be placed between a detached garage and a dwelling without fire separation or any fire-resistance between it and either of them if its open on two ends and the walls on its other sides are perpendicular to the exterior walls of both the garage and the dwelling. That 'detached' hallway can direct a fire from the garage's door to the dwelling's door through its open ends. An open-ended attic over the freestanding hallway could do worse by providing a direct path for fire from the detached garage's ventilated attic to the dwelling's ventilated attic despite them technically being separate buildings.

That hazard is compounded by the number of buildings that can be joined together in this manner. The 2024 IRC allows accessory non-fire-resistant open structures to abut the walls of other buildings or even cross property lines without any fire separation or fire-resistance. They can do that even when they have exterior walls, although those walls must be perpendicular to the adjacent building or property line. Fire is able to burn its way unimpeded from accessory building to dwelling to accessory building to the next dwelling, and from property to property to include an unlimited number of dwellings that are daisy-chained together in this manner.

This proposal solves that problem by applying the fire separation that is being required for an exterior wall's projections to apply also to the ceilings, roofs, and decks of accessory structures. It prevents the lack the exterior walls that face adjacent structures or property lines from enabling a potentially substantial fire hazard. Basically, this proposal causes combustible horizontal assemblies such as carports, gazebos, pavilions, and decks to be equivalent to an exterior wall's projections for the purposes of determining fire separation distances around accessory structures.



Cost Impact: Increase

Estimated Immediate Cost Impact:

The proposed change requires horizontal assemblies, such as walls in partially enclosed carports, to have at most 1-hour fire resistance depending on separation distance. For light-frame wood construction, a 1-hour fire rating on the exterior side of the wall is often by installing a layer of fire-resistant gypsum paneling over combustible sheathing.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost of 1-hour fire resistant gypsum paneling (5/8" Type X) is approximately $0.35 to $0.45 per square foot (1). The cost of ½" gypsum paneling is approximately $0.30 to $0.37" per square foot (2). Assuming a 1-car carport with a size of 20'x10'x8' (length x width x height), with two framed and sheathed walls, the materials cost increase for a 1-hour fire resistance rating on both walls would be determined as follows (using average costs):

Square footage of walls: 2x (20' x 8') = 320 sqft. (assuming long walls are the ones sheathed)

Cost increase for interior FRT drywall: ($0.40 – $0.34) x 320 sqft = $19

Cost for exterior FRT drywall: $0.40 x 320 sqft = $144

Total materials cost: $144 + $48 = $147

Assuming 50% additional cost for taping/sealant/etc, the new total materials cost is $221.

Labor costs for installing drywall vary between $1.30 to $2.02 per square foot for typical installations but can be as high as $3.90 to $5.15

per square foot for complex jobs (such as fire rated assemblies) (3). For the same carport as above, the labor cost increase would be determined as follows (using average costs):

Cost increase for interior FRT drywall: ($4.53 - $1.66) x 320 sqft. = $918

Cost for exterior FRT drywall: $4.53 x 320 sqft. = $1,450

Total labor cost increase = $2,368

Total cost increase: $2,589Sources:

https://realestimateservice.com/blog/cost-of-fire-rated-wall/

https://drywallpriceguide.com/drywall-prices-by-type/

https://drywallpriceguide.com/drywall-installation-prices-and-costs/

RB56-25

RB57-25

IRC: R302.1

Proponents: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of *dwellings, townhouses* and accessory buildings shall comply with Table R302.1(1) based on *fire separation distance*; or *dwellings* and *townhouses* equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2) based on *fire separation distance* . The maximum area of unprotected and protected openings permitted in an exterior wall in any story of *dwellings, townhouses* and accessory buildings shall not exceed the percentages specified in Table R302.1(1) or Table R302.1(2) based on the fire separation distance of each individual story.

For the purposes of determining *fire separation distance*, *dwellings* and *townhouses* on the same *lot* shall be assumed to have an imaginary line between them. Where a new *dwelling* or *townhouse* is to be erected on the same lot as an existing *dwelling* or *townhouse*, the location of the assumed imaginary line with relation to the existing *dwelling* or *townhouse* shall be such that the existing *dwelling* or *townhouse* meets requirements of this section.

Where a *lot line* exists between adjacent *townhouse units*, *fire separation distance* of exterior walls shall be measured to the *lot line*. Where a lot line does not exist between adjacent *townhouse units*, an imaginary line shall be assumed between the adjacent *townhouse units* and *fire separation distance* of exterior walls shall be measured to the imaginary line. *Fire separation distance* and requirements of Section R302.1 shall not apply to walls separating *townhouse units* that are required by Section R302.2.

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls of *individual dwelling units* and their *accessory* buildings located on the same *lot*.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from *permits* are not required to provide wall protection based on location on the *lot*. Projections beyond the exterior wall shall not extend over the *lot line*.
4. Detached garages accessory to a *dwelling unit* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.

Attached Files

- **RB49-22 ext wall openigns.pdf**
  https://www.cdpaccess.com/proposal/11075/35262/files/download/8938/
- **FS17-14 FSD per story.pdf**
  https://www.cdpaccess.com/proposal/11075/35262/files/download/8937/

Reason: The proposed code change addresses a significant omission in the IRC in that where the area of exterior openings is restricted based on fire separation distance the IRC does not identify the method of measurement and as a consequence uniform and consistent code application is not possible since IRC users also enforce the IBC. The IRC does not define wall, and it is generally assumed to be defined based on origination and termination points from a foundation or floor up to the underside of a floor or roof above.

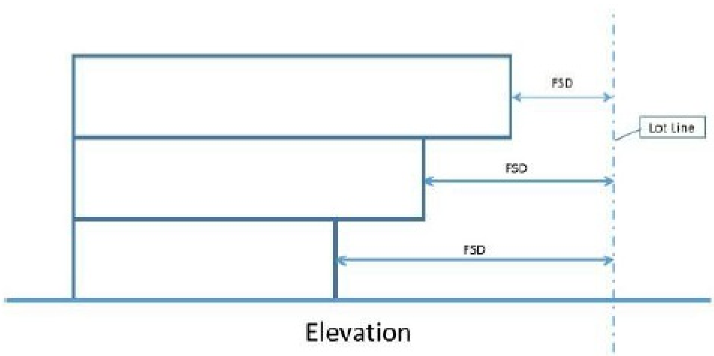
This code change proposes that the wall area used to determine exterior wall opening limitations due to fire separation distance FSD be based on the wall area per story. Presently code users either apply the area limitation based on the entire are of a 3-story wall or per story. Both code applications are accurate since the IRC is silent regarding the method of measurement. Additionally, the IRC penalizes buildings within its scope from enjoying the same benefits in the IBC the eliminate the haggle that the opening created when an upper floor is larger than the floor below needs to be evaluated based on its degree of openness.

While the IBC and IRC are separate codes, building standards in the IBC for Group U and R-3 have generally been harmonized with the IRC and vice versa.

- Fire separation distance requirements are the same
- Fire sprinkler requirements are the same
- The fire load assumed in an R-3 are assumed to be the same in a dwelling regulated by the IRC per NFPA 13-D.
- An R-3 under the IBC and a dwelling under the IRC are allowed to be of VB non-rated construction when 3 stories in height or less and there are no limitations on area.

The proposed code change extends the benefits granted in the IBC pursuant to the IRC based on the rationale in code change FS17-14, submitted by the Colorado Chapter of ICC, that was approved by the Fire Safety Committee where inverted wedding cake building configurations were recognized. This configuration

whereby upper stories can be larger than lower stories happen frequently on IRC projects and this code change allows an evaluation per story.



Furthermore, this code change seeks to improve the IRC to address an anomaly that would allow for an unsafe condition Without this code change the entire exterior wall surfaces for a three-story high exterior wall can be used to allow a very large first story exterior wall opening that will significantly expose an adjacent structure. Figures A and B in the attachment shows what is allowed in the IRC for a building with an FSD less than 5 feet.

Testimony by the City/County of Dever during the 2024 cycle stated that the IRC is different than the IBC since it limits building to a height of 3 stories. Fire behavior is not different for a structure regulated under the IBC or IRC where building size is not limited and building heights above 3 stories require additional protection in the IBC. In fact, buildings constructed under the IRC are the least protected from a fire safety point of view and fire separation rules limit fire spread to and from them.The National Institute for Standards and Technology complete actual scale fire testing to validate the appropriate fire separation distance between structures and demonstrated that when building is located closer than 10 ft from another with opposing openings that ignition of exterior wall finishes occurs and fire spreads from building to building. The testing showed the impacts of structure to structure and lower structure to a taller structure and summarized the testing. While the focus is WUI hazards the testing demonstrated fire transmission issues structure to structure.

Recent wildfire in southern California while wind driven and caused by ember attacks. also demonstrated how combustible unprotected that is not suppressed during a fire event gets involved and spreads fire to adjoining buildings. Gypsum wall board not installed for fire resistance fails and detaches from framing sooner than the hourly rating of the sheathing material which makes this building type vulnerable to fire spread. The opening percentage rules in both the IBC and IRC limit transmission of fire through radiation and transmission due to flame impingement and was validated in the NIST study that at 10 ft there is a dramatic reduction of hazard. It is therefore important to limit the size of exterior wall openings as intended by the code table in the IRC which does not envision a 10 ft by 10 ft exterior wall opening on the first story of a 3-story dwelling located at a FSD of 3 ft.   We request that the committee approve the code change as submitted.

Figure A

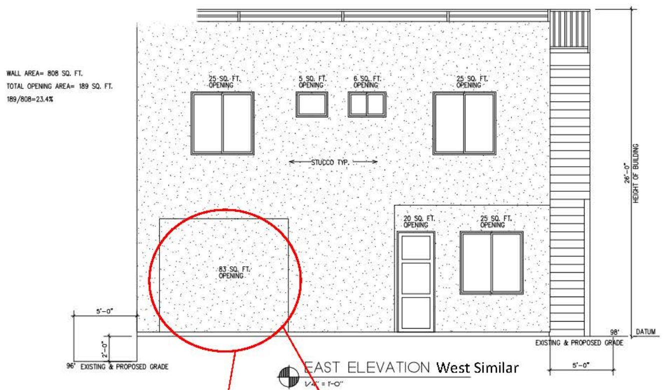
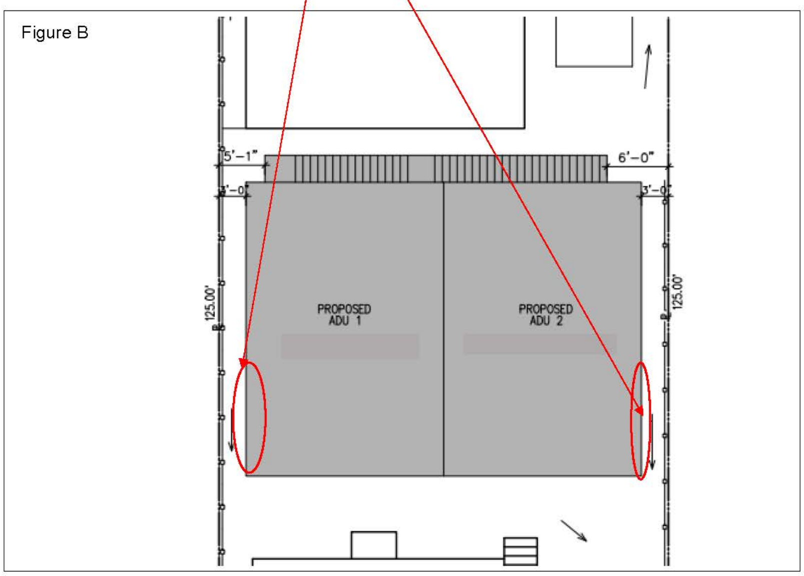


Figure B



2024 International Building Code

705.9.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a *building* shall not exceed the percentages specified in Table 705.9 based on the *fire separation distance* of each individual *story*.

Exceptions:

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first *story above grade plane* where th one of the following:
   1.1. A street and has a *fire separation distance* of more than 15 feet (4572 mm).
   1.2. An unoccupied space. The unoccupied space shall be on the same *lot* or dedicated for public use, shall be not less than 3 mm) in width and shall have access from a street by a posted *fire lane* in accordance with the *International Fire Code* .
2. *Buildings* whose exterior bearing walls, exterior nonbearing walls and exterior *primary structural frame* are not required to be fi rated shall be permitted to have unlimited unprotected openings.

Bibliography: Structure Separation Experiments | NIST

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This code change may have the impact of limiting unusual design or construction however it will also permit buildings with larger stories located above smaller stories not to include exterior wall opening imitations beneath the larger story outer most edge.

Some code enforcers consider attached porches to be projections from exterior walls and some consider them the face of the attached accessory structure to be the wall face and considered the space between posts and beams to be exterior wall openings. An attempt to resolve the issue of windowless buildings and those without exterior walls failed during the development of the 2018 IBC and this issue is not a subject of the code change and therefore the cost impact is not being evaluated.

Estimated Immediate Cost Impact Justification (methodology and variables):

Estimated Immediate Cost Impact Justification (methodology and variables):

The requirement may require a change in layout but does not require additional construction materials. When measuring the area of exterior walls per story the code change can have the effect of reducing the number of windows per story.

Based on a valuation schedule developed on behalf of the City and County of San Francisco the cost of an exterior wall is approximately $30 to $40 per square ft and the cost of a window is $85 per square foot ft. So, while the cost of construction may be reduced as a result of the code change the reduction in the ability to include more exterior wall openings cannot be quantified.

RB57-25

RB58-25

IRC: R302.1

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of *dwellings, townhouses* and accessory buildings shall comply with Table R302.1(1) based on *fire separation distance* ; or *dwellings* and *townhouses* equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2) based on *fire separation distance*.

For the purposes of determining *fire separation distance*, *dwellings* ~~and *townhouses*~~ on the same *lot* shall be assumed to have an imaginary line between them. Where a new *dwelling* ~~or *townhouse*~~ is to be erected on the same lot as an existing *dwelling* ~~or *townhouse*~~, the location of the assumed imaginary line with relation to the existing *dwelling* ~~or *townhouse*~~ shall be such that the existing *dwelling* ~~or *townhouse*~~ meets requirements of this section.

Where a *lot line* exists between adjacent *townhouse units*, *fire separation distance* of exterior walls shall be measured to the *lot line*. ~~Where a lot line does not exist between adjacent *townhouse units*, an imaginary line shall be assumed between the adjacent *townhouse units* and *fire separation distance* of exterior walls shall be measured to the imaginary line.~~ *Fire separation distance* and requirements of Section R302.1 shall not apply to walls separating *townhouse units* that are required by Section R302.2.

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls of *individual dwelling units* and their *accessory* buildings located on the same *lot*.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from *permits* are not required to provide wall protection based on location on the *lot*. Projections beyond the exterior wall shall not extend over the *lot line*.
4. Detached garages accessory to a *dwelling unit* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.

Reason: The definition for "Townhouse" states in part three or more dwelling units.

The scope of the IRC code book allows 2 dwelling units *per lot*.

The scope of the IRC code book is for Building Classification R-3.

The IBC Building Classification (sections 310.3 and 310.4) makes no mention of the residential type "Townhouse".

If there are townhouses, the townhouse must have metes and bounds for each townhouse dwelling unit to be able to reference the IRC.

"Where a lot line does not exist…" is out of scope to the IRC for townhouses and shall be removed or rephrased to reference the IBC for townhouses that are located on a single tract of land (building classification R-2).

Is there an exception? Is it possible to have 2 townhouse dwelling units on one tract of land as defined by metes and bounds and up to 2 townhouse dwelling units on the abutting tract of land where all dwellings are connected as one building?

If the scenario in the previous paragraph is allowed, then there will be a 1-hour separation between the "duplexes" and 2-hour separation along the lot line – where all dwellings are not equipped with a sprinkler system. This 4-dwelling unit building will be able to follow the IRC. Is this your intention? See Exhibit 1.

This is another reason to rename the title of this IRC code book to include the phrase “ON A SINGLE LOT” or “ON A SINGLE TRACT OF LAND”.

Confusion and misinterpretations will be eliminated.

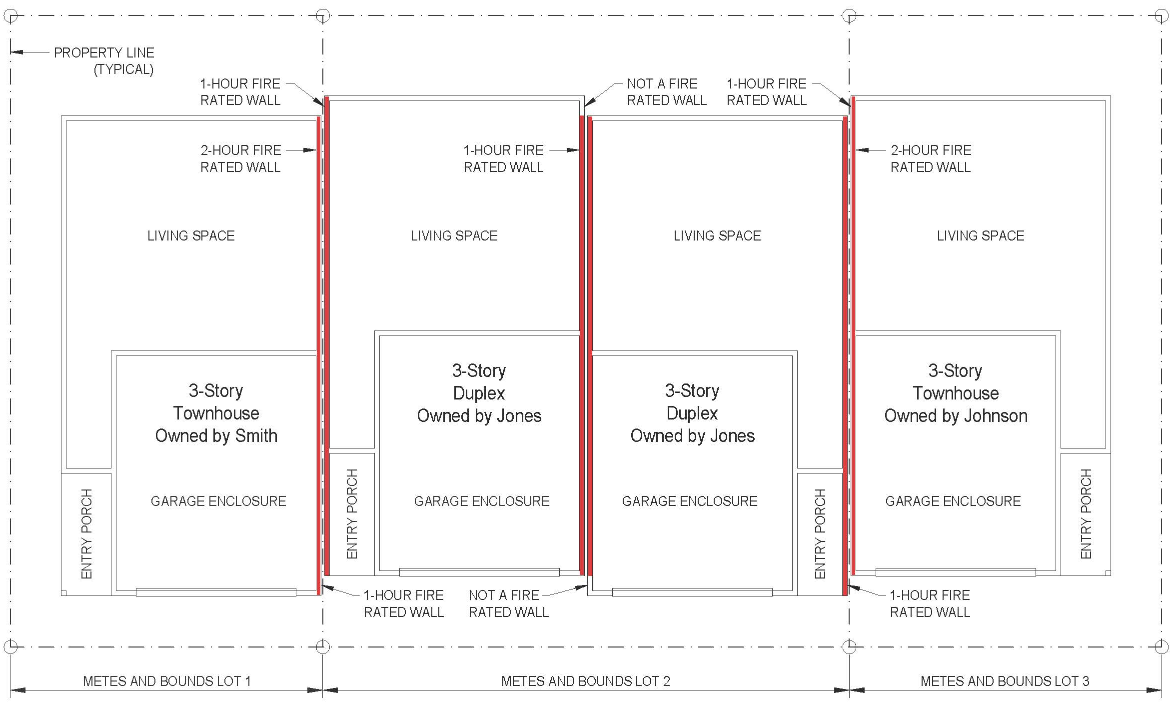


Exhibit 1: Building can be permitted as IRC without a sprinkler system

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification item only. See reason.

Staff Analysis: Code changes to the IBC are G43-25 and G44-25.

RB58-25

RB59-25

IRC: R302.1, R302.1.1 (New), R302.1.2 (New)

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com); Kota Wharton, representing Self (kwharton@grovecityohio.gov)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of *dwellings, townhouses* and accessory buildings shall comply with Table R302.1(1) based on *fire separation distance* ; or *dwellings* and *townhouses* equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2) based on *fire separation distance* .

~~For the purposes of determining *fire separation distance*, *dwellings* and *townhouses* on the same *lot* shall be assumed to have an imaginary line between them. Where a new *dwelling* or *townhouse* is to be erected on the same lot as an existing *dwelling* or *townhouse*, the location of the assumed imaginary line with relation to the existing *dwelling* or *townhouse* shall be such that the existing *dwelling* or *townhouse* meets requirements of this section.~~

~~Where a *lot line* exists between adjacent *townhouse units*, *fire separation distance* of exterior walls shall be measured to the *lot line*. Where a lot line does not exist between adjacent *townhouse units*, an imaginary line shall be assumed between the adjacent *townhouse units* and *fire separation distance* of exterior walls shall be measured to the imaginary line. *Fire separation distance* and requirements of Section R302.1 shall not apply to walls separating *townhouse units* that are required by Section R302.2.~~

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls of *individual dwelling units* and their *accessory* buildings located on the same *lot*.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from *permits* are not required to provide wall protection based on location on the *lot*. Projections beyond the exterior wall shall not extend over the *lot line*.
4. Detached garages accessory to a *dwelling unit* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.

Add new text as follows:

R302.1.1 Fire separation distance for dwellings and townhouses on the same lot. For the purposes of determining *fire separation distance*, *dwellings* and *townhouses* on the same *lot* shall be assumed to have an imaginary line between them. Where a new *dwelling* or *townhouse* is to be erected on the same lot as an existing *dwelling* or *townhouse*, the location of the assumed imaginary line with relation to the existing *dwelling* or *townhouse* shall be such that the existing *dwelling* or *townhouse* meets requirements of this section.

R302.1.2 Fire separtions distance for townhouse units. Where a *lot line* exists between adjacent *townhouse units*, *fire separation distance* of exterior walls shall be measured to the *lot line*. Where a lot line does not exist between adjacent *townhouse units*, an imaginary line shall be assumed between the adjacent *townhouse units* and *fire separation distance* of exterior walls shall be measured to the imaginary line. *Fire separation distance* and requirements of Section R302.1 shall not apply to walls separating *townhouse units* that are required by Section R302.2.

Reason: There is no changes to the text in the requirements. However, with the three different mearurements grouped in one section - this is very confusing.

1) fire seperation for exterior walls to a proporty line,

2) fire seperation between multiple homes or townhouses on a lot, and

3) fire seperation for individual townhouse units all grouped into one secton.

This just splits the section into three parts for clarity.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is just seperation of requirements.

RB59-25

RB60-25

IRC: TABLE R302.1(1), TABLE R302.1(2)

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

TABLE R302.1(1) EXTERIOR WALLS

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the International Building Code with exposure from both sides	0 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood[a, b], or noncombustible fiber-cement[a,b]	≥ 2 feet to < 5 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Openings in walls	Not allowed	NA	< 3 feet
	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet

For SI: 1 foot = 304.8 mm.
NA = Not Applicable.

a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where vent openings that communicate with the attic are not installed in the overhang or gable wall.

TABLE R302.1(2) EXTERIOR WALLS—DWELLINGS AND TOWNHOUSES WITH AN AUTOMATIC SPRINKLER SYSTEM

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the International Building Code with exposure from the outside	0 feet
	Not fire-resistance rated	0 hours	3 feet[a]
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood[b, c], or noncombustible fiber-cement[b, c]	2 feet[a]
	Not fire-resistance rated	0 hours	3 feet
Openings in walls	Not allowed	NA	< 3 feet
	Unlimited	0 hours	3 feet[a]
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet[a]

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

a. For residential subdivisions where all dwellings and townhouses are equipped throughout with an automatic sprinkler system installed in accordance with Section P2904, the fire separation distance for exterior walls not fire-resistance rated and for fire-resistance-rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

c. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where vent openings that communicate with the attic are not installed in the overhang or gable wall.

Reason: Just as with *fire-retardant-treated wood,* a material which by IRC definition exhibits reduced surface burning characteristics and resists propagation of fire; (1) where fireblocking is provided and (2) vent openings that communicate with the attic are not installed in the overhang or gable wall; materials which resist propagation of fire satisfy the intent of these tables. Fiber-cement products are required to have a flame-spread index of zero, per ASTM standards referenced within this code. Further outlining that fiber-cement shall also be noncombustible, ensures equal-to-or-greater performance to existing solutions while offering more choices and material availability to users.

an example of this ASTM mandatory supplementary requirement can be seen below, taken from ASTM C1186:

S6. *Surface Burning Characteristics*—Fiber cement sheets of ¼ in. (6 mm) shall have a reported flame spread index of 0 and a smoke developed index of not more than 5, when tested in accordance with Test Method E84. Sheets of thickness greater than ¼ in. (6 mm) shall meet this specification or shall be formed at ¼ in. (6 mm) thickness with the same formulation for test purposes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Pricing of various solutions will vary by region and materials availability. this proposal does not mandate use of additional materials, just offers additional options for builders.

RB60-25

RB61-25

IRC: TABLE R302.1(1), TABLE R302.1(2)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

SECTION R302 FIRE-RESISTANT CONSTRUCTION

Revise as follows:

TABLE R302.1(1) EXTERIOR WALLS

Portions of table not shown remain unchanged.

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code* with exposure from both sides	0 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Unprotected openings ~~Openings~~ in walls	Not allowed	NA	< 3 feet
	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Protected openings in walls[c]	10% maximum of wall area	3/4 hour- tested in accordance with ASTM E119 or UL 263[c]	< 3 feet
	Unlimited	0 hours	3 feet

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where vent openings that communicate with the attic are not installed in the overhang or gable wall.

c. Protected openings shall be installed in accordance with NFPA 80. Products shall be labeled with a fire-rated glazing marking of OH-45 or W60. There shall be a minimum fire separation distance of 3 feet (914.4 mm) between the protected opening and any structure on the abutting property. Where it is unknown that a structure on the abutting property will be built closer than 3 feet (914.4 mm), wall openings are prohibited.

TABLE R302.1(2) EXTERIOR WALLS—DWELLINGS AND TOWNHOUSES WITH AN AUTOMATIC SPRINKLER SYSTEM

Portions of table not shown remain unchanged.

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Unprotected openings ~~Openings~~ in walls	Not allowed	NA	< 3 feet
	Unlimited	0 hours	3 feet[a]
Protected openings in walls	Unlimited	3/4 hour- tested in accordance with ASTM E119 or UL 263[d]	< 3 feet
	Unlimited	0 hours	3 feet[a]

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

a. For residential subdivisions where all dwellings and townhouses are equipped throughout with an automatic sprinkler system installed in accordance with Section P2904, the fire separation distance for exterior walls not fire-resistance rated and for fire-resistance-rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

c. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where vent openings that communicate with the attic are not installed in the overhang or gable wall.

<u>d. Protected openings shall be installed in accordance with NFPA 80. Products shall be labeled with a fire-rated glazing marking of OH-45 or W60. There shall be a minimum fire separation distance of 3 feet (914.4 mm) between the protected opening and any structure on the abutting property. Where it is unknown that a structure on the abutting property will be built closer than 3 feet (914.4 mm), wall openings are prohibited.</u>

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

<u>80-22</u> <u>Standard for Fire Doors and Other Opening Protectives</u>

Reason: This proposal takes advantage of building materials that were not available at the time Table R302.1(1) and Table R302.1(2) was written. This will also align with the wording found in Table 705.9 of the IBC.

Request:

If this proposal is not approved, consider revising the table rows to include the phrases "Unprotected" and "Protected" as line items to the wall opening section of the table for future consideration.

"Garden Homes"

Garden homes are allowed to have a non-fire-resistive wall at the (side) property line provided there is a 10-foot setback on the abutting property. This wall shall not have any openings and penetrations. The wording shown in footnote "d" is adapted from footnote "a" of Table R302.1(2).

Background:

We have in the past used fire-rated glass block in exterior walls that are closer than 3 feet to a property line. The abutting property will typically have the building face 3 feet or greater from this property line due to the required egress path from the back yard to the front (non-townhouse projects). Where building faces have a separation distance of less than 3 feet, we advise our clients that glass block is not permitted on the subject exterior wall. The popularity of employing glass block has decreased over the years due to inherent leaking and our clients know this, but few are still requesting the glass block for natural lighting. However, the turnover jurisdiction officials will no longer allow this and other types of "protected" opening for walls that are facing to and less than 3 feet (914.4 mm) to a property line.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No discernible difference in cost. This is more of an aesthetic item by providing comfort to the occupants of the dwelling by use of natural lighting that would otherwise be nonexistent.

Staff Analysis: NFPA 80 is currently referenced in the IBC, IFC, IMC and IPMC.

RB61-25

RB62-25

IRC: R302.1.1 (New), FIGURE R302.1.1 (New)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Add new text as follows:

R302.1.1 **Zero lot line separation.** Where perpetual, platting, and recorded easements create a non-buildable minimum fire separation distance of at least 6 feet between structures on adjacent properties, the one-hour fire-resistive ratings shall not apply as illustrated in Figure R302.1.1.

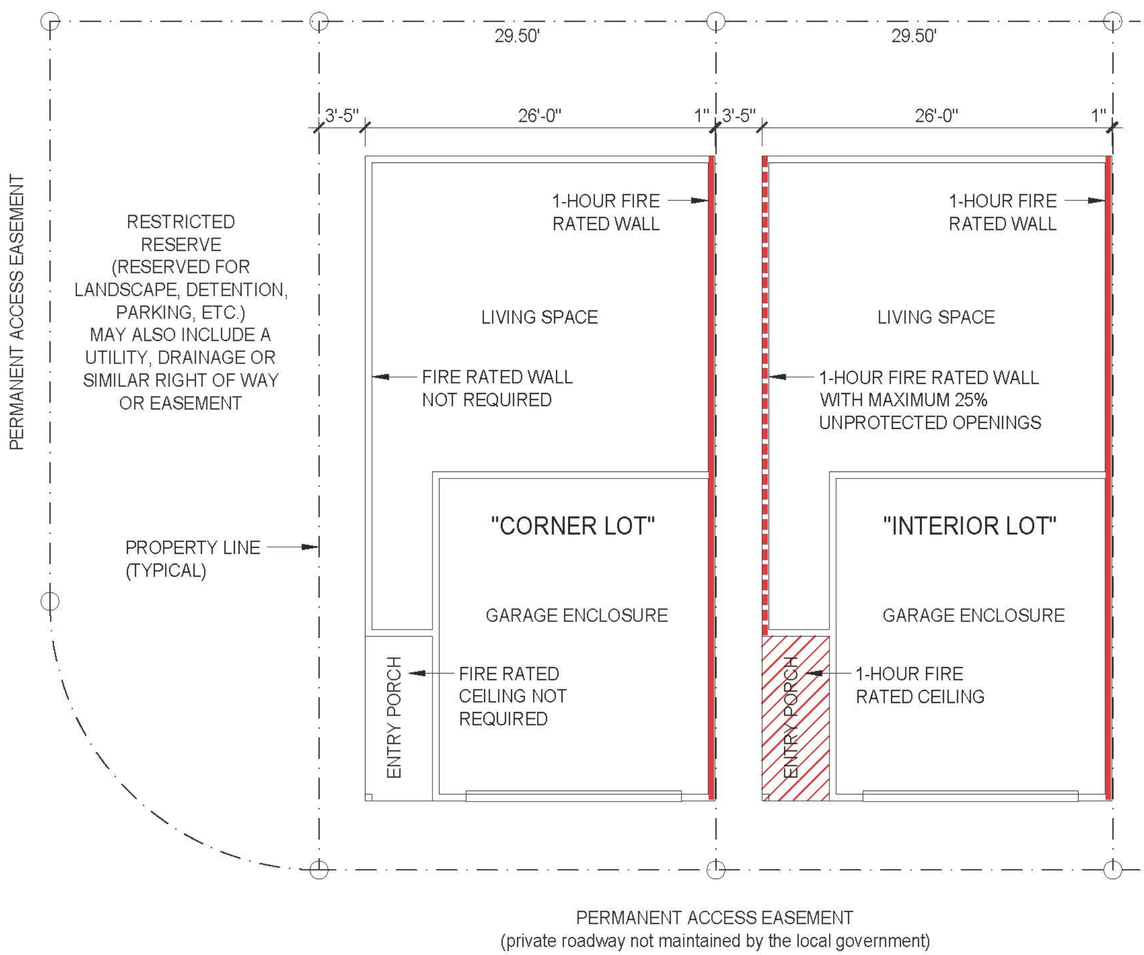


FIGURE R302.1.1 - DIAGRAMMATIC ZERO LOT LINE SEPARATION

FIGURE R302.1.1 DIAGRAMMATIC ZERO LOT LINE SEPERATION

Reason: The section as shown above is a direct quote from the City of Houston Amendments to 2012 International Residential Code. This jurisdiction has since adopted a newer IRC edition but have excluded this section from the amendments. What this section does not address is the use or denied use of protected and/or unprotected wall openings. The reason for this proposal is to address redundancy of the corner lot dwelling and other dwellings that will abut a non-buildable space.

Background:

We develop projects nationally in the Unites States where a tract of land is subdivided, and the dwellings will be accessed from a Shared Drive or a Permanent Access Easement (a roadway that is not maintained by the governing body). As part of the design there may be Restricted Reserves of greenspace, parking, or detention at the ends of each blockface. The “Corner” lot that is abutting a reserve may have a lot width equal to the adjacent “Interior” lot where the interior lot requires fire-resistive construction on both sides of the building. This proposal will allow the corner lot abutting the reserve to not be fire resistive for the wall that is facing the reserve.

Other situations we have encountered include natural gas pipeline right of ways, electrical transmission line right of ways, and storm drainage easements.

Request:

I left the direct quote above as is but request the separation distance be changed from 6- to **10-feet** as the City of Houston had an amendment that did not require any fire-resistive assemblies for walls greater than 36 inches from a property line. This amendment has since been rescinded.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The fire-resistive materials that will *not* be added to the exterior wall will reduce the overall cost of constructing the dwelling.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost of upgrading an exterior wall to be fire-resistive rated is about 7USD per square foot wall area requiring protection, as quoted from one outside source in the year 2023.

RB62-25

RB63-25

IRC: R302.2, R302.2.1 (New), R302.2.2 (New), R302.2.1, R302.2.2, R302.2.5 (New), R302.2.3

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.2 Townhouses. Townhouses shall be constructed in accordance with this section. Walls separating *townhouse units* shall be constructed in accordance with Section R302.2.1, ~~or~~ R302.2.2, R302.2.3, or R302.2.4, and shall comply with Sections R302.2.5 ~~R302.2.3~~ through R302.2.6 ~~R302.2.5~~.

Add new text as follows:

R302.2.1 Prescriptive assemblies. The assemblies in Table R302.2.1 shall be deemed to have the fire-resistance ratings prescribed therein and shall be permitted to be used to meet the fire-resistance-rating required in Section R302.2.3 or R302.2.4.

R302.2.1 RATED FIRE-RESISTANCE PERIODS FOR ASSEMBLIES [a,b,c,d]

LOCATION	RATING	CONSTRUCTION
Interior Wall	1-hour	• 2" × 4" wood studs 24" on center with 5/8" Type X gypsum wallboard applied vertically or horizontally nailed with 6d cooler or wallboard nails at 7" on center with end joints on nailing members. Stagger joints each side. • 0.018" (No. 25 carbon sheet steel gage) channel-shaped studs 24" on center with one full-length layer of 5/8" Type X gypsum wallboard applied vertically attached with 1"-long No. 6 dry wall screws to each stud. Screws are 8" on center around the perimeter and 12" on center on the intermediate stud. Where applied horizontally, the Type X gypsum wallboard shall be attached to 3-5/8" studs and the horizontal joints shall be staggered with those on the opposite side. Screws for the horizontal application shall be 8" on center at vertical edges and 12" on center at intermediate studs. • 2" × 4" wood studs 16" on center with 3/8" perforated or plain gypsum lath and 1/2" gypsum plaster each side. Lath nailed with 1-1/8" by No. 13 gage by 19/64" head plasterboard blued nails, 4" on center. Plaster mixed 1:2 by weight, gypsum to sand aggregate.
	2-hour	• 2" × 4" wood studs at 24" centers with double top plates, single bottom plate; interior and exterior side covered with two layers of 5/8" Type X gypsum wallboard, 4′ wide, applied horizontally with vertical joints over studs. Base layer fastened with 2 1/4" Type S drywall screws, spaced 24" on center and face layer fastened with Type S drywall screws, spaced 8" on center, wallboard joints covered with paper tape and joint compound, fastener heads covered with joint compound. Cavity to be filled with 5 1/2" mineral wool insulation.
Floor/Ceiling or Roof/Ceilng	1-hour	• Wood joists, wood I-joists, floor trusses and flat or pitched roof trusses spaced a maximum 24" o.c. with 1/2" wood structural panels with exterior glue applied at right angles to top of joist or top chord of trusses with 8 d nails. The wood structural panel thickness shall be not less than nominal 1/2" nor less than required by Chapter 23. Base layer 5/8" Type X gypsum wallboard applied at right angles to joist or truss 24" o.c. with 1-1/4" Type S or Type W drywall screws 24" o.c. Face layer 5/8" Type X gypsum wallboard or veneer base applied at right angles to joist or truss through base layer with 1-7/8" Type S or Type W drywall screws 12" o.c. at joints and intermediate joist or truss. Face layer Type G drywall screws placed 2" back on either side of face layer end joints, 12" o.c • Steel joists, floor trusses and flat or pitched roof trusses spaced a maximum 24" o.c. with 1/2" wood structural panels with exterior glue applied at right angles to top of joist or top chord of trusses with No. 8 screws. The wood structural panel thickness shall be not less than nominal 1/2" nor less than required by Chapter 23. Base layer 5/ 8" Type X gypsum board applied at right angles to steel framing 24" on center with 1" Type S dry wall screws spaced 24" on center. Face layer 5/8" Type X gypsum board applied at right angles to steel framing attached through base layer with 1-5/8" Type S dry wall screws 12" on center at end joints and intermediate joints and 1-1/2" Type G dry wall screws 12 inches on center placed 2" back on either side of face layer end joints. Joints of the face layer are offset 24" from the joints of the base layer.

a. Framing members with a larger dimension are permitted to be substituted.

b. Framing members are permitted to be closer spacing.

c. Wood structural panels shall be permitted to be installed between the fire protection and the wood studs on either the interior or exterior side of the wood frame assemblies in this table, provided that the length of the fasteners used to attach the fire protection is increased by an amount not less than the thickness of the wood structural panel.

d. Screws meeting ASTM C1002 or ASTM C954 are permitted in place of nails at the same spacings when the length and head diameters meet or exceed the stated nailing requirements. All fasteners noted are minimums unless otherwise stated.

R302.2.2 **Other assemblies.**. Fire-resistance rated assemblies using Section 703.2.2 of the *International Building Code* to achieve the *fire-resistance-rating* required in Section R302.2.3 or R302.2.4 shall be permitted.

Revise as follows:

R302.2.3 ~~**R302.2.1**~~ **Double walls.** Each *townhouse unit* shall be separated from other *townhouse units* by two 1-hour fire-resistance-rated wall assemblies tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code.*

R302.2.4 ~~**R302.2.2**~~ **Common walls.** Common walls separating *townhouse units* shall be assigned a fire-resistance rating in accordance with Item 1 or 2 and shall be rated for fire exposure from both sides. ~~Common walls shall extend to and be tight against the exterior sheathing of the exterior walls, or the inside face of exterior walls without stud cavities, and the underside of the roof sheathing.~~ The common wall shared by two *townhouse units* shall be constructed without openings, plumbing or mechanical equipment, ducts or vents, other than water-filled fire sprinkler piping in the cavity of the common wall. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.

1. Where an automatic sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.
2. Where an automatic sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.

~~**Exception:** Common walls are permitted to extend to and be tight against the inside of the exterior walls if the cavity between the end of the common wall and the exterior sheathing is filled with a minimum of two 2-inch nominal thickness wood studs.~~

Add new text as follows:

R302.2.5 **Additions to walls.**. The provisions of Sections R302.2.1 through R302.2.5 regulating openings, plumbing or mechanical equipment, ducts, or vents shall not apply to cavities in walls that are attached to, but not part of, the fire-resistance rated wall or assembly.

Revise as follows:

R302.2.6 ~~**R302.2.3**~~ **Continuity.** The fire-resistance-rated wall or assembly separating *townhouse units* shall comply with all of the following:

1. Be continuous from the foundation to the underside of the roof sheathing, roof deck, or slab.
2. Extend to and be tight against the exterior sheathing of the exterior walls, or the inside face of exterior walls without stud cavities.
3. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed *accessory structures.*

~~be continuous from the foundation to the underside of the roof sheathing, roof deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed *accessory structures*.~~

Exception: Common walls are permitted to extend to and be tight against the inside of the exterior walls where the cavity between the end of the common wall and the exterior sheathing is filled with not less than two 2-inch nominal thickness wood studs.

Reason: This is a comprehensive cleanup of the section on townhouse separation to clear up areas of confusion.

It does three things:

1. It rearranges sections so that it flows in a more logical manner.
2. It adds a table with prescriptive options to provide the easiest method of compliance. These are existing options taken from the IBC.

3. It clarifies that unrated walls attached to common walls (in a common wall assembly referred to by the industry as Area Separation Firewalls) are not subject to restrictions regarding plumbing and mechanical equipment and penetrations.

This makes clear that there are 4 options for townhouse separation:

1. A prescriptive assembly from the table
2. An assembly that uses the analytical method from the IBC.
3. A tested double wall assembly (no change from existing text)
4. A tested common wall assembly (no change from existing text)

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

In general, this will have no effect on construction costs. However, in some cases it could lower costs since it adds a compliance option (analytical methods) which could lower construction costs if selected, when compared to tested assemblies.

RB63-25

RB64-25

IRC: R302.2, R302.2.2 (New), R302.2.2

Proponents: Michael Schmeida, representing Gypsum Association (mschmeida@gypsum.org)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.2 Townhouses. Walls separating *townhouse units* shall be constructed in accordance with Section R302.2.1, R302.2.2 or R302.2.3 ~~R302.2.2~~ and shall comply with Sections ~~R302.2.3~~ R302.2.4 through ~~R302.2.5~~ R302.2.6.

R302.2.1 Double walls. Each *townhouse unit* shall be separated from other *townhouse units* by two 1-hour fire-resistance-rated wall assemblies tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code.*

Add new text as follows:

R302.2.2 Area Separation Wall. Seperation walls separting *townhouse units* shall be a two hour fire-resistance-rated wall assembly consisting of a central wall of 2, 1-inch-thick gypsum panels in an H-stud system with a non-rated wall on either side connected to the central wall via aluminum clips. The central wall assembly shall extend to and be tight against the exterior sheathing of the exterior walls, or the inside face of exterior walls without stud cavities, and the underside of the roof sheathing. The central wall shared by two *townhouse units* shall not be penetrated by plumbing or mechanical equipment, electrical installations, ducts or vents, other than water-filled fire sprinkler piping. The adjacent non-rated walls shall be permitted to contain, and the wall membrane penetrated by plumbing or mechanical equipment, electrical installations, ducts or vents.

Revise as follows:

~~**R302.2.2**~~ **R302.2.3 Common walls.** Common walls separating *townhouse units* shall be assigned a fire-resistance rating in accordance with Item 1 or 2 and shall be rated for fire exposure from both sides. Common walls shall extend to and be tight against the exterior sheathing of the exterior walls, or the inside face of exterior walls without stud cavities, and the underside of the roof sheathing. The common wall shared by two *townhouse units* shall be constructed without openings, plumbing or mechanical equipment, ducts or vents, other than water-filled fire sprinkler piping in the cavity of the common wall. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.

1. Where an automatic sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.
2. Where an automatic sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.

Exception: Common walls are permitted to extend to and be tight against the inside of the exterior walls if the cavity between the end of the common wall and the exterior sheathing is filled with a minimum of two 2-inch nominal thickness wood studs.

Reason: This proposal seeks to define a unique, albeit common, construction that has been in existence for approximately forty years. The industry routinely receives inquiries as to what can or cannot be done with these systems, as they do not fit cleanly into the definition of a common wall nor a double wall. By defining these clearly and explicitly herein, it is clear their construction and the placement of utilities, etc. within these systems.

Utilities are allowed in the adjacent walls as explained in a 2020 engineering evaluation per Priest and Associates by going to https://gypsum.org/evaluation-reports-code-acceptances/ and clicking on the link entitled “Engineering Evaluation: Utilities in the Flanking Walls of Gypsum Area Separation Fire Walls.” A detailed explanation of these walls and the testing, etc. is available at: chrome extension://efaidnbmnnnibpcajpcglclefindmkaj/https://gypsum.org/wp-content/uploads/2019/04/Final-Position-Letter-Utilities-in-ASW-1-4-2019.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

None. These systems are already being constructed and this clearly is just defining what they are and the construction of them.

RB64-25

RB65-25

IRC: R302.2.4

Proponents: Stuart Foster, representing self

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.2.4 Parapets for townhouses. Parapets constructed in accordance with Section R302.2.5 shall be constructed for *townhouses* as an extension of exterior walls or common walls separating *townhouse units* in accordance with the following:

1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches (762 mm) above the roof decks.
2. Where roof decks adjacent to the wall or walls are at different elevations and the higher *roof deck* is not more than 30 inches (762 mm) above the lower *roof deck* , the parapet shall extend not less than 30 inches (762 mm) above the lower roof deck.

   Exception: A parapet is not required in the preceding two cases where the *roof covering* complies with a minimum Class C rating as tested in accordance with ASTM E108 or UL 790 and the roof deck or sheathing is of *noncombustible materials* or *fire-retardant-treated wood* for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of $^5/_8$-inch (15.9 mm) *Type X gypsum board* is installed directly beneath the roof decking deck or sheathing, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a distance of not less than 4 feet (1219 mm) on each side of the wall or walls and any openings or penetrations in the roof deck <u>and roof projections</u> are not within 4 feet (1219 mm) of the common walls. *Fire-retardant-treated wood* shall meet the requirements of Sections R302.15 and R803.2.1.2.

3. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher *roof deck* is more than 30 inches (762 mm) above the lower *roof deck* . The common wall construction from the lower *roof deck* to the underside of the higher *roof deck* shall have not less than a 1-hour fire-resistance rating. The wall shall be rated for exposure from both sides. Openings shall not be permitted in the wall.

Reason: It does not make sense that ventilation openings are prohibited in the roof deck, but not in roof projections. This serves to prohibit ventilation openings within 4 feet on either side of common walls, anywhere in the roof-ceiling system, so as to prevent fire propagation and the spread of smoke between adjacent townhouses.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The location of ventilation openings within roof projections is not cost-prohibitive, they can be located anywhere within the projection without compromising function or effectiveness.

RB65-25

RB66-25

IRC: R302.2.6

Proponents: John-Jozef Proczka, representing City of Phoenix Planning and Development Department (john-jozef.proczka@phoenix.gov)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.2.6 Structural independence. Each townhouse *unit* shall be structurally independent.

Exceptions:

1. Foundations supporting exterior walls or common walls.
2. Structural roof and wall sheathing from each unit fastened to the common wall framing.
3. Nonstructural wall and *roof coverings*.
4. Flashing at termination of *roof covering* over common wall.
5. ~~*Townhouse units* separated by a common wall as provided in Section R302.2.2, Item 1 or 2.~~
6. ~~*Townhouse units* protected by an automatic sprinkler system complying with Section P2904 or NFPA 13D.~~

Reason: This proposal will disallow using common walls as gravity load bearing walls. Double walls will remain an option for gravity load bearing walls if framing is desired to span towards the separation wall. Exception 2 is still present to allow the common walls to serve as braced/shear walls.

Townhouses are unlimited areas buildings. In order to allow townhouses to remain as unlimited area buildings, we should ensure that they function in the manner intended by the base provision before the exception: structural collapse under a fire condition of one townhouse unit will likely not pull down the common wall or adjacent townhouse unit(s). This will contain fire spread so very long townhouses are not entirely lost with a fire starting in one unit.

NFPA 13D and the IRC sprinkler system are designed to stop flashover for 10 minutes and are intended for life safety and not property protection. Therefore, these types of sprinkler systems don't have a tie to structural independence.

Townhouse units are also unique to the IRC or IBC in that their physical limits are defined. This raises ownership questions usually regulated by state laws for other types of multifamily buildings. Robust separation helps answer these questions.

The following is a partial quotation of the commentary to this section: This independence is useful not only in the event of a fire in one unit, but also during any remodeling or alteration. The objective of this structural independence is that a complete burnout could occur on one side of the wall without causing the collapse of the adjacent townhouse unit. This condition occurs rarely. The provision also helps, if there is ever a fire or other problem, by creating a clear separation between the units. With separate ownership and each having a different insurance company, the ability to gain access or get repairs made can be difficult and time consuming. By having clearly separated units, it is much easier to determine who is responsible to make any needed repairs.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This code change will disallow using common walls as bearing walls, and as such will cause designs that have used them as bearing walls to be redesigned with the potential to increase floor and roof framing sizes, introduce bearings walls in different locations, or change common wall designs to double wall designs.

Estimated Immediate Cost Impact Justification (methodology and variables):

$0. No dollar amounts have been generated for this potential cost increase.

RB66-25

RB67-25

IRC: R302.2.6

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of ICC Colorado Chapter (david.renn@denvergov.org)

2024 International Residential Code

SECTION R302 FIRE-RESISTANT CONSTRUCTION

Delete without substitution:

~~**R302.2.6 Structural independence.** Each townhouse *unit* shall be structurally independent.~~

~~**Exceptions:**~~

1. ~~Foundations supporting exterior walls or common walls.~~
2. ~~Structural roof and wall sheathing from each unit fastened to the common wall framing.~~
3. ~~Nonstructural wall and *roof coverings*.~~
4. ~~Flashing at termination of *roof covering* over common wall.~~
5. ~~*Townhouse units* separated by a common wall as provided in Section R302.2.2, Item 1 or 2.~~
6. ~~*Townhouse units* protected by an automatic sprinkler system complying with Section P2904 or NFPA 13D.~~

Reason: The townhouse unit structural independence requirement is proposed to be deleted since this requirement has been technically moot since the 2021 IRC when Exception 6 was added for units protected with a fire sprinkler system. Since IRC Section R309.1 requires townhouses to have a fire sprinkler system, structural independence is not required in the unamended IRC. Of course, Exception 6 was added with the realization that some jurisdictions amend the IRC to not require a fire sprinkler system, in which case the exception wouldn't apply. However, Exception 5 for units separated by a common wall still applies and most townhouses are constructed with common walls. Therefore, the only townhouse units required to have structural independence are those separated with double walls per IRC Section R302.2.1 that are also not provided with a fire sprinkler system. Note that in the 2015 IRC there was no option for a double wall separation, yet the exception for a common wall was in place, so structural independence was never required with this edition of the IRC.

Double walls inherently provide structural independence for vertical gravity loads since each unit has its own bearing wall, as opposed to a common wall that supports the units on each side of the wall. Yet, the code penalizes the double wall system by requiring essentially full structural independence, which means a complete lateral force resisting system must be provided for each unit (e.g., shear walls or braced wall lines for wind and seismic forces). Note that Exception 2 for roof and wall sheathing only applies to common walls, so sheathing cannot extend between double walls which would allow lateral loads to be transferred between units. From a structural standpoint, it is beneficial to transfer lateral loads between units and provide a lateral system that is designed for the townhouse building, rather than for each individual unit. In a seismic event, structurally independent units will move independent of each other and potentially in opposite directions - this can result in units impacting each other during the event, causing damage and potentially structural failure. By allowing sheathing to be continuous between units, this condition is avoided, which results in a better performing and safer structural system. In summary, the code currently requires the most structurally independent system for gravity loads to also be independent for lateral loads, resulting in a lower performing and less safe building. On the other hand, the code currently allows the least structurally independent system for gravity loads to also be also not be independent for lateral loads. It just doesn't make sense to penalize the most structurally independent system and reward the least structurally independent system.

This proposal will provide consistency to structural requirements between double wall and common wall townhouse separations and will provide for better performing and safer structures. Note that deleting the structural independence affects a very small percentage of projects - those separated with double walls and not provided with a fire sprinkler system (which is only allowed if the code is amended).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

For projects designed according to the unamended IRC, this proposal will have no effect on structural independence requirements due to the fire sprinkler system exception and, therefore, will not impact the cost of construction.

For the small percentage of projects with double wall separations and no fire sprinkler system (where allowed through local amendments), this proposal will give an option to continue wall, roof, and/or floor sheathing between units, which may result in a slight decrease in construction cost if the designer takes advantage of this to reduce the lateral force resisting system (e.g., fewer shear walls or braced wall lines).

RB67-25

RB68-25

IRC: R302.3, R302.3.1 (New)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.3 Two-family dwellings. Dwelling units in two-family dwellings shall be separated from each other in accordance with Sections ~~302.3.1~~ 302.3.2 through ~~302.3.5~~ 302.3.6~~, regardless of whether a lot line exists between two dwelling units~~.

Add new text as follows:

R302.3.1 Two-family dwellings on separate lots. Where metes and bounds establish separate ownership of each dwelling unit, the dwellings shall be separated from each other in accordance with Section R302.2.1 through R302.2.4.

Reason: Special attention shall be paid to separately owned dwelling units that are inclusive of one building.

A 2-family building located on 2 lots shall be treated the same as a townhouse (R302.2).

“2027 INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO-FAMILY DWELLINGS ON A SINGLE LOT”

Note: The quote above “R302.2.1 through R302.2.4” is referring to a **separate proposal for R302.2**.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification between a 2-dwelling unit building on a single lot verses a 2-dwelling unit building on separate lots.

RB68-25

RB69-25

IRC: R302.3.6, TABLE R302.3.6, R302.3.6.1, R302.3.6.2, R302.3.6.3

Proponents: Joseph Summers, Mashantucket Pequot Tribal Nation, representing Self

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

R302.3.6 ~~Shared accessory rooms~~ Common areas and spaces. ~~Shared accessory rooms~~ Common areas and spaces shall be separated from each individual *dwelling unit* in accordance with Table R302.3.6. Openings between the shared accessory room and *dwelling unit* shall comply with Section R302.3.6.1. Attachment of *gypsum board* shall comply with Table R702.3.5.

TABLE R302.3.6 DWELLING ~~SHARED ACCESSORY ROOM~~ COMMON AREAS AND SPACES SEPARATION

SEPARATION	MATERIAL
From the dwelling units and attics	Not less than $^1/_2$-inch gypsum board or equivalent applied to the accessory room side wall
From habitable rooms above or below the shared accessory room	Not less than $^5/_8$-inch Type X gypsum board or equivalent
Structures supporting floor/ceiling assemblies used for separation required by this section	Not less than $^1/_2$-inch gypsum board or equivalent

For SI: 1 inch = 25.4 mm.

R302.3.6.1 Opening protection. Openings from a ~~shared accessory room or area~~ common area or space directly into a room used for sleeping purposes shall not be permitted. Other openings between the ~~shared accessory room or area~~ common area or space and dwelling units shall be equipped with solid wood doors not less than $1^3/_8$ inches (35 mm) in thickness, solid or honeycomb core steel doors not less than $1^3/_8$ inches (35 mm) in thickness, or a fire door assembly with a 20-minute fire-protection rating, equipped with a self-closing or automatic-closing device.

R302.3.6.2 Duct penetration. Ducts penetrating the walls or ceilings separating the dwelling from the ~~shared accessory room~~ common area and spaces shall be constructed of sheet steel not less than No. 26 gage (0.48 mm) or other approved material and shall not have openings into the ~~shared accessory room~~ common area and space.

R302.3.6.3 Other penetrations. Penetrations through the walls, ceiling and floor-level separation required in Section R302.3.6 shall be protected as required by Section R302.11, Item 4.

Reason: The IRC does not define "shared accessory rooms" the terminology used mostly, especially with the two-family dwelling section, is common. The intent is to provide some consistency within the document and not add new terms.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is only changing terms within the section of the IRC.

RB69-25

RB70-25

IRC: SECTION R302, R302.3.6, TABLE R302.3.6, R302.3.6.1, R302.3.6.2, R302.3.6.3

Proponents: Joseph Summers, Mashantucket Pequot Tribal Nation, representing Self

2024 International Residential Code

SECTION R302 FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.3.6 Shared accessory rooms. Shared accessory rooms shall be separated from each individual *dwelling unit* in accordance with ~~Table R302.3.6~~ Section R302.3. Openings between the shared accessory room and *dwelling unit* shall comply with Section ~~R302.3.6.1~~ R302.5.1. ~~Attachment of *gypsum board* shall comply with Table R702.3.5.~~

Delete without substitution:

~~TABLE R302.3.6 DWELLING-SHARED ACCESSORY ROOM SEPARATION~~

~~SEPARATION~~	~~MATERIAL~~
~~From the dwelling units and attics~~	~~Not less than $^1/_2$-inch gypsum board or equivalent applied to the accessory room side wall~~
~~From habitable rooms above or below the shared accessory room~~	~~Not less than $^5/_8$-inch Type X gypsum board or equivalent~~
~~Structures supporting floor/ceiling assemblies used for separation required by this section~~	~~Not less than $^1/_2$-inch gypsum board or equivalent~~

~~For SI: 1 inch = 25.4 mm.~~

~~**R302.3.6.1 Opening protection.** Openings from a shared accessory room or area directly into a room used for sleeping purposes shall not be permitted. Other openings between the shared accessory room or area and dwelling units shall be equipped with solid wood doors not less than 1$^3/_8$ inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1$^3/_8$ inches (35 mm) in thickness, or a fire door assembly with a 20-minute fire-protection rating, equipped with a self closing or automatic-closing device.~~

Revise as follows:

~~R302.3.6.2~~ R302.3.6.1 Duct penetration. Ducts penetrating the walls or ceilings separating the dwelling from the shared accessory room shall ~~be constructed of sheet steel not less than No. 26 gage (0.48 mm) or other approved material and shall not have openings into the shared accessory room~~ comply with Section R302.5.2.

~~R302.3.6.3~~ R302.3.6.2 Other penetrations. Penetrations through the walls, ceiling and floor-level separation required in Section R302.3.6 shall be protected as required by Section R302.11, Item 4.

Reason: The intent of this proposal is to be clarification on what I believe the intent is and to provide references to other sections of the IRC that already address these features. The proposal is intended to be editorial in nature and to reduce redundent language within the code that has the potential to create conflicts and issues down the road.

without these changes it is possible to have a shared room between two dwelling units with only gypsum board on the shared room side increasing the possibility of fire spreading. Especially if the shared room is laundry room or similar space.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

It is my interpretation that the original intent was to provide fire separation between these rooms and this change should not increase the cost of construction.

RB70-25

RB71-25

IRC: R302.4.1

Proponents: Tony Crimi, A.C. Consulting Solutions Inc., representing International Firestop Council (tcrimi@sympatico.ca); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Robert Marshall, representing FCAC (fcac@iccsafe.org)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.4.1 Through penetrations. Through penetrations of fire-resistance-rated wall or floor assemblies shall comply with Section R302.4.1.1 or R302.4.1.2.

Exceptions:

1. In concrete or masonry wall or floor assemblies, where ~~Where~~ the penetrating items are steel, ferrous or copper pipes, tubes or conduits, the annular space between the penetrating item and the fire-resistance-rated wall or floor is permitted to ~~shall~~ be protected ~~as follows:~~
   ~~1.1.~~ with ~~In concrete or masonry wall or floor assemblies,~~ concrete, grout or mortar ~~shall be permitted where~~ installed to the full thickness of the wall or floor assembly or the thickness required to maintain the fire-resistance rating, provided that both of the following are complied with:
   ~~1.1.1.~~ 1.1. The nominal diameter of the penetrating item is not more than 6 inches (152 mm).
   1.2. ~~1.1.2.~~ The area of the opening through the wall does not exceed 144 square inches (92 900 mm ^{2}).
   ~~1.2. The material used to fill the annular space shall prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E119 or UL 263 time temperature fire conditions under a positive pressure differential of not less than 0.01 inch of water (3 Pa) at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.~~
2. The annular space created by the penetration of water-filled fire sprinkler piping, provided the penetration is protected in accordance with Section R302.4.1.1 or R302.4.1.2. ~~that the annular space is filled using a material complying with Item 1.2 of Exception 1.~~

Reason: Identical language to that in R302.4.1 Exception 1.2 was deleted from the IBC in the Group A hearings by FS46-24. This proposal brings consistency with the 2027 IBC. With the deletion of R302.4.1 Exception 1.2, it is also necessary to revise R302.4.1 Exception 2 to reference the remaining provisions for protection of the penetration.

The Annular Space Protection Material (ASPM) language that was deleted in Section 714.4.1, Exception 2 and Section 714.5.1, Exception 1 of the IBC is the language which mandated the protection of penetrations before the development of the fire test standards ASTM E814 and UL 1479 now referenced in the IBC. When the ASPM language was included in the 1979 Uniform Building Code, it was an attempt to describe the fire test procedure and the acceptance criteria all within one short paragraph of the code in the absence of a published test standard. The acceptance criteria incorporated into the code simply required the material protecting the annular space be securely installed and capable of maintaining its integrity when subjected to an ASTM E119 or UL 263 time-temperature fire exposure. That early language morphed into what we see in the IBC today. With the inclusion of ASTM E814 and UL 1479 into the three legacy codes in the early 90s, the ASPM language was retained as an exception to the use of the two fire test standards. Now 30 plus years later it is time to delete this exception for the following reasons:

1. The important details on how that test is to be conducted are left up to the discretion of the testing laboratory. Items missing from this exception include the details of the furnace construction, the furnace size, the construction of the test sample, the

instrumentation of the furnace and test assembly, the procedures for conducting the test, including how the cotton waste is to be conditioned and applied to the test sample. Without these details it is impossible to consistently and reproducibly conduct this fire test.

2. The retention of this test procedure establishes a two-tier performance level for firestopping. The ASPM criteria simply relates to the ignition of cotton waste. Tests conducted in accordance with ASTM E814 or UL 1479 require the system to maintain either an F (fire) rating or a T (temperature) rating, both of which require the system to meet the hose stream test following fire exposure. Firestop systems through horizontal assemblies, with some exceptions, are required by the IBC to maintain a T rating. The T rating limits the temperature on the unexposed side of the assembly to a 325°F temperature rise.

3. Since 1987, there is only one known series of fire tests conducted using this ASPM method.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal will not increase or decrease the cost of construction. There are simply no tested systems which will be negated by the deletion of this antiquated test method. Design professionals and contractors will continue to use the over 7000 firestop systems, most containing multiple construction variations, tested in accordance with ASTM E814 or UL 1479.

RB71-25

RB72-25

IRC: R302.4.2

Proponents: Tony Crimi, A.C. Consulting Solutions Inc., representing International Firestop Council (tcrimi@sympatico.ca)

2024 International Residential Code

SECTION R302 FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.4.2 Membrane penetrations. Membrane penetrations shall comply with Section R302.4.1. Where walls are required to have a fire-resistance rating, recessed fixtures shall be installed so that the required fire-resistance rating will not be reduced.

Exceptions:

1. Membrane penetrations of not more than 2-hour fire-resistance-rated walls and partitions by steel electrical boxes that do not exceed 16 square inches (0.0103 m^2) in area provided that the aggregate area of the openings through the membrane does not exceed 100 square inches (0.0645 m^2) in any 100 square feet (9.29 m^2) of wall area. The annular space between the wall membrane and the box shall not exceed $^1/_8$ inch (3.1 mm). Such boxes on opposite sides of the wall shall be separated by one of the following:
   - 1.1. By a horizontal distance of not less than 24 inches (610 mm) where the wall or partition is constructed with individual noncommunicating stud cavities.
   - 1.2. By a horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loose-fill, rockwool or slag mineral wool insulation.
   - 1.3. By solid *fireblocking* in accordance with Section R302.11.
   - 1.4. By protecting both boxes with *listed* putty pads.
   - 1.5. By other *listed* materials and methods.
2. Membrane penetrations by *listed* electrical boxes of any materials provided that the boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the *listing*. The annular space between the wall membrane and the box shall not exceed $^1/_8$ inch (3.1 mm) unless *listed* otherwise. Such boxes on opposite sides of the wall shall be separated by one of the following:
   - 2.1. By the horizontal distance specified in the *listing* of the electrical boxes.
   - 2.2. By solid *fireblocking* in accordance with Section R302.11.
   - 2.3. By protecting both boxes with *listed* putty pads.
   - 2.4. By other *listed* materials and methods.
3. The annular space created by the penetration of a fire sprinkler ~~or water-filled fire sprinkler piping,~~ provided that the annular space is covered by a metal escutcheon plate.
4. Ceiling membrane penetrations by *listed* luminaires or by luminaires protected with *listed* materials that have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the *listing*.

Reason: RB67-19 introduced new text to R302.2.2 (now R302.4.1) to permit both metal and plastic water filled sprinkler piping to penetrate townhouse separation walls without proper protection. This proposal will provide language that would require sprinkler piping penetrations to be protected as intended, while maintaining the allowance to penetrate membranes with a sprinkler and escutcheon plate.

The need to penetrate a common wall with water filled sprinkler pipping is acknowledged. However, penetrations of fire-resistance rated assemblies need to be properly protected. Fire testing has demonstrated that relying solely on a metal escutcheon plate for protection of water-filled sprinkler pipe penetrations does not work. First, the assertion in RB67-19 that water within the pipe will somehow extinguish a fire at the opening does not even apply to metal sprinkler pipe. While metal sprinkler pipe is noncombustible, fire from the room of fire origin will still breach an opening in a fire separation that is not properly protected. Secondly, the rationale provided with RB67-19 that plastic sprinkler pipe is ignition resistant and would therefore minimize the need for firestopping materials is incorrect. The ignition resistance and flame spread rating are not relevant to the fire resistance performance required to protect penetrations when successful membrane or through-penetration firestop systems are tested. Our experience with testing thousands of assemblies with plastic pipe penetrations clearly confirms this. Common plastic sprinkler pipe does ignite, has a flame spread rating when tested to ASTM E84 or UL 723, and will melt or decompose when subjected to the exposure of an ASTM E119 fire. When protection of plastic pipe penetrations fails in an ASTM E814 or UL 1479 test, it is because the pipe is compromised at the penetration, allowing flames and hot gases to enter into and through the breach.

Although a sprinkler, not a sprinkler pipe, has long been permitted to penetrate a fire resistance rated wall with only a metal escutcheon plate to cover the annular space, it is a limited exception recognizing that a sprinkler, once activated, would discharge a heavy spray of water droplets in very close proximity to the sprinkler's membrane-penetration, making the zone directly next to the sprinkler head the most heavily protected and with the least-elevated temperature of the entire fire compartment. This is addressed in the ICC publication on Firestopping, Joint Systems and Dampers.[1]

There are many proven systems available for these conditions. Based on years of collective fire testing experience, we are very concerned that the existing language will not provide the protection assumed, and required, for these townhome common walls. The protection of penetrations in fire rated wall assemblies is independent of whether a sprinkler system is installed or not.

Bibliography: Firestopping, Joint Systems and Dampers, International Code Council, 2015, https://shop.iccsafe.org/firestopping-joint-systems-and-dampers-43260.html.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The Code change may increase the cost of construction, but restores the IRC requirements and removes an untested exemption.

Estimated Immediate Cost Impact Justification (methodology and variables):

The installed cost ranges from $12 to $15 per penetration.

RB72-25

RB73-25

IRC: SECTION R302.5, R302.5.1, R302.5.2, R302.5.3, R302.6, TABLE R302.6; SECTION R317.1, R317.2,

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R317
GARAGES AND CARPORTS

Revise as follows:

R317.1 Floor surface. Garage and carport floor surfaces shall be of *approved noncombustible material*. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

Exception: Asphalt surfaces shall be permitted at ground level in carports open on two or more sides.

Delete without substitution:

~~**R317.2 Carports.** Carports shall be open on not less than two sides. Carport floor surfaces shall be of *approved noncombustible material*. Carports not open on two or more sides shall be considered to be a garage and shall comply with the provisions of this section for garages.~~

~~The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.~~

~~**Exception:** Asphalt surfaces shall be permitted at ground level in carports.~~

SECTION R302
FIRE-RESISTANT CONSTRUCTION

~~**R302.5 Dwelling unit garage opening and penetration protection.** Openings and penetrations through the walls or ceilings separating the *dwelling unit* from the garage shall be in accordance with Sections R302.5.1 through R302.5.3.~~

Revise as follows:

~~**R302.6**~~ **R302.5 Dwelling unit garage fire separation.** Garages shall comply with comply with the provisions of this section. Carports not open on two or more sides shall comply with the provisions of this section for garages. The garage shall be separated as required by Table ~~R302.6.~~ R302.5.~~Openings in garage walls shall comply with Section R302.5.~~ Attachment of *gypsum board* shall comply with Table R702.3.5. The wall separation provisions of Table ~~R302.6~~ R302.5 shall not apply to garage walls that are perpendicular to the adjacent *dwelling unit* wall.

R302.5.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and *dwelling unit* shall be equipped with solid wood doors not less than $1^3/_8$ inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than $1^3/_8$ inches (35 mm) thick, or 20-minute fire-rated doors. Doors shall be self-latching and equipped with a self-closing or automatic-closing device.

R302.5.2 ~~Duct~~ penetration protection. Penetrations through the wall or ceiling membranes separating the garage from the dwelling unit shall be protected in accordance with Section R302.11, Item 4. Ducts in the garage that penetrate ~~and ducts penetrating~~ the wall or ceiling membranes ~~walls or ceilings~~ separating the dwelling unit from the garage shall be constructed of a minimum No. 26 gage (0.48

mm) sheet steel or other *approved* material and shall not have openings into the garage.

Delete without substitution:

~~**R302.5.3 Other penetrations.** Penetrations through the separation required in Section R302.6 shall be protected as required by Section R302.11, Item 4.~~

Revise as follows:

TABLE ~~R302.6~~ R302.5 DWELLING UNIT GARAGE SEPARATION

SEPARATION	MATERIAL
From the dwelling unit and attics	Not less than $^1/_2$-inch gypsum board or equivalent applied to the garage side
From portions of the dwelling unit above the garage	Not less than $^5/_8$-inch Type X gypsum board or equivalent
Structure supporting floor/ceiling assemblies used for separation required by this section	Not less than $^1/_2$-inch gypsum board or equivalent
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than $^1/_2$-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Reason: Prior to changes made in the 2009 IRC, this section on garages and carports included the details for garage-dwelling unit fire separation. The statement in the "carport" section about carports "not open on two or more sides must comply with the section as garages" included compliance with the fire separation provisions. However, in the 2009 IRC when fire separation was moved to R302, the only remaining use for that statement is for the exception allowing asphalt surfaces in carports. With that understanding, Section R317.2 in the 2024 IRC could be eliminated and replaced by simply including "carports" in Section R317.1 and moving the asphalt exception.

The statement about carports not open on two or more sides needing to comply as a garage is added to the beginning of Section R302.6 as was the original intent through the 2006 IRC, as described above. This section is relocated to come before the requirements for openings. Openings and penetrations, Section R302.5 is deleted and replaced to two subsections under the section regarding the separation (R302.6)

"Other penetrations" sounds like it applies to penetrations "other" than duct penetrations in the previous subsection. However, even a duct penetration of 26 ga steel would need the annual space filled around it so as to not allow passage of smoke and hot gasses, as is required by the "other penetrations" subsection and its reference to fireblocking method, #4. It is cleaner to have one sub section for openings and another for penetrations.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

I believe the common interpretation in the building code industry is that a carport closed on more than two sides is regulated as a garage for dwelling-garage separation purposes. This change in the 2009 IRC appears to simply be an oversight, as the Significant Changes to the 2009 IRC book describes the relocation of the separation requirements to Section R302 as having "no technical change". Unless there is a different interpretation being used for what is a "garage" and requires the separation, there is no increase in the cost of construction.

RB73-25

RB74-25

IRC: TABLE R302.6

Proponents: Tim Earl, GBH International, representing the Gypsum Association (tearl@gbhint.com)

2024 International Residential Code

SECTION R302 FIRE-RESISTANT CONSTRUCTION

Revise as follows:

TABLE R302.6 DWELLING UNIT GARAGE SEPARATION

SEPARATION	MATERIAL
From the dwelling unit and attics	Not less than $^1/_2$-inch gypsum board or equivalent applied to the garage side
From portions of the dwelling unit above the garage	Not less than $^5/_8$-inch Type X gypsum board or <u>other material with a 40-minute *fire-resistance rating*</u> ~~equivalent~~
Structure supporting floor/ceiling assemblies used for separation required by this section	Not less than $^1/_2$-inch gypsum board or equivalent
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than $^1/_2$-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Reason: Type X gypsum board is a special type of gypsum panel product with core additives to increase fire resistance (in accordance with applicable ASTM standards). Proving equivalency to Type X is not straightforward, and there is no known alternative to it. When we conducted an informal poll of code users, many of the answers to the question “What do you consider equivalent to Type X gypsum board” were alarming.

Although nothing is exactly “equivalent” to Type X gypsum board, the primary property of interest is fire-resistance. The IBC assigns a fire-resistance rating of 40 minutes for type X board in vertical assemblies as part of the calculated method. Allowing any material with the same calculated fire-resistance rating in this application is a reasonable substitution. Beyond that, alternate materials should be approved as specified in Section 104.11, which was comprehensively revised last cycle.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

None. Anyone wishing to use an alternate material can still do so in accordance with Section 104.11.

RB74-25

RB75-25

IRC: R302.9, R302.9.1 (New), R302.9.1.1 (New), R302.9.1, R302.9.5, R302.9.2, R302.9.3, R302.9.4, R303.4, R303.5.10, R303.6

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

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SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.9 ~~Flame spread indexand smoke-developed index~~ Fire testing for wall and ceiling finishes. *Interior wall and ceiling finish* materials shall be classified for fire performance and smoke development in accordance either with Section R302.9.1 or with Section R302.9.2. Materials tested in accordance with Section R302.9.1 shall not be required to be tested in accordance with Section R302.9.2. High-density polyethylene (HDPE) and polypropylene (PP) shall comply with Section R302.9.3. ~~*Flame spread* and *smoke-developed indices* for wall and ceiling finishes shall be in accordance with Sections R302.9.1 through R302.9.4.~~

Add new text as follows:

R302.9.1 Interior wall and ceiling finish materials tested in accordance with NFPA 286. Interior wall and ceiling finish materials shall be classified in accordance with NFPA 286 and comply with Section R302.9.1.1. Materials complying with Section R302.9.1 shall be considered to also comply with Section R302.9.2.

R302.9.1.1 Acceptance criteria for NFPA 286. Interior finish materials tested in accordance with NFPA 286 shall comply with the following:

1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m^2.

Revise as follows:

~~R302.9.1~~ R302.9.2 Flame spread index and smoke developed index. Wall and ceiling finishes shall have a *flame spread index* of not greater than 200 and a smoke developed index of not greater than 450 when tested in accordance with ASTM E84 or UL 723.

> **Exception:** *Flame spread index* requirements for finishes shall not apply to *trim* defined as picture molds, chair rails, baseboards and *handrails*; to doors and windows or their frames; or to materials that are less than $^1/_{28}$ inch (0.91 mm) in thickness cemented to the surface of walls or ceilings if these materials exhibit *flame spread index* values not greater than those of paper of this thickness cemented to a noncombustible backing.

~~R302.9.5~~R302.9.3 High-density polyethylene (HDPE) and polypropylene (PP). Where high-density polyethylene or polypropylene is used as an interior finish material, it shall be tested in accordance with NFPA 286 and comply with the criteria in Section R302.9.1.1 ~~R302.9.4~~.

~~R302.9.2 Smoke-developed index.~~ ~~Wall and ceiling finishes shall have a *smoke-developed index* of not greater than 450.~~

~~**R302.9.3 Testing.** Tests shall be made in accordance with ASTM E84 or UL 723.~~

~~**R302.9.4 Alternative test method.** As an alternative to having a *flame spread index* of not greater than 200 and a *smoke-developed index* of not greater than 450 where tested in accordance with ASTM E84 or UL 723, wall and ceiling finishes shall be permitted to be tested in accordance with NFPA 286. Materials tested in accordance with NFPA 286 shall meet the following criteria:~~

~~The interior finish shall comply with the following:~~

1. ~~During the 40 kW exposure, flames shall not spread to the ceiling.~~
2. ~~The flame shall not spread to the outer extremity of the sample on any wall or ceiling.~~
3. ~~Flashover, as defined in NFPA 286, shall not occur.~~
4. ~~The peak heat release rate throughout the test shall not exceed 800 kW.~~
5. ~~The total smoke released throughout the test shall not exceed 1,000 m^2.~~

SECTION R303
FOAM PLASTIC

R303.4 Thermal barrier. Unless otherwise allowed in Section R303.5, foam plastic shall be separated from the interior of a *building* by an *approved* thermal barrier of not less than $^1/_2$-inch (12.7 mm) *gypsum wallboard*, $^{23}/_{32}$-inch (18.2 mm) *wood structural panel* or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.

R303.5.10 Interior finish. Foam plastics used as interior finishes shall comply with Section R303.6 and shall meet the *flame spread index* and *smoke-developed index* requirements of ~~Sections R302.9.1 and~~ Section R302.9.2.

R303.6 Specific approval. Foam plastic not meeting the requirements of Sections R303.3 through R303.5 shall be specifically *approved* on the basis of an *approved* large-scale test reflecting the actual end-use configuration and performed on the finished foam plastic assembly in the maximum thickness intended for use. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use. The approved large-scale test shall comply with one of the following: NFPA 286 with the acceptance criteria of Section R302.9.1.1 ~~R302.9.4~~, FM 4880, UL 1040 or UL 1715.

Reason: This proposal does not change any of the requirements but reverses the order in which the test methods are referenced, making NFPA 286 the default test, just as it is in the IBC and in other documents.

It is essential to emphasize that this proposed change will **not** require any change in the way that materials are tested, as compared to what is required in the existing IRC code: the choice remains the same. **This proposal does not add any new requirements for any material.**

This proposal does not require any change in the severity of testing but simply provides a logical sequence.

The reason for proposing this change is that the present IRC (just like the IBC and many other codes and standards) allows any interior finish material to be tested to NFPA 286. However, the IRC does not allow every interior finish material to be tested to ASTM E84.

For example the code (the IRC) does not allow high-density polyethylene (HDPE) or polypropylene (PP) to be tested to ASTM E84 or UL 723 (present section R302.9.5, which is proposed to be renumbered without change).

Also, the IRC does not allow foam plastic insulation to be used exposed when it has only been tested to ASTM E84 or UL 723. In order to use foam plastic insulation (as described in R303) it must either (a) be separated from the interior of the building by an approved thermal barrier (as required by R303.4, shown for information) or (b) have been tested in accordance with NFPA 286 (or one of the other accepted tests shown in R303.6) and have met the corresponding requirements.

This proposal combines in a single section the requirements for flame spread index and smoke developed index (without changing them) since both are obtained when conducting the same ASTM E84 or UL 723 test and having 2 sections for that is potentially confusing.

One other aspect of this proposal is that it clarifies, in the charging section, that there are special requirements for testing of HDPE and

PP, as they are in the present code, but which the present IRC does not state explicitly. This is a simple clarification not a change in requirements. It is not considered an "exception" because exceptions imply a lower level of severity.

The change proposed for section R303.5.10 is simply a correlation with the other changes, to reference the correct section. Note that, since the requirements for flame spread index and smoke developed index have been combined in the same section (namely section R302.9.2) instead of being separated into 2 sections (R302.9.1 and R302.9.2) section R303.5.10 refers only to R302.9.2, which contains both the flame spread index and the smoke developed index.

The change proposed for section R303.6 is simply the section number referenced, consistent with the other changes.

The language used is consistent with the language in the IBC, but the IRC requirements are being retained: when tested to ASTM E84 or UL 723 materials still simply need to meet a Class C (FSI of no more than 200 and SDI no more than 450). Note that the IBC has areas where a Class A or a Class B in accordance with ASTM E84 or UL 723 is required. Such requirements are not included here.

See IBC language below.

803.1 General. *Interior wall and ceiling finish materials shall be classified for fire performance and smoke development in accordance with Section 803.1.1 or 803.1.2, except as shown in Sections 803.1.3 through 803.15. Materials tested in accordance with Section 803.1.1 shall not be required to be tested in accordance with Section 803.1.2.*
803.1.1 Interior wall and ceiling finish materials tested in accordance with NFPA 286*. Interior wall and ceiling finish materials shall be classified in accordance with NFPA 286 and comply with Section 803.1.1.1. Materials complying with Section 803.1.1.1 shall be considered to also comply with the requirements of Class A.*
803.1.1.1 Acceptance criteria for NFPA 286*. The interior finish shall comply with the following:*

1. *During the 40 kW exposure, flames shall not spread to the ceiling.*
2. *The flame shall not spread to the outer extremity of the sample on any wall or ceiling.*
3. *Flashover, as defined in NFPA 286, shall not occur.*
4. *The peak heat release rate throughout the test shall not exceed 800 kW.*
5. *The total smoke released throughout the test shall not exceed 1,000 m^2.*

803.1.2 Interior wall and ceiling finish materials tested in accordance with ASTM E84 or UL 723*. Interior wall and ceiling finish materials shall be classified in accordance with ASTM E84 or UL 723. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indices.*
Class A = Flame spread index 0–25; smoke-developed index 0–450.
Class B = Flame spread index 26–75; smoke developed index 0–450.
Class C = Flame spread index 76–200; smoke-developed index 0–450.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply alters the hierarchy of the fire test methods for interior finish without adding any new requirement.

RB75-25

RB76-25

IRC: R302.9.1

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.9.1 Flame spread index. Wall and ceiling finishes shall have a *flame spread index* of not greater than 200.

> **Exception:** *Flame spread index* requirements for finishes shall not apply to *trim* ~~defined as picture molds, chair rails, baseboards and *handrails*; to doors and windows or their frames;~~ or to materials that are less than $^{1}/_{28}$ inch (0.91 mm) in thickness cemented to the surface of walls or ceilings if these materials exhibit *flame spread index* values not greater than those of paper of this thickness cemented to a noncombustible backing.

Reason: "Trim" is defined in chapter two so the term can be used correctly in the IRC. There is no reason to provide the definition within a code section. It has been this way since the original 2000 edition. Note the appropriate use of the defined term in Section R303.5.9.

Reference:
Chapter Two, Trim: Picture molds, chair rails, baseboards, *handrails*, door and window frames, and similar decorative or protective materials used in fixed applications.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is clarification and simplification only. No change to intent or application.

RB76-25

RB77-25

IRC: R302.13, ASTM Chapter 44 (New)

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); Jason Smart, representing American Wood Council (jsmart@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.13 Fire protection of floors. Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a $^{1}/_{2}$-inch (12.7 mm) *gypsum wallboard* membrane, $^{5}/_{8}$-inch (16 mm) *wood structural panel* membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.

Exceptions:

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA 13D, or other *approved* equivalent sprinkler system.
2. Floor assemblies located directly over a *crawl space* not intended for storage or for the installation of fuel-fired or electric-powered heating *appliances*.
3. Portions of floor assemblies shall be permitted to be unprotected where complying with the following:
   3.1. The aggregate area of the unprotected portions does not exceed 80 square feet (7.4 m^2) per *story*.
   3.2. *Fireblocking* in accordance with Section R302.11.1 is installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
4. Wood floor assemblies using dimension lumber or *structural composite lumber* equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension, or other *approved* floor assemblies demonstrating equivalent fire performance.
5. Wood floor assemblies less than 600 square feet (55.7 m^2) within detached *accessory structures* with no *habitable space* above them.
6. Wood floor assemblies using framing members demonstrating equivalent fire performance to dimension lumber or *structural composite lumber* equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension in accordance with ASTM D8391.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

D8391-22	Standard Specification for Demonstrating Equivalent Fire Performance for Wood-Based Floor Framing Members to Unprotected 2 by 10 Dimension Lumber or Equal-Sized Structural Composite Lumber

Reason: A new standard, ASTM D8391-22, has been developed to provide a standardized approach for code and fire officials to approve floor framing members as demonstrating fire performance equivalent to unprotected 2x10 dimension lumber or equal-sized structural composite lumber, consistent with the intent of Exception #4. The ASTM standard referenced in this proposal uses the same method as currently used by the International Code Council Evaluation Service (ICC-ES). Adding ASTM D8391 to new Exception #6, provides a standard baseline for testing products and ensuring their durability.

ASTM D8391 builds upon the criteria provided by ICC-ES by expanding the scope beyond trusses (ICC-ES AC224) and I-joists (ICC-ES AC14) to include any wood-based residential framing member. It also includes floor framing members with or without applied treatments or materials used to increase fire resistance, such as fire-resistive paints, coatings, chemical treatments, and mechanically attached or adhered fire protection materials. The ASTM D8391 standard also includes robust quality control criteria for applied treatments. This proposal maintains all existing code options available for providing fire protection of floors.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal adds an additional option in the code for demonstrating equivalent fire performance. Therefore, it does not result in an increase in the cost of construction, because the existing compliance options are still available. This proposal could potentially decrease construction costs if this option is used, but will have no effect on construction costs if it is not used. Therefore, the decrease in cost is conservatively estimated as $0.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ASTM D8391-22 Standard Specification for Demonstrating Equivalent Fire Performance for Wood-Based Floor Framing Members to Unprotected 2 by 10 Dimension Lumber or Equal-Sized Structural Composite Lumber

RB77-25

RB78-25

IRC: R302.15.1 (New), ASTM Chapter 44 (New)

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

R302.15 Fire-retardant-treated wood. *Fire-retardant-treated wood* (FRTW) is any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E84 or UL 723, a *listed flame spread index* of 25 or less. In addition, the ASTM E84 or UL 723 test shall be continued for an additional 20-minute period and the flame front shall not progress more than 10.5 feet (3200 mm) beyond the center line of the burners at any time during the test.

Add new text as follows:

<u>**R302.15.1** **Alternate fire testing.** Fire-retardant-treated wood is also any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E2768, a listed flame spread index of 25 or less and where the flame front does not progress more than 10.5 feet (3200 mm) beyond the centerline of the burners at any time during the test.</u>

Revise as follows:

~~**R302.15.1**~~ <u>**R302.15.2**</u> **Pressure process.** For wood products impregnated with chemicals by a pressure process, the process shall be performed in closed vessels under pressures not less than 50 pounds per square inch gauge (psig) (344.7 kPa).

~~**R302.15.2**~~ <u>**R302.15.3**</u> **Other means during manufacture.** For wood products impregnated with chemicals by other means during manufacture, the treatment shall be an integral part of the manufacturing process of the wood product. The treatment shall provide permanent protection to all surfaces of the wood product. The use of paints, coating, stains or other surface treatments is not an *approved* method of protection as required by this section.

~~**R302.15.3**~~ <u>**R302.15.4**</u> **Testing.** For *fire-retardant-treated wood* products, the front and back faces of the wood product shall be tested in accordance with and produce the results required in Section R302.15.

~~**R302.15.3.1**~~ <u>**R302.15.4.1**</u> **Fire testing of fire-retardant-treated wood structural panels.** *Fire-retardant-treated wood structural panels* shall be tested with a ripped or cut longitudinal gap of $^{1}/_{8}$ inch (3.2 mm).

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

<u>E2768-2018</u>	<u>Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)</u>

Reason: The proposed added language is identical to the language included in section 2303.2.1 of the IBC, but that language is missing in the IRC. The remaining language in the IBC and IRC are equivalent. ASTM E2768 is already referenced in both the IBC and IWUIC.

Section 2303.2 of the IBC reads as follows:

***[BF] 2303.2 Fire-retardant-treated wood**. Fire-retardant-treated wood is any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E84 or UL 723, a listed flame* *spread index of 25 or less. The ASTM E84 or UL 723 test shall be continued for an additional 20-minute period and the flame front shall not progress more than 10.5 feet (3200 mm) beyond the centerline of the burners at any time during the test.*

[BF] 2303.2.1 Alternate fire testing*. Fire-retardant-treated wood is also any wood product that, when impregnated with chemicals by a pressure process or other means during manufacture, shall have, when tested in accordance with ASTM E2768, a listed flame spread index of 25 or less and where the flame front does not progress more than 10.5 feet (3200 mm) beyond the centerline of the burners at any time during the test.*

[BF] 2303.2.2 Pressure process*. For wood products impregnated with chemicals by a pressure process, the process shall be performed in closed vessels under pressures not less than 50 pounds per square inch gauge (psig) (345 kPa).*

[BF] 2303.2.3 Other means during manufacture*. For wood products impregnated with chemicals by other means during manufacture, the treatment shall be an integral part of the manufacturing process of the wood product. The treatment shall provide permanent protection to all surfaces of the wood product. The use of paints, coating, stains or other surface treatments is not an approved method of protection as required in this section.*

[BF] 2303.2.4 Fire testing of wood structural panels*. Wood structural panels shall be tested with a ripped or cut longitudinal gap of 1/8 inch (3.2 mm).*

This change in code language does not change any of the requirements but it simply brings the IRC in line with the IBC and the IWUIC as well as in line with NFPA 703 and other codes and standards dealing with fire-retardant-treated wood.
ASTM E2768 was developed specifically as a way of standardizing testing in the ASTM E84 (Steiner) tunnel for the full 30 minutes required for obtaining fire-retardant-treated wood. ASTM E84 does not provide any information about a 30 minute test but is simply a 10 minute test. Also, ASTM E84 does not provide any information (or ways to assess) flame front progress. ASTM E84 specifically states in its scope that for 30 minute tests, the user needs to refer to ASTM E2768. Consequently, many of the fire test reports reference ASTM E2768 instead of referencing ASTM E84 when conducting tests for FRTW.

The following is the corresponding sentence from the scope of ASTM E84:

1.2.1 Materials required by the user to meet an extended 30-min duration tunnel test shall be tested in accordance with Test Method E2768.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

ASTM E2768 is equivalent to the "extended ASTM E84" required at present.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ASTM E2768-2018 Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)

RB78-25

RB79-25

IRC: R302.15.11 (New), R302.15.11.1 (New), R302.15.11.2 (New), R304.3, R304.3.3, R304.3.4

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Add new text as follows:

R302.15.11 Fasteners and connectors in contact with fire-retardant-treated wood. Fasteners, including nuts and washers, and connectors in contact with *fire-retardant-treated wood* shall be in accordance with this section. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A153. The coating weight for zinc-coated nails shall be in accordance with ASTM A153 Class D or ASTM A641 Class 3S. Stainless steel driven fasteners shall be in accordance with the material requirements of ASTM F1667.

R302.15.11.1 Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations. Fasteners, including nuts and washers, for *fire-retardant-treated wood* used in exterior applications or wet or damp locations shall be of hot-dipped, zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails, staples and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.

R302.15.11.2 Fasteners for fire-retardant-treated wood used in interior applications. Fasteners, including nuts and washers, for *fire-retardant-treated wood* used in interior locations shall be in accordance with the manufacturer's recommendations. In the absence of the manufacturer's recommendations, Section R302.15.11.1 shall apply.

SECTION R304
PROTECTION OF WOOD AND WOOD-BASED PRODUCTS AGAINST DECAY

Revise as follows:

R304.3 Fasteners and connectors in contact with preservative-treated~~and fire-retardant-treated~~ wood. Fasteners, including nuts and washers, and connectors in contact with preservative-treated wood~~and *fire-retardant-treated wood*~~ shall be in accordance with this section. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A153. The coating weight for zinc-coated nails shall be in accordance with ASTM A153 Class D or ASTM A641 Class 3S. Stainless steel driven fasteners shall be in accordance with the material requirements of ASTM F1667.

Delete without substitution:

~~**R304.3.3 Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations.** Fasteners, including nuts and washers, for *fire-retardant-treated wood* used in exterior applications or wet or damp locations shall be of hot-dipped, zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails, staples and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.~~

~~**R304.3.4 Fasteners for fire-retardant-treated wood used in interior applications.** Fasteners, including nuts and washers, for *fire-retardant-treated wood* used in interior locations shall be in accordance with the manufacturer's recommendations. In the absence of the manufacturer's recommendations, Section R304.3.3 shall apply.~~

Reason: This is an editorial change to move requirements for fasteners and connectors used in fire-retardant-treated wood (FRTW) into Section R302.15. The requirements for fasteners used in FRTW belong in the section that has specific requirements and provisions for FRTW.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. This proposal relocates the requirements for fasteners and connectors used with FRTW to a more appropriate location in the code.

RB79-25

RB80-25

IRC: R303.5.7

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R303
FOAM PLASTIC

Revise as follows:

R303.5.7 Foam backer board. The thermal barrier specified in Section R303.4 is not required where *foam backer board* ~~siding backer board~~ ~~*foam plastic insulation*~~ has a thickness of not more than 0.5 inch (12.7 mm) and a potential heat of not more than 2000 Btu per square foot (22 720 kJ/m^2) when tested in accordance with NFPA 259 and it complies with one or more of the following:

1. The *foam plastic insulation* is separated from the interior of the *building* by not less than 2 inches (51 mm) of mineral fiber insulation.
2. The *foam plastic insulation* is installed over existing exterior wall finish in conjunction with re-siding.
3. The *foam plastic insulation* has been tested in accordance with Section R303.6.

Reason: "Foam backer board" is defined in chapter two. This is the only code section regarding foam backer board, so the defined term should be used if the definition is to have any purpose.

FOAM BACKER BOARD. Foam plastic used in siding applications where the foam plastic is a component of the siding.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is for clarification and simplification only. There is no change to the intent or application.

RB80-25

RB81-25

IRC: R303.5.13

Proponents: Paul Duffy, Paul Duffy and Associates, representing Spray Foam Coalition (jpaduffy@gmail.com)

2024 International Residential Code

SECTION R303
FOAM PLASTIC

Revise as follows:

R303.5.13 Floors. The thermal barrier specified in Section R303.4 is not required to be installed on the walking surface of a structural floor system that contains *foam plastic insulation* where the foam plastic is covered by not less than a nominal $^1/_2$-inch-thick (12.7 mm) *wood structural panel*, a non-combustible structural floor system, or equivalent. The thermal barrier specified in Section R303.4 is required on the underside of the structural floor system that contains *foam plastic insulation* where the underside of the structural floor system is exposed to the interior of the *building*.

Reason: This code section allows combustible wood flooring (or something equivalent) to satisfy the requirement of separating foam plastic insulation from the interior of a building in lieu of a prescribed Thermal Barrier. The wood flooring option is very specific but other alternatives are more vague and this has led to confusion in the field.

The proposed revision clarifies the type of other approved equivalents that would be considered acceptable as alternatives by providing an example. This should limit (and perhaps eliminate) the need for an engineering judgement for alternatives that are obviously less combustible than the minimum (i.e. 1/2" plywood.) The commentary to the code states:

> *"Foam plastic is required to be protected by a thermal barrier that typically is 1/2-inch (12.7 mm) gypsum wallboard. In the case of flooring, gypsum wallboard or other common thermal barrier materials cannot be used on the walking surfaces due to their friability to load, etc. This section allows for the 1/2-inch-thick plywood or equivalent to provide thermal protection to the foam plastic insulation. While 1/2-inch plywood is not by itself a thermal barrier, in the case of a floor, the plywood provides sufficient protection since in the event of an interior fire, the floor is typically the last building element to be significantly exposed by the fire."*

Certainly, any type of non-combustible flooring system will provide greater fire separation than the 1/2" wood flooring system which is cited as the minimum and it would be helpful if this was stipulated in the code.

Bibliography: N/A

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Minimum $1000 in cases where an engineering judgement is required.

Estimated Immediate Cost Impact Justification (methodology and variables):

The proposed change provides clarifying language so in the case where an alternate (non combustible) flooring system is used, the criteria for acceptance are clear enough so that no third party engineering opinion is required.

RB81-25

RB82-25

IRC: R303.6, UL Chapter 44

Proponents: Eric Banks, e.w.banks consulting llc, representing North American Modern Building Alliance (eric.banks@ewbanksconsulting.com)

2024 International Residential Code

SECTION R303
FOAM PLASTIC

Revise as follows:

R303.6 Specific approval. Foam plastic <u>and assemblies containing foam plastic </u>not meeting the requirements of Sections R303.3 through R303.5 shall be specifically *approved* on the basis of an *approved* large-scale test reflecting the actual end-use configuration and performed on the finished foam plastic assembly in the maximum thickness intended for use. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use. The approved large-scale test shall comply with one of the following: NFPA 286 with the acceptance criteria of Section R302.9.4, <u>Room Test of </u>FM 4880, ~~UL 1040~~ or UL 1715.

Delete without substitution:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

~~1040—1996~~ ~~Fire Test of Insulated Wall Construction—with Revisions through April 2017~~

Reason: The proposed change improves the consistency / comparability of the evaluation provided by the test methods prescribed by R303.6 and brings it more in-line with the intent of the section and its reference to the requirements of Sections R303.3 through R303.5. The proposed change is similar to proposal FS121-24 in Group A addressing the same topic in IBC Section 2603.9 Special Approval. Proposal FS121-24 was Approved by Comment in Group A Committee Action Hearing 2 and will likely go to the Consent Agenda. In practice, Section R303.6 is used to qualify uses of foam plastic insulation either without the protective covering materials prescribed in Sections R303.4 and R303.5 or using protective covering materials other than those prescribed. The IRCs scope of one- and two-family dwellings and townhomes of three stories in height or less questions the need for the very large-scale test options provided by FM 4880 and UL 1040.

FM 4880 is an approval standard includes four (4) different large-scale fire tests (Room Test, 16-ft High Parallel Panel Test, 25-ft High Corner Test, and 50-ft High Corner Test), each with different ignition source and exposure condition, along with a matrix of acceptance criteria. The specific combination of testing and acceptance criteria is determined by the makeup of the panel product under evaluation and the scope of approval desired. Of the tests described, only the test specimen size of the Room Test of FM 4880 aligns with the IRC's scope and intent of Sections R303.4, R303.5, and R303.6.

The UL 1040 is also a very large-scale test, using a 20-ft by 20-ft by 30-ft high open-corner configuration, a 764-pound wood crib ignition source and a 30-minute test duration. Such a large test specimen is inconsistent with the scope of buildings regulated under the IRC and intent of Sections R303.4, R303.5, and R303.6. Under FS121-24, Approved by Comment, UL 1040 was retained in IBC Section 2603.9, however, retaining the test as an option in the IBC is reasonable given the scope of buildings regulated under the IBC and the types of products maintaining listings for UL 1040.

The changes will improve the consistency of the evaluations performed under Section 303.6 and its intent in terms of the Specific Approval under Section 303.6 and the scope of the IRC.

The North American Modern Building Alliance (NAMBA) is focused on addressing fire safety through the development and enforcement of building codes. Members of NAMBA are: ACC Center for the Polyurethanes Industry, ACC North American Flame Retardant Alliance, Atlas Roofing Corp., BASF Corporation, Covestro, DuPont, EIFS Industry Members Association, EPS Industry Alliance, GAF, Huntsman, Kingspan Insulation LLC, Metal Construction Association, Owens Corning, Polyisocyanurate Insulation Manufacturers Association, Rmax

- A Business Unit of the Sika Corporation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed code change provides clarification regarding the existing tests required for compliance with Section R303.6.

RB82-25

RB83-25

IRC: R304.1, TABLE R304.1 (New), R304.1.1, R304.1.2

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

SECTION R304
PROTECTION OF WOOD AND WOOD-BASED PRODUCTS AGAINST DECAY

Delete and substitute as follows:

~~**R304.1 Location required.** Protection of wood and wood-based products from decay shall be provided in the following locations by the use of *naturally durable wood* or wood that is preservative-treated in accordance with AWPA U1.~~

1. ~~In *crawl spaces* or unexcavated areas located within the periphery of the building foundation, wood joists or the bottom of a wood structural floor where closer than 18 inches (457 mm) to exposed ground, wood girders where closer than 12 inches (305 mm) to exposed ground, and wood columns where closer than 8 inches (204 mm) to exposed ground.~~
2. ~~Wood framing members, including columns, that rest directly on concrete or masonry exterior foundation walls and are less than 8 inches (203 mm) from the exposed ground.~~
3. ~~Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.~~
4. ~~The ends of wood girders entering exterior masonry or concrete walls having clearances of less than $^1/_2$ inch (12.7 mm) on tops, sides and ends.~~
5. ~~Wood siding, sheathing and wall framing on the exterior of a *building* having a clearance of less than 6 inches (152 mm) from the ground or less than 2 inches (51 mm) measured vertically from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather.~~
6. ~~Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier.~~
7. ~~Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below *grade* except where an *approved* vapor retarder is applied between the wall and the furring strips or framing members.~~
8. ~~Portions of wood structural members that form the structural supports of *buildings*, decks, balconies, porches or similar permanent building appurtenances where those members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering that prevents moisture or water accumulation on the surface or at joints between members.~~

   ~~**Exception:** Sawn lumber used in structures located in a geographical region where experience has demonstrated that climatic conditions preclude the need to use naturally durable or preservative-treated wood where the structure is exposed to the weather.~~

9. ~~Wood columns in contact with *basement* floor slabs unless supported by concrete piers or metal pedestals projecting not less than 1 inch (25 mm) above the concrete floor and separated from the concrete pier by an impervious moisture barrier.~~

R304.1 **Preservative treatment.** Wood and wood-based products used in locations identified in Table R304.1 shall be preservative treated in accordance with AWPA U1 for the Use Category indicated in Table R304.1.

Exceptions:

1. Naturally durable wood shall be permitted to be substituted for preservative-treated wood in locations requiring Use Category UC2, UC3A or UC3B protection, as indicated in Table R304.1.
2. Wood used entirely below groundwater level or continuously submerged in fresh water shall not be required to be preservative treated.

Add new text as follows:

TABLE R304.1 PROTECTION FROM DECAY

Location	AWPA U1 Minimum Use Category
1. Wood in contact with the ground that supports permanent structures intended for human occupancy.	UC4A, UC4B, or UC4C[a]
2. Wood embedded in concrete in direct contact with the ground that supports permanent structures intended for human occupancy.	UC4A, UC4B, or UC4C[a]
3. Wood embedded in concrete exposed to the weather that supports permanent structures intended for human occupancy.	UC4A, UC4B, or UC4C[a]
4. Portions of wood structural members that form the structural supports of buildings, decks, balconies, porches or similar permanent building appurtenances where those members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering that prevents moisture or water accumulation on the surface or at joints between members. **Exception:** Preservative treatment is not required for sawn lumber used in structures located in a geographical region where experience has demonstrated that climatic conditions preclude the need.	UC3B[b]
5. Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs. **Exception:** Preservative treatment is not required for such wood structural members separated from the floor or roof by an impervious moisture barrier.	UC3B[b]
6. Wood sheathing and framing in the exterior wall of a building having a clearance of less than 6 inches (152 mm) from the ground.	UC3B[b]
7. Wood sheathing and framing in the exterior wall of a building less than 2 inches (51 mm) measured vertically from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather.	UC3B[b]
8. Wood siding on the exterior of a building having a clearance of less than 6 inches (152 mm) from the ground.	UC3A
9. Wood siding on the exterior of a building less than 2 inches (51 mm) measured vertically from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather.	UC3A
10. Wood columns, not exposed to the weather, where closer than 8 inches (203 mm) to exposed ground.	UC2
11. Wood columns, not exposed to the weather, in contact with basement floor slabs unless supported by concrete piers or metal pedestals projecting not less than 1 inch (25 mm) above the concrete floor and separated from the concrete pier by an impervious moisture barrier.	UC2
12. Wood framing members, not exposed to the weather, that rest directly on concrete or masonry exterior foundation walls and are less than 8 inches (203 mm) from the exposed ground.	UC2
13. Wood furring strips or other wood framing members, not exposed to the weather, attached directly to the interior of exterior masonry walls or concrete walls below grade. **Exception:** Preservative treatment is not required for such wood furring strips or wood framing members separated from walls by an impervious moisture barrier.	UC2
14. Wood joists or the bottom of a wood structural floor, not exposed to the weather, where closer than 18 inches (457 mm) to exposed ground.	UC2
15. Wood girders, not exposed to the weather, where closer than 12 inches (305 mm) to exposed ground.	UC2
16. Ends of wood girders, not exposed to the weather, entering exterior masonry or concrete walls having clearances of less than 1/2 inch (12.7 mm) on tops, sides and ends.	UC2
17. Wood sills and sleepers, not exposed to the weather, on a concrete or masonry slab that is in direct contact with the ground. **Exception:** Preservative treatment is not required for such wood sills and sleepers that are separated from the concrete or masonry slab by an impervious moisture barrier.	UC2

a. Use Category depends on exposure severity as defined in AWPA U1.

b. In accordance with AWPA U1, sawn lumber joists and beams shall be treated to requirements for Use Category 4A when they are difficult to maintain, repair, or replace and are critical to the performance and safety of the entire system/construction.

Revise as follows:

~~R304.1.1~~R304.2 Field treatment. Field-cut ends, notches and drilled holes of preservative-treated wood shall be treated in the field in accordance with AWPA M4.

Delete without substitution:

~~**R304.1.2 Ground contact.** All wood in contact with the ground, embedded in concrete in direct contact with the ground or embedded in concrete exposed to the weather that supports permanent structures intended for human occupancy shall be *approved* pressure-~~

~~preservative-treated wood suitable for ground contact use, except that untreated wood used entirely below groundwater level or continuously submerged in fresh water shall not be required to be pressure-preservative treated.~~

Reason: Section R304.1 currently provides only a general reference to the AWPA U1 standard with no further guidance regarding Use Category requirements for each location. In addition, requirements are presented in multiple formats and locations in this section. This code change restructures the locations where preservative-treated wood is required into one table and clarifies the required minimum Use Categories from the AWPA U1 standard. In the creation of the table, some location requirements were divided for clarity and/or to be more specific for the wood element being protected. Consistent with the current code, if a wood member fits into multiple categories, the most restrictive Use Category will apply.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. The current code already requires compliance with AWPA U1.

RB83-25

RB84-25

IRC: R304.1.1

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R304
PROTECTION OF WOOD AND WOOD-BASED PRODUCTS AGAINST DECAY

Revise as follows:

R304.1.1 Field treatment. Field-cut ends, notches and drilled holes of preservative-treated wood exposed to the weather shall be treated in the field in accordance with AWPA M4 or in accordance with the treated lumber *manufacturer's installation instructions*.

Reason: The reference to the AWPA M4 standard for field treatment of treated lumber has been in the IRC since the 2006 edition. However, 18 years later, it is far from an industry standard. Very few builders and even less building authorities are requiring field treatment or even aware of it. Unlike ICC, NFPA, UL, AWC, AISI, and many other standard publishers, the AWPA M4 standard is not viewable for free and is currently $40. It is less than three pages of information and very little of it is of significance to the residential construction industry. This $40 standard is essentially the building code (i.e. government) mandated installation instructions for treated lumber available at every lumberyard and home improvement store across the country. Treated lumber is heavily purchased by average DIY owners and deck builders, yet the instructions for proper installation to achieve the expected useful life is behind a paywall and then mandated.

The instructions to build an entire house and deck are available for free view in the 2021 IRC. In the preface of the IRC under the title "Effective Use of the International Residential Code" the text twice refers to the IRC in this manner: "It has been said that the IRC is the complete cookbook for residential construction." "This is consistent with the cookbook philosophy of the IRC." I do not believe the IRC is effective as a cookbook if a common ingredient requires the purchase of another cookbook.

I brought a proposal to the hearings for the development of the 2024 IRC with the reason statement above. In that proposal, I had included some basic information adapted from the M4 standard directly in the IRC for the benefit of the end user. The AWC and members of the AWPA opposed the proposal and ultimately I withdrew it. I am bringing this discussion back again this cycle, as I still believe the IRC is not appropriately addressing this subject.

In this proposal, the requirement for treatment is reduced only to wood used in exterior, exposed environments, such as decks. It is not realistic to believe that those framing houses are going to treat the ends of the sill plate they place on the foundation. I have never seen this done. If this were that important, we should not send people to a $40 two page reference to get the requirements. I have also included an alternative for following the manufacturer's installation instructions of the treated lumber.

It might be reasonable to consider removing the reference to the M4 standard entirely. We are setting people up to fail.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal would reduce the cost of code compliant installations, but no one is doing this anyway. The importance of this change is less about cost reduction and more about principle.

RB84-25

RB85-25

IRC: R304.1.1, R305.1.2

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

SECTION R304 PROTECTION OF WOOD AND WOOD-BASED PRODUCTS AGAINST DECAY

Revise as follows:

R304.1.1 Field treatment. Field-cut ends, notches and drilled holes of preservative-treated wood shall be treated in the field in accordance with AWPA M4.

> **Exception:** Field treatment of field-cut ends, notches and drilled holes shall not be required where the preservative-treated wood product manufacturer's instructions permit use without such field treatment.

SECTION R305 PROTECTION AGAINST SUBTERRANEAN TERMITES

R305.1.2 Field treatment. Field-cut ends, notches and drilled holes of pressure-preservative-treated wood shall be retreated in the field in accordance with AWPA M4.

> **Exception.** Field treatment of field-cut ends, notches and drilled holes shall not be required where the preservative-treated wood product manufacturer's instructions permit use without such field treatment.

Reason: Some engineered wood products have a preservative-treatment process which distributes the treatment through the cross-section. This precludes the need to field-apply treatment to field-cut ends, notches or drilled holes. This exception retains the requirement for field treatment of sawn lumber and other wood-based products, while giving an exception to prevent unnecessary field treatment to products which have specific requirements in their manufacturer's instructions.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

Field treatment should not be required on engineered wood products which have specific manufacturer's instructions which state that field treatment is not required. This code change proposal codifies that, which could decrease costs. We have conservatively estimated this cost decrease at $0.

RB85-25

RB86-25

IRC: R304.3.2

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

SECTION R304 PROTECTION OF WOOD AND WOOD-BASED PRODUCTS AGAINST DECAY

Revise as follows:

R304.3.2 ~~Fastenings~~ Fasteners and connectors for wood foundations. ~~Fastenings, including nuts and washers,~~ Fasteners and connectors for wood foundations shall be as required in AWC PWF.

Reason: "Fastenings" is an outdated term and is proposed to be replaced by "fasteners and connectors" which is consistent with terminology used in ANSI/AWC *Permanent Wood Foundation* (PWF) *Design Specification* in Section 2.4.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. This proposal editorially coordinates with terminology used in the PWF.

RB86-25

RB87-25

IRC: R305.1

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org)

2024 International Residential Code

SECTION R305
PROTECTION AGAINST SUBTERRANEAN TERMITES

Revise as follows:

R305.1 Subterranean termite control methods. In areas subject to damage from termites as indicated by Table R301.2, protection shall be by one, or a combination, of the following methods:

1. Chemical termiticide treatment in accordance with Section R305.2.
2. Termite-baiting system installed and maintained in accordance with the *label*.
3. Pressure-preservative-treated wood in accordance with the <u>AWPA U1 specifications for termite protection,</u> ~~provisions of~~ <u>used in the locations as specified in</u> Section R304.1.
4. Naturally durable termite-resistant wood.
5. Physical barriers in accordance with Section R305.3 and used in locations as specified in Section R304.1.
6. Cold-formed steel framing in accordance with Sections R505.2.1 and R603.2.1.

Reason: The code currently directs the code user to Section R304.1 for preservative-treated wood requirements. This change proposal adds a direct reference to AWPA U1 for requirements for termite protection, including specific treatments for protection against Formosan termites. Preservative wood treatment requirements for termite protection may differ from the preservative treatment requirements for decay protection only. For consistency, the structure of the revised item #3 is modeled after item #5 to point to Section R304.1 for locations where preservative-treated wood is required.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. A reference to AWPA U1 has been added for clarity.

RB87-25

RB88-25

IRC: R305.1

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

2024 International Residential Code

SECTION R305
PROTECTION AGAINST SUBTERRANEAN TERMITES

Revise as follows:

R305.1 Subterranean termite control methods. In areas subject to damage from termites as indicated by Table R301.2, protection shall be by one, or a combination, of the following methods:

1. Chemical termiticide treatment in accordance with Section R305.2.
2. Termite-baiting system installed and maintained in accordance with the *label*.
3. Pressure-preservative-treated wood in accordance with the provisions of Section R304.1.
4. Naturally durable termite-resistant wood.
5. Physical barriers in accordance with Section R305.3 and used in locations as specified in Section R304.1.
6. Cold-formed steel framing in accordance with Sections R505.2.1 and R603.2.1.
7. <u>Fiber-cement in accordance with Section R703.10</u>

Reason: Fiber-cement compliant with ASTM C1186 is similarly durable to attack from subterranean termites as other products listed (e.g. "naturally durable termite-resistant wood" and "pressure-preservative-treated wood").This resistance to termite attack is also covered in fiber-cement manufacturer's warranties as shown in attached files.

Fiber-cement has also been recognized as a termite-resistant material per Practice 602.1.6 of ICC-700 - the National Green Building Standard (p. 50 of the standard, also attached is an example certificate showing compliance)

ICC-700 is available to view in the following locations:
ICCsafe.org (with appropriate subscription): https://codes.iccsafe.org/content/ICC7002020P1
NAHB's website (free with registration): https://www.nahb.org/forms/open/icc-700-2020-ngbs-signup
SIPA website PDF (Free to view): https://www.sips.org/documents/NAHB-National-Green-Building-Standard-2020.pdf

excerpt screenshots from warranties can be seen below:

structure to which Product is applied (each a "Covered Person").

2. ALLURA®'S OBLIGATIONS. If, during the Limited Warranty Period, the Product is determined not to meet the terms of the Limited Warranty because it was not manufactured in compliance with ASTM C1186, was not resistant to damage caused by hail or termite attacks, or was not free from manufacturing defects in material and workmanship (a "Warranty Defect"), Allura® will, in its sole discretion, either: (a) refund or provide replacement pieces of the defective portion of the Product, or (b) reimburse the Covered Person for up to twice the original retail cost of the defective portion of the Product. After the 30th year of the Limited Warranty Period, this Limited Warranty will expire and shall no longer be applicable. If the original retail cost cannot be established by the Covered Person to Allura®'s reasonable satisfaction, the retail cost

PESTS:
- Will not be damaged by termites or other wood-boring insects.
- Resists damage caused by woodpeckers.

additional information on the pest-resistant / termite-resistant properties of fiber-cement products can be found on example manufacturer's websites:

https://allurausa.com/blog/protecting-your-home-from-termites

https://www.nichiha.com/resilience

https://www.jameshardie.com/blog/siding-durability/prevent-damage-with-siding-that-doesnt-appeal-to-pests/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Additional termite-resistant materials listed in this section (305.1) will certainly not increase cost of construction, and has potential to reduce costs if other similarly-resistant products are either unavailable or higher cost in that market.

RB88-25

RB89-25

IRC: SECTION R306 (New), R306.1 (New), R306.1.1 (New), R306.1.1.1 (New), R306.1.1.2 (New), R306.1.1.3 (New), R306.1.2 (New), R306.1.2.1 (New), R306.1.2.2 (New), R306.1.2.3 (New), TABLE R306.1 (New),R502.1.8 (New), R502.3.1 (New), R505.2.5.1 (New), R507.2.3, TABLE R507.2.3, R602.1.12 (New), R603.2.5.1 (New), R604.3.1 (New), R608.9.1, R608.9.4 (New), R610.3.4 (New), R703.3.3.1 (New), R704.2 (New), R802.1.8 (New), R803.2.3.1 (New), R804.2.5.1 (New), R905.2.5.1 (New), R905.3.7.1 (New), R905.4.5.1 (New), R905.5.5.1 (New), R905.6.6.1 (New), R905.10.4.1 (New), R905.12.3.1 (New), R905.15.5.1 (New), R905.16.6.1 (New), ASTM Chapter 44 (New)

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Residential Code

Add new text as follows:

SECTION R306
CORROSION RESISTANCE - SALTWATER ENVIRONMENTS

R306.1 Fasteners and connectors exposed to saltwater environments. In *hurricane-prone regions*, fasteners and connectors in areas within 3,000 ft (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.1.1 and R306.1.2.

R306.1.1 Screws, bolts and nails. Screws, bolts and nails shall be corrosion resistant by composition, stainless steel or nonferrous metal, or by coating or galvanization as specified in this section and Table R306.1.

R306.1.1.1 Stainless steel. Where required by Table R306.1, fasteners shall be manufactured from ASTM A240 Type 304, Type 305 or Type 316 stainless steel.

R306.1.1.2 Galvanized. Where required by Table R306.1, fasteners shall be in accordance with the following:

1. For fasteners with diameters greater than 3/8 inch (9.5 mm), the minimum corrosion resistance shall comply with or be equivalent to ASTM A153, Class C.
2. For fasteners with diameters 3/8 inch (9.5 mm) and less, the minimum corrosion resistance shall comply with or be equivalent to one of the following methods:
   - 2,1. ASTM A153, Class D.
   - 2.2. ASTM A641, Class 3S.
   - 2.3. Corrosion resistance exhibiting not more than 5 percent red rust after 1,000 hours of exposure in accordance with ASTM B117.
   - 2.4. Corrosion resistance exhibiting not more the 5 percent red rust after 280 hours of exposure for nails, 1000 hours of exposure for roof tile fasteners or 360 hours of exposure for other carbon steel fasteners in accordance with ASTM G85, Annex 5.

R306.1.1.3 Compatibility. Fasteners used with connectors or other metal plates shall have a corrosion-resistant coating or composition that is compatible with the corrosion-resistant coating or composition of the connectors to prevent corrosion from galvanic action between dissimilar materials.

R306.1.2 Connectors and metal plates. Connectors and metal plates shall be corrosion resistant by composition, stainless steel or nonferrous metal, or by coating or galvanization as specified in this section and Table R306.1.

R306.1.2.1 Stainless steel. Where required by Table R306.1, connectors and metal plates shall be manufactured from ASTM A240 Type

316 stainless steel.

R306.1.2.2 Enhanced galvanizing. Where required by Table R306.1, connectors and metal plates shall be hot-dipped galvanized prior to fabrication to meet ASTM A653, Coating Designation G185, hot-dipped galvanized after fabrication to meet ASTM A123, or provided with a protective coating as specified by TPI 1.

R306.1.2.3 Standard galvanizing. Where required by Table R306.1, connectors and metal plates shall be hot-dipped galvanized prior to fabrication to meet ASTM A653, Coating Designation G90, hot-dipped galvanized after fabrication to meet ASTM A123, or provided with a protective coating as specified by TPI 1.

TABLE R306.1 CORROSION RESISTANCE OF FASTENERS AND CONNECTORS

Exposure Description[a]	Building Location			
	Less than or equal to 300 ft from saltwater coastline		Greater than 300 ft and up to 3000 ft from a saltwater coastline	
	Screws, bolts, lag screws, including nuts and washters, nails and glulam rivets	Connectors and metal plates	Screws, bolts, lag screws, including nuts and washters, nails and glulam rivets	Connectors and metal plates
Exterior-Partially Sheltered and Exterior-Open Exposed	Stainless Steel in accordance with Section R306.1.1.1	Stainless Steel in accordance with Section R306.1.2.1	Galvanized in accordance with Section R306.1.1.2	Galvanized in accordance with Section R306.1.2.2
Interior - Vented Enclosed	Galvanized in accordance with Section R306.1.1.2	Enhanced Galvanized in accordance with Section R306.1.2.2	Galvanized in accordance with Section R306.1.1.2	Enhanced Galvanized in accordance with Section R306.1.2.2
Interior - Unvented Enclosed	Galvanized in accordance with Section R306.1.1.2	Standard Galvanized in accordance with Section R306.1.2.3	Galvanized in accordance with Section R306.1.1.2	Standard Galvanized in accordance with Section R306.1.2.3

a. Exposure Descriptions:
Exterior-Partially Sheltered locations are areas where fasteners and connectors are exposed to salt air, but not exposed to fresh rainwater to remove accumulated salt.
Exterior-Open Exposed locations are areas where fasteners and connectors are exposed to salt air, but also exposed to rainwater to allow rinsing of the accumulated salt, and also more likely to dry after rain.
Interior-Vented Enclosed locations are those where fasteners and connectors inside a part of the building that also has vents to the outside environment that would allow salt air to enter.
Interior-Unvented Enclosed locations are those that are inside the building, but not in the conditioned space.

CHAPTER 5
FLOORS

R502.1.8 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R502.3.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R505.2.5.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

Revise as follows:

R507.2.3 Fasteners and connectors. Metal fasteners and connectors used for all decks shall be in accordance with Section R304.3 and Table R507.2.3. Holes for through bolts shall be drilled to a diameter of $^1/_{32}$ inch to $^1/_{16}$ inch larger than the bolt diameter. Connectors shall be installed in accordance with the manufacturer's *approved* instructions.In *hurricane-prone regions*, fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

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TABLE R507.2.3 FASTENER AND CONNECTOR SPECIFICATIONS FOR DECKS[a, b]

ITEM	MATERIAL	MINIMUM FINISH/COATING	ALTERNATE FINISH/COATING [c]
Nails and glulam rivets	In accordance with ASTM F1667	Hot-dipped galvanized per ASTM A153, Class D or ASTM A641 Class 3S for $^3/_8$-inch diameter and less	Stainless steel, silicon bronze or copper
Bolts Lag screws (including nuts and washers)	In accordance with ASTM A307 (bolts), ASTM A563 (nuts), ASTM F844 (washers)	Hot-dipped galvanized per ASTM A153, Class C (Class D for $^3/_8$-inch diameter and less) or mechanically galvanized per ASTM B695, Class 55 or 410 stainless steel	Stainless steel, silicon bronze or copper
Metal connectors	Per manufacturer's specification	ASTM A653 type G185 zinc-coated galvanized steel or post hot-dipped galvanized per ASTM A123 providing a minimum average coating weight of 2.0 oz./ft^2 (total both sides)	Stainless steel

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Equivalent materials, coatings and finishes shall be permitted.

b. In *hurricane-prone regions*, fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306. Outside *hurricane-prone regions*, fasteners and connectors within 300 feet of a saltwater coastline shall be stainless steel.
~~Fasteners and connectors exposed to salt water or located within 300 feet of a salt water shoreline shall be stainless steel.~~

c. Stainless-steel-driven fasteners shall be in accordance with ASTM F1667.

CHAPTER 6
WALL CONSTRUCTION

Add new text as follows:

R602.1.12 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R603.2.5.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R604.3.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

Revise as follows:

R608.9.1 Connections between concrete walls and light-frame floor, ceiling and roof systems. Connections between concrete walls and light-frame floor, ceiling and roof systems using the prescriptive details of Figures R608.9(1) through R608.9(12) shall comply with this section and Sections R608.9.2, ~~and~~ R608.9.3 and R608.9.4.

Add new text as follows:

R608.9.4 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

Exception: One-half inch (12.7 mm) diamter or greater steel bolts.

R610.3.4 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

CHAPTER 7
WALL COVERING

R703.3.3.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R704.2 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

CHAPTER 8
ROOF-CEILING CONSTRUCTION

R802.1.8 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R803.2.3.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R804.2.5.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

CHAPTER 9
ROOF ASSEMBLIES

R905.2.5.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R905.3.7.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R905.4.5.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R905.5.5.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R905.6.6.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R905.10.4.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R905.12.3.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R905.15.5.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914 m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

R905.16.6.1 Fasteners and connectors exposed to saltwater environments. Fasteners and connectors in areas within 3,000 feet (914

m) of a saltwater coastline, or other areas subject to salt corrosion, shall comply with Section R306.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

B117-19	Standard Practice for Operating Salt Spray (Fog) Apparatus
G85-19	Standard Practice for Modified Salt Spray (Fog) Testing

Reason: Post-disaster assessments of wood-framed buildings following natural hazard events such as high winds, floods, and earthquakes have revealed that structural failures frequently occur at connections rather than in framing members. In coastal areas, where higher moisture and humidity levels exist and buildings are exposed to salt spray, corroded metal connectors and fasteners have been observed to contribute to the loss of an adequate load path. The loss of an adequate load path often results in damage to or failure of the structure.

This proposal is based on the corrosion resistance requirements in ICC 600-2020 and is also consistent with the requirements for an IBHS FORTIFIED designation. The FORTIFIED Home™ program was developed to reduce avoidable suffering and financial loss caused by hurricanes, high winds, and hail. The program requirements provide a systems-based, multi tiered approach for improving the resistance of homes and their contents to damage caused by wind, wind-driven rain, and hail. There are three designation levels—FORTIFIED Roof™, FORTIFIED Silver™, and FORTIFIED Gold™—that build on each other and address different systems of the home.

While ICC 600-2020 is referenced in Section R301.2.1.1, it is not required by the code and therefore not mandatory for buildings goverend by the IRC.

Research has shown that fasteners and connectors near the coastline exhibit corrosion where they are readily exposed to salt air and humidity, particularly if they are in a partially sheltered location where the salt is not washed off by rain. While the proposed IRC table is adapted from ICC 600-2020 Section 505.3, the ICC 600 requirements and this proposal are based on the recommendations in the FEMA NFIP Technical Bulletin (TB) 8, Corrosion Protection for Metal Connectors and Fasteners in Coastal Areas in Accordance with the National Flood Insurance Program (June 2019). TB 8 can be viewed and downloaded at https://www.fema.gov/sites/default/files/2020-07/tb8-corrosion_protection_metal_connectors_coastal_areas.pdf.

Metal connectors and fasteners are important elements in transferring loads from natural hazards (e.g., flood, wind, seismic) through a building. Corrosion rates for metal are dramatically higher in coastal environments than in less harsh, non-coastal environments as illustrated below by severely corroded deck connectors (FEMA P-55, Coastal Construction Manual, Figure 14-3). Therefore, it is important to increase the corrosion protection for metal connectors and fasteners in coastal environments. Studies have shown that stainless steel and thick hot-dip galvanized (G185 or higher) metal connectors and fasteners improve corrosion protection.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The overall cost of replacing uncoated connectors and fasteners with corrosion-resistant connectors and fasteners will vary depending on type and number of connectors and fasteners needed for any specific situation. Generally, the cost of fasteners and connectors, whether uncoated, galvanized, or stainless, are small percentage of the overall cost of a particular job.

At one building supplies retailer, the cost for a box of 4000 3-inch uncoated common nails was $100.00. The cost for a box of 4000 3-inch galavanized common nails was $150.00. For a typical 2000 square foot roof, the approximate number fasteners required to attach a wood structural panel roof deck would be 2,813. The cost per uncoated nail is $0.025. The cost per galvanized nail is $0.0375. The use of galvanized nails over uncoated nails in this example works out to a cost increase of about $35.00.

At a separate retailer, the cost for a box of 304 stainless steel 2 1/2-inch ring shank nails was $16.97 ($0.056 per nail). The cost for a box 99 galvanized 2 1/2-inch ring shank nails was $7.98 ($0.08 per nails). For this example, the stainless steel nails are less than a similar galvanized nail. These fasteners are from the same manufacturer.

At another building supplies retailer, the cost for a box of 62 stainless steel 10x2 1/2" deck screws was $21.98 ($0.35 per screw). The cost for a box of 110 galvanized 10x2 1/2" deck screws was $9.98 ($0.09 per screw). For a 300 square foot deck, the approximate number fasteners required to attached the deck boards would be 1,227 screws. The use of stainless steel screws over galvanized screws in this example works out to a cost increase of about $319.00. This example is provided to demonstrate the potential immediate cost impact resulting from increasing corrosion protection from galvanized to stainless steel fasteners but it should be noted that exterior decks within 300' of saltwater shorelines are already required to use stainless steel fasteners and connectors in accordance with 2024 IRC Section R507.2.3.

Although this code change proposal will increase costs, the additional costs are modest and will significantly reduce the likelihood of failure under anticipated wind loads, and thus will decrease future costs associated with repairs and rebuilding after high wind events.

Estimated Immediate Cost Impact Justification (methodology and variables):

Information in the estimated cost impact was obtained by discussion with a metal connector and fastener manufacture in addition to cost surveys at a couple of building supplies retailers.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.

UL B117-19 Standard Practice for Operating Salt Spray (Fog) Apparatus
UL G85-19 Standard Practice for Modified Salt Spray (Fog) Testing

RB89-25

RB90-25

IRC: R306.1.8, ASTM Chapter 44 (New)

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Revise as follows:

R306.1.8 Flood-resistant materials. Building materials and installation methods used for flooring and interior and exterior walls and wall coverings below the elevation required in Section R306.2 or R306.3 shall be flood damage-resistant materials that conform to the provisions of FEMA TB-2 <u>or flood damage-resistant materials that conform to the provisions of ASTM E3075 and ASTM E3369.</u>

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

<u>E3075-24</u>	<u>Standard Test Method for Water Immersion and Drying for Evaluation of Flood Damage Resistance</u>
<u>E3369-24</u>	<u>Standard Specification for Determining the Flood Damage Resistance Rating of Building Materials</u>

Reason:
This proposal expands the references cited in the IRC for contractors, designers, and local officials to use to determine which materials are flood damage-resistant materials. The IRC requires that flood damage-resistant materials are used below the elevation to which buildings must be elevated when they are located in flood hazard areas. The IBC requires the same, by reference to the standard ASCE 24.

For many years, the only source of information on flood damage-resistant materials has been FEMA Technical Bulletin 2, Flood Damage-Resistant Materials Requirements. TB 2 is already referenced in the IRC. FEMA reissued a new edition of TB 2 in 2024. The new edition is included in the standards promulgator proposal to update standards that are already referenced in the code.

The proposal allows use of materials that may not be explicitly listed in TB 2, or that may be listed but have been tested and evaluated and found to meet the expectation for resisting flood damage. Over the past several years, FEMA has reported on its work with the ASTM to develop the two new standards proposed to be included in the IRC. ASTM E3075 is used for immersion and drying of the test sample, and ASTM E3369 is used for evaluating and determining the flood damage-resistance of the test sample.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal offers an alternative standard to meet existing requirements in the code. There is no change to the technical content of the provisions, just an additional option to meet the provisions. By adding an alternative standard there will be no cost impact when approving this proposal.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ASTM E3075-24 Standard Test Method for Water Immersion and Drying for Evaluation of Flood Damage Resistance
ASTM E3369-24 Standard Specification for Determining the Flood Damage Resistance Rating of Building Materials

RB90-25

RB91-25

IRC: R306.2.2.1, FIGURE R306.2.2.1 (New)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

SECTION R306 FLOOD-RESISTANT CONSTRUCTION

Revise as follows:

R306.2.2.1 Installation of openings. The walls of enclosed areas shall have openings installed such that:

1. ~~There shall be not less than two openings on different sides of each enclosed area; if a *building* has more than one enclosed area, each area shall have openings.~~ Flood relief openings shall be located as follows:

   See Figure R306.2.2.1 for additional information.

   1.1. Flood relief openings where permitted as indicated in Tables R302.1(1) or R302.1(2).

   1.2. Flood relief openings shall be made of non-combustible material when the opening is facing to and less than 5 feet (1524 mm) to a property line or facing to and less than 5 feet (1524 mm) to an imaginary property line as described in Section R302.

   1.3. There shall not be less than two flood relief openings per enclosed space where the openings are placed on different exterior wall segments. The flood relief openings shall be arranged diagonally to the enclosed space, or as design permits.

   1.4. Where a dwelling unit has more than one enclosed space, each enclosed space shall have a minimum of two flood relief openings installed as described in Item 1.3.

   1.5. Where an interior cripple wall is introduced in an enclosed space, the cripple wall shall have adequate openings to allow for passage of water. See Figure R306.2.2.1, "Unit A".

   1.6. Flood relief openings are prohibited in a fire-resistive assembly that separates attached dwelling units.

   1.7. Flood relief openings in separation walls between enclosed spaces:

      1.7.1. The larger enclosed space requires flood relief openings in the separation wall.The total number of flood relief openings to be placed on all exterior walls shall be determined by the sum of the abutting spaces where the smaller enclosed space satisfies the total number of openings for that space without openings placed in the separation wall. The separation wall shall be fitted with additional flood relief openings that will satisfy the total number of required openings for the larger enclosed space. The ratio of separation wall openings to exterior wall openings for the larger enclosure shall be no greater than twenty five percent. See Figure R306.2.2.1, "Unit B".

      1.7.2. The smaller enclosed space requires flood relief openings in the separation wall.Where the smaller enclosure requires flood relief openings in the separation wall, the intervening space that will provide the relief shall provide one flood relief opening on the exterior wall for every flood relief opening in the separation wall between the enclosed spaces. The flood relief opening on the exterior wall shall be of equal or greater capacity to the flood relief opening between enclosed spaces. See Figure R306.2.2.1, "Unit C".

   1.8. Additional installation requirements as indcated in Section R306.2.2.2.

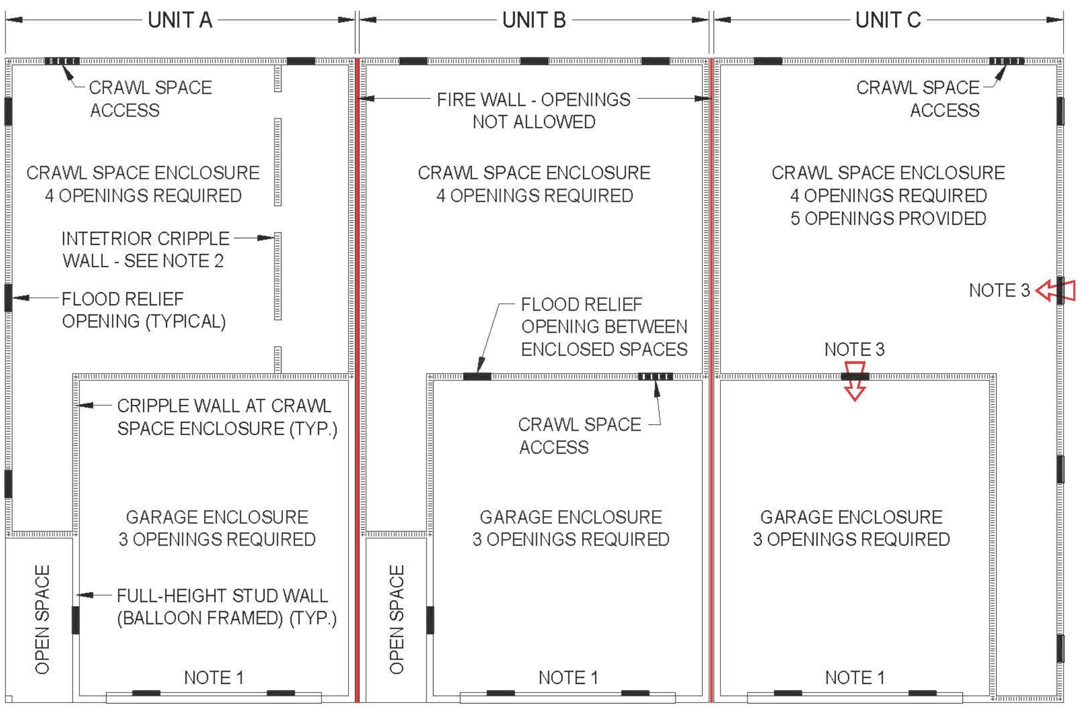
2. The bottom of each opening shall be not more than 1 foot (305 mm) above the higher of the final interior grade or floor and the finished exterior *grade* immediately under each opening.

3. Openings shall be permitted to be installed in doors and windows; doors and windows without installed openings do not meet the requirements of this section.

Exceptions:

1. Where it can be shown that the walls enclosing a crawl space are placed at or above the design flood elevation and the crawl space floor is below the design flood elevation, the following requirements shall apply:
   1.1. Where the crawl space has openings)that will provide unobstructive gravitational surface conveyance to the outside, flood relief openings along the enclosing walls are not required.
   1.2. Where the crawl space is at or up to 12 inches (304.8 mm) below the adjacent exterior grade, and the crawl space employs an underground drainage system, the crawl space shall be designed for flood relief openings along the enclosing walls as indicated in Section R306.2.2.
2. Where it can be shown that the walls enclosing a garage are placed at or above the design flood elevation and the vehicle parking area is below the design flood elevation, flood relief openings are not required.

Add new text as follows:



Notes:
1. Two (2) flood relief openings are provided on the overhead door.
2. Where an interior cripple wall is part of the enclosure, the cripple wall shall have adequate openings to allow for passage of water.
3. One additional opening shall be provided along the exterior wall for the intervening space receiving flood relief from the adjacent enclosure.

FIGURE R306.2.2.1 - DIAGRAMMATIC FLOOD RELIEF OPENING AND CRAWL SPACE ACCESS LOCATIONS FOR TOWNHOUSES

FIGURE R306.2.2.1 DIAGRAMMATIC FLOOD RELIEF OPENING AND CRAWL SPCE ACCESS LOCATIONS FOR TOWNHOUSES

Reason: Interpretations occur when there are no written definitions to the proposed situation, or the current code wording is too generalized.

The reason for this proposal is to:

1. More clearly define flood relief opening horizontal placement along exterior walls,
2. Define placement of flood relief openings in a separating wall between enclosures and
3. Provide clarification to some real-world situations I have encountered for projects requiring flood relief openings.

Interpretation Example:

See Exhibit 1.

The left diagram satisfies the wording as shown in Section R306.2.2.1, Item 1. By rewording R306.2.2.1, Item 1, flood relief openings are more properly spaced around the enclosure as shown in the right diagram.

See Exhibit 2

No written definitions available in the current code that states this geometry is prohibited. The geometry shown in this exhibit is a diagrammatic recreation of an actual design by others I have encountered.

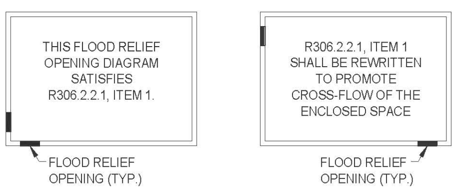


Exhibit 1: Diagrammatic Flood Relief Interpretation

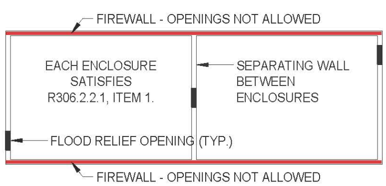


Exhibit 2: Diagrammatic Flood Relief Interpretation (continued)
Each enclosure requires two flood relief openings.
Each enclosure as shown satisfies R306.2.2.1, Item 1.
The sum of the flood relief openings along the exterior walls does not satisfy the sum of the enclosures.

Background:

Our primary architectural product is for use in urban settings. The product has an attached garage with a fire-resistive exterior wall on at least one side of the dwelling. Where we employ this product on a tract of land located in a flood-prone area, the placement of flood relief openings is limited to two exterior walls or, in some instances, one exterior wall for the garage enclosure.

I have seen other design and engineering firms design for flood relief openings where an opening is placed in the separating wall between enclosures. Both enclosures satisfy the required opening areas. However, the sum of the required flood relief openings located on the exterior walls does not satisfy the sum of the enclosed area minimum requirements. Currently there is no code wording to address this situation.

Recommendations:

Line items 7.1.1 and 7.1.2 in the proposal are open for review. Where there is a middle unit of a townhouse project, flood relief opening locations per enclosure is not able to satisfy the wording as currently shown in Section R306.2.2.1, Item 1. Stand-alone and two-dwelling unit urban products may also require referencing this proposed section.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

By reducing interpretations of the code wording, the builder, contractor, architectural firm, structural engineering firm, and permit reviewer will now have the same information available as the interpretating building official. Completion of the dwelling will not be delayed.

RB91-25

RB92-25

IRC: R306.2.2.2 (New), R306.2.2.2.1 (New), R306.2.2.2.2 (New)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Add new text as follows:

R306.2.2.2 Cripple wall opening protection between enclosed areas. Cripple walls separating the garage enclosure from the crawl space enclosure shall not have openings unless the openings are installed in accordance with Sections R306.2.2.2.1 and R306.2.2.2.2.

R306.2.2.2.1 Crawl space access. Openings between the garage and the *crawl space* under the dwelling unit shall be equipped with solid wood doors not less than 1-3/8 inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than 1-3/8 inches (35 mm) thick, or 20-minute fire-rated doors. Doors shall be self-latching and equipped with a self-closing or automatic-closing device.

R306.2.2.2.2 Flood relief openings. Flood relief openings shall comply with the following:

1. Flood relief openings between the garage and the *crawl space* under the dwelling unit space shall be made of non-combustible material and be equipped with a UL-listed fire damper attachment.
2. Flood relief openings between the garage and the sunken *dwelling unit* space shall be made of non-combustible material, be insulated, and be equipped with a UL-listed fire damper attachment.

Reason: The continuity of the separating wall between an attached garage and the dwelling unit space as shown in Section R302.5.1 is compromised when an unprotected wall opening is introduced between the attached garage and the crawl space enclosure beneath the dwelling unit space. This proposal establishes the maintaining of separation wall continuity between an attached garage and the dwelling unit.

Background:

Our primary architectural product is for use in urban settings. The product has an attached garage with a fire-resistive exterior wall on at least one side of the dwelling. Where we employ this product on a tract of land located in a flood-prone area, the placement of flood relief openings is limited to two exterior walls or, in some instances, one exterior wall for the garage enclosure. To satisfy the requirements as shown in Section R306.2.2.1, flood relief openings will need to be installed in the cripple wall separating the garage enclosure from the crawl space enclosure under the dwelling unit.

Recommendation:

This proposal originally written for Section R302.5 but has since relocated and proposed for Section R306. If you feel this proposal is more appropriate for R302.5, then please adjust the proposed section numbering above.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

By reducing interpretations of the code wording, the builder, contractor, architectural firm, structural engineering firm, and permit reviewer will now have the same information available as the interpretating building official.

RB92-25

RB93-25

IRC: R306.2.2.3 (New)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Add new text as follows:

R306.2.2.3 **Installation of floor drains.** Where an enclosed space requires flood relief openings, and the enclosed space floor has one or more floor drains connected to an underground detention or outfall system, and the connector pipe from the floor drain to the detention or outfall system does not have a back flow preventer valve, the net flow rate of the floor drain can be included as part of the engineered and non-engineered openings as required by Section R306.2.2, Item 2.1 provided the system provides for gravitational drainage. Sump pump systems do not qualify as part of this requirement.

Reason: Slab on Grade with perimeter curbs around the enclosure and Open to Grade with perimeter beams around the enclosure are part of the design where a jurisdiction requires mitigation to demonstrate “Net Zero Fill” of the flood waters. The perimeter curbs and beams are a result of Section R404.1.6. Civil engineer design may set the enclosure floor at or below the adjacent exterior grade. Floor drains will be required.

The primary concern here is equalizing hydrostatic forces on the exterior walls. Much attention has been addressed in the code publication to demonstrate the net size of openings, horizontal placement of openings, and vertical placement of openings, but no consideration is given for floor drains and the role they will play when equalizing hydrostatic forces.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Civil engineer design dictated the use of floor drains to satisfy jurisdictional requirements. Flood relief openings in an enclosure wall may be reduced.

RB93-25

RB94-25

IRC: R306.2.2.4 (New)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Add new text as follows:

R306.2.2.4 Mix of engineered and non-engineered flood relief openings. Mix of engineered and non-engineered flood relief openings are not permitted for a single enclosure. Where there are multiple enclosures and at least one enclosure wall is shared by each enclosure, each enclosure shall have only one type of flood relief opening with no flood relief openings in the shared enclosure wall.

Reason: This proposal is for dwellings that have an attached garage and crawl space. The garage enclosure may have insulated flood relief openings - which requires engineered openings, while the crawl space employs non-engineered openings (lattice included).

This proposal is to clarify the use of engineered and non-engineered flood relief openings per enclosure and to reduce interpretations.

There may be a situation where there is not enough linear wall to add non-engineered openings and the owner or a representative of the owner, to minimize the cost of construction, uses one engineered opening and makes up for the rest by providing non-engineered openings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Engineered flood relief openings cost more than non-engineered. However, more non-engineered openings are required that will offset the cost.

RB94-25

RB95-25

IRC: R306.2.3 (New), R306.2.3, R306.2.3.2 (New), R404.1.1, R404.1.2.2 (New)

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Add new text as follows:

R306.2.3 Foundation design and construction. In flood hazard areas, foundation walls for *buildings* and structures shall meet the requirements of Section R306.2.3.1 or R306.2.3.2.

Revise as follows:

~~R306.2.3~~ R306.2.3.1 ~~Foundation design and construction~~ Non-coastal flood source. ~~Foundation walls for *buildings* and structures erected in flood hazard areas shall meet the requirements of Chapter 4.~~In flood hazard areas where the source of flooding is determined as non-coastal originating from riverine waterways, lakes, and areas where floodwaters collect, foundation walls for *buildings* and structures shall meet the requirements of Chapter 4.

Exception: Unless designed in accordance with Section ~~R404~~ R404.1.2:

1. The unsupported wall height of 6-inch (152 mm) plain masonry walls shall be not more than 3 feet (914 mm).
2. The unsupported wall height of 8-inch (203 mm) plain masonry walls shall be not more than 4 feet (1219 mm).
3. The unsupported wall height of 8-inch (203 mm) reinforced masonry walls shall be not more than 8 feet (2438 mm).

For the purpose of this exception, the unsupported wall height is the ~~distance from the finished grade of the under floor space to the~~ difference in height between ~~to~~ the top of the foundation wall and the top of the concrete footing that supports the foundation wall.

Add new text as follows:

R306.2.3.2 Coastal flood source. In flood hazard areas where the source of flooding is determined as coastal originating from oceans, gulfs, bays, and large lakes, not including coastal high hazard areas and Coastal A Zones, foundation walls for buildings and structures shall meet the requirements of Section R404.1.2.2.

Exception: Foundation walls designed in accordance with Section R404.1.2.

SECTION R404
FOUNDATION AND RETAINING WALLS

Revise as follows:

R404.1.1 Design required. Concrete or masonry foundation walls shall be designed in accordance with accepted engineering practice where one or more ~~either~~ of the following conditions exists:

1. Walls are subject to hydrostatic pressure from ground water.

2. Walls supporting more than 48 inches (1219 mm) of unbalanced backfill that do not have permanent lateral support at the top or bottom.
3. Walls in flood hazard areas that do not conform to Section R306.2.3 or Section R404.1.2.2.

Add new text as follows:

R404.1.2.2 Flood hazard areas. In flood hazard areas where the source of flooding is determined as coastal originating from oceans, gulfs, bays, and large lakes, not including coastal high hazard areas and Coastal A Zones, concrete masonry and clay masonry foundation walls for buildings and structures shall be constructed as set forth in Table R404.1.2.2 and shall comply with the applicable provisions of Section R606.

R404.1.2.2 8-INCH MASONRY FOUNDATION WALLS WITH REINFORCING WHERE d >= 5 INCHES[a, b]

MAXIMUM UNSUPPORTED WALL HEIGHT[c]	MINIMUM VERTICAL REINFORCEMENT AND SPACING (INCHES)[d]
2 feet 0 inches	#4 at 72
2 feet 8 inches	#4 at 40 or #5 at 56
3 feet 4 inches	#4 at 24 or #5 at 48
4 feet 0 inches	#4 at 24 or #5 at 40
4 feet 8 inches	#4 at 16 or #5 at 32
5 feet 4 inches	#4 at 16 or #5 at 32
6 feet 0 inches	#4 at 16 or #5 at 32
6 feet 8 inches	#4 at 16 or #5 at 24
7 feet 4 inches	#4 at 16 or #5 at 24
8 feet 0 inches	#4 at 16 or #5 at 24
8 feet 8 inches	#4 at 16 or #5 at 24
9 feet 4 inches	#4 at 16 or #5 at 24
10 feet 0 inches	#4 at 8 or #5 at 16

a. Applicable in flood hazard areas where the source of flooding is determined as coastal originating from oceans, gulfs, bays, and large lakes, not including coastal high hazard areas and Coastal A Zones.
b. Vertical reinforcement shall be Grade 60 minimum. The distance, d, from the face of the outer side of the wall to the center of vertical reinforcement shall be not less than 5 inches.
c. Unsupported wall height is the difference in height between the top of foundation wall and the top of the concrete footing that supports the foundation wall.
d. Where unbalanced fill conditions exist, the vertical reinforcement shall be the greater of that required by this table or Table R404.1.2.1(2).

Reason: This code change proposal seeks to update the foundation wall requirements for flood hazard areas to meet the standards currently referenced in the 2024 IRC and to address foundation wall failures documented in Federal Emergency Management Agency (FEMA) Mitigation Assessment Team (MAT) Reports. Flood hazard area requirements for enclosed areas, including crawl spaces, located below the required minimum elevations are provided in Section R306.2.2.

Prescriptive solutions for masonry foundation walls in flood hazard areas that are not designated as coastal high hazard areas (Zones V) or Coastal A Zones (CAZs), are provided in Section 306.2.3. This proposal does not change elevation requirements for buildings in flood hazard areas. Instead, it modifies the current prescriptive masonry foundation wall solutions to resist minimum flood and wind loads on sites subject to coastal flooding.

IRC Section R306.2.3 permits construction of masonry foundation walls in flood hazard areas per Section R404 with height restrictions on plain masonry and 8” reinforced masonry walls. The wall height limitations in Section R306.2.3 are based on analyses performed in 1998 for a range of flood depths and flood velocities. FEMA examined those limitations in 2012 after observing foundation wall damage from Hurricane Sandy. The requirements were re-examined following the 2022 Group B Committee Action Hearings with input provided by industry groups, including National Concrete Masonry Association (NCMA) and American Concrete Institute (ACI), to reconsider earlier assumptions and to account for changes resulting from updates to referenced standards.

Foundation walls in flood hazard areas may be susceptible to hydrostatic forces (addressed by the requirement for flood openings in R306.2.2) and hydrodynamic forces imposed by moving water and moderate breaking wave loads on vertical walls with wave heights not greater than 1 ½ feet (see R306.2, if areas subject to wave heights between 1 ½ and 3 feet are delineated, they are designated “Coastal A Zones” and must comply with Section R306.3). FEMA evaluated the structural capacity of 8" masonry walls of variable heights to a range of velocities (for riverine-sourced flooding) and a range of wave heights (for coastal-sourced flooding) to determine whether the current IRC solutions could resist the minimum loads. Key assumptions in the current analyses include:

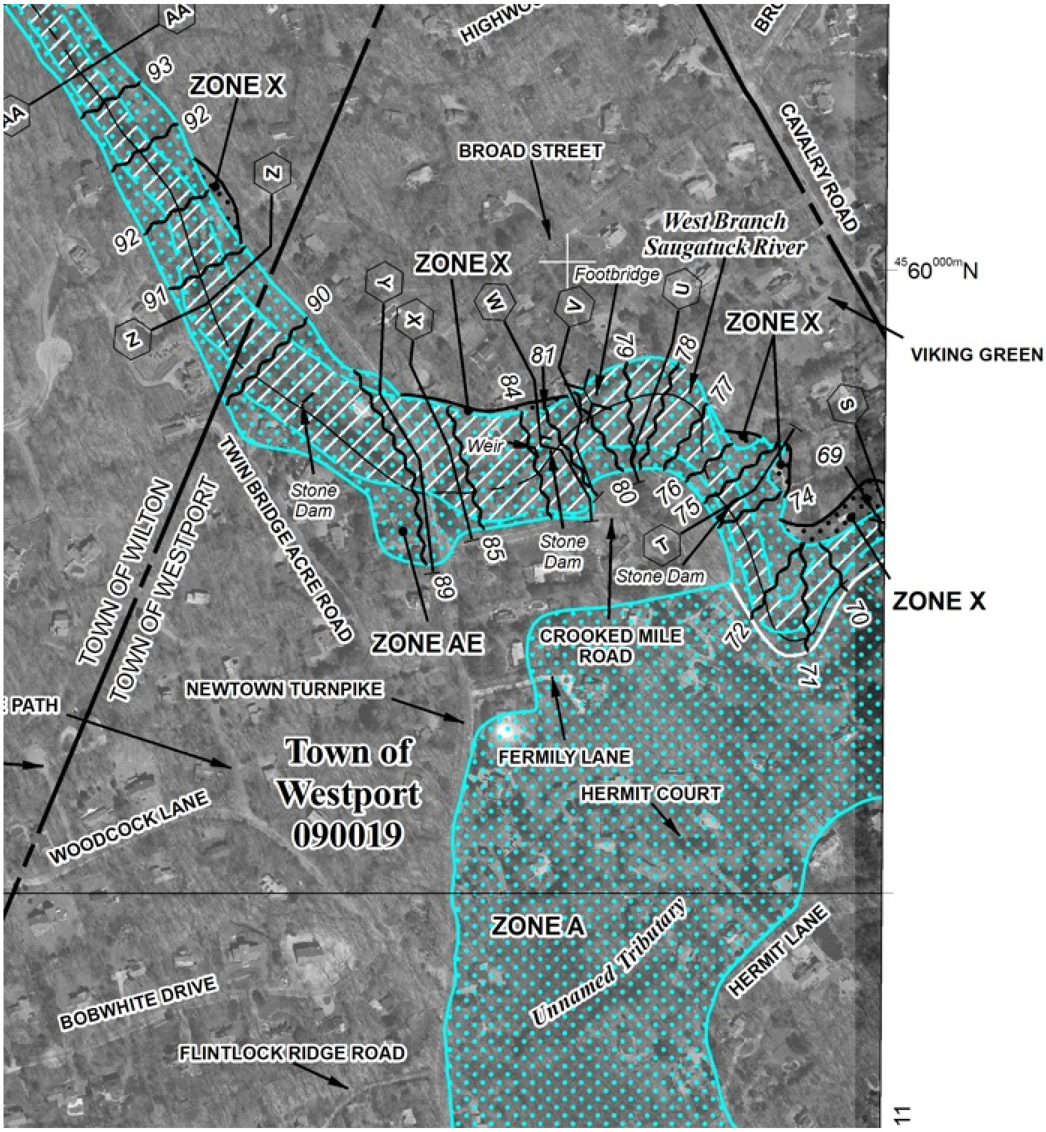
1. 1- story wood-framed residential structure supported on masonry foundation walls with flood openings installed per IRC Section R306.2.2.
2. Top of foundation wall braced by elevated floor system.
3. Material properties used to determine wall resistances are in accordance with standards referenced in the 2024 IRC.
4. For analysis of wall resistance to hydrodynamic loads, the maximum flood velocity evaluated is 9 fps with flood depth set equal to wall height.
5. For analysis of wall resistance to breaking wave loads, the maximum breaking wave height is 1.5 feet and the minimum design wind load (16 psf per ASCE 7-22 Section 30.2.2) is applied above the stillwater depth. (Note that for areas without designated Coastal A Zones, the breaking wave heights can be as high as 3 feet)
6. All loads were determined using Allowable Stress Design (ASD) Load Combination 7b in non-coastal A-Zones (not Zones V or CAZ) per ASCE 7-22 Section 2.4.2.

The analyses concluded that current solutions provided in Section R306.2.3 are sufficient for hydrostatic and hydrodynamic loading when flood openings are installed in accordance with Section 306.2.2 such that floodwaters of equal elevation are present on both sides of the foundation walls for sites without coastal sources of flooding causing wave loads. However, for sites with coastal sources of flooding, the analyses indicate that even small breaking wave loads induced failure across the current prescriptive solutions and increased reinforcement as provided in proposed Table R404.1.2.2 is necessary to resist the minimum required loads.

The Hurricane Sandy in New Jersey and New York MAT Report (FEMA P-962) included observations of shallow masonry foundation wall failures, including the example shown below. As noted in the report, the destroyed Union Beach, New Jersey residence was located in flood hazard area Zone A, elevated on a masonry wall foundation, and appeared to be no more than a few years old. All of the remaining masonry wall sections shown scattered across the site appear to be unreinforced. Although the report cannot conclude the sequence of failure, the example illustrates the vulnerability of unreinforced masonry walls in areas subject to coastal sources of flooding.

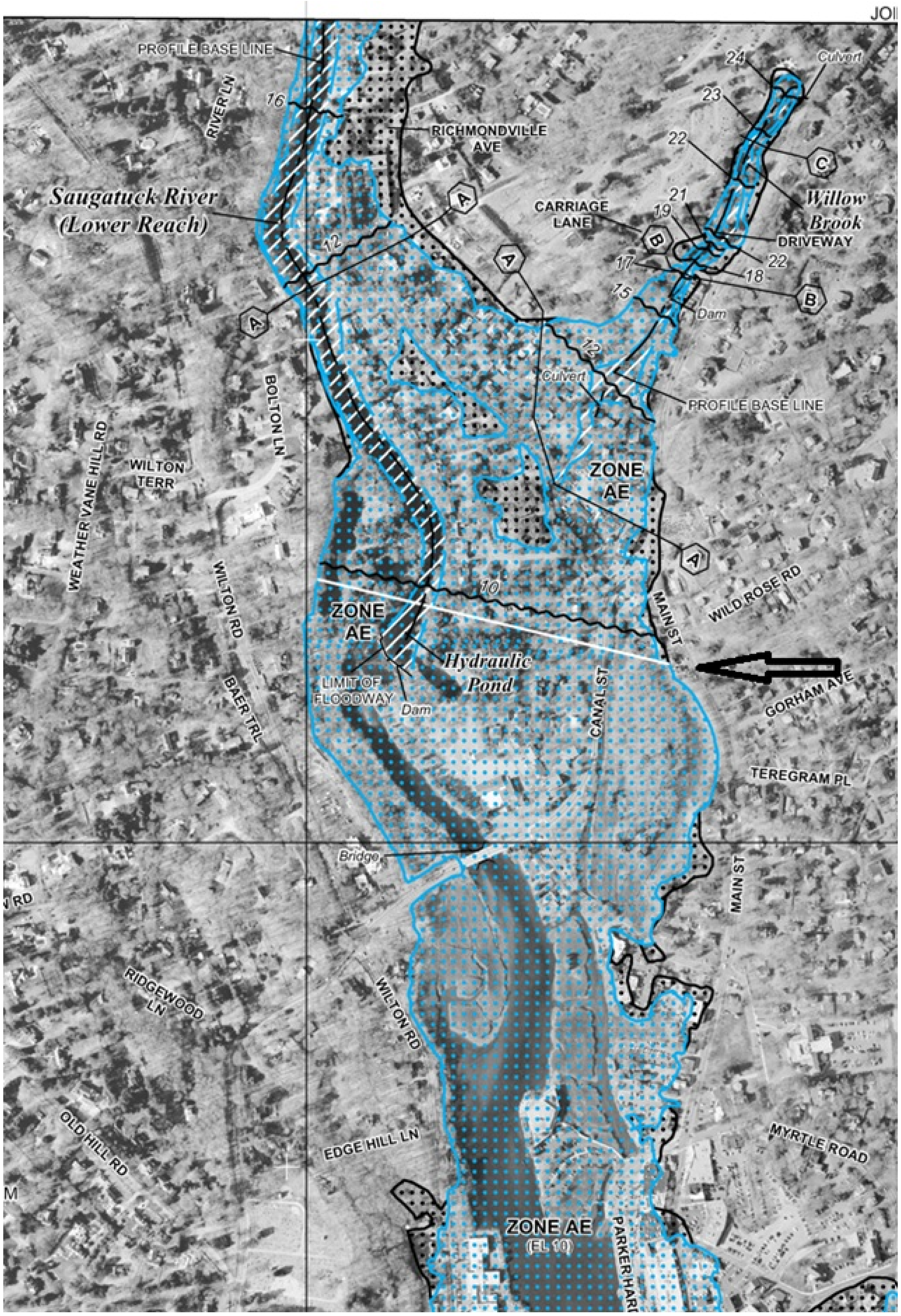
As a result of failed foundation wall observations, the Sandy MAT Report recommended (see Recommendation 22, Propose changes to the I-Codes) that FEMA should propose changes to the I-codes including, “Remove prescriptive provisions allowing unreinforced masonry foundation walls for new construction in Zone A.”

This proposal requires users to distinguish between coastal and non-coastal sources of flooding for flood hazard areas other than coastal high hazard areas and Coastal A Zones. Sources of flooding may be obvious based on geographic location, such as in states with no coastal or Great Lakes shorelines. However, where there are questions about the sources of flooding, the FEMA Flood Insurance Studies readily provide information as to whether riverine or coastal flood analyses was used to develop the Flood Insurance Rate Map. Flood Insurance Rate Maps look different for coastal and non-coastal sources of flooding (see map examples below). In areas where sources of flooding may be both coastal and non-coastal, such as near the mouth of a river where it meets the coast, maps show a “limit of study” where there is a distinct line between riverine and coastal analysis types (see map example). An area adjacent to a creek or riverine waterway may still be modeled as coastal source flooding where the coastal source flooding dominates (see Figure 2, Charles Creek is located within a coastal source flooding Zone AE).



1 – Non-coastal source of flooding is depicted as a series of elevations along the waterway for Zone AE with BFE, otherwise labeled as Zone A (no associated elevation). Base flood elevation is interpolated between elevation lines.

2-Coastal source of flooding is depicted as areas with a single base flood elevation for each area shown in parentheses under the Zone AE or Zone VE labels.



3- “Limit of study” is shown on this FIRM as a thick white line to distinguish between coastal and non-coastal analyses on the map (black arrow added for emphasis)

Cost Impact: Increase

Estimated Immediate Cost Impact:

Where required, additional materials and labor costs for most masonry foundation walls should average between approximately $1.00 (2 feet high) and $0.84 (6 feet high) per square foot of foundation wall surface area when compared to unreinforced 8" masonry (for 2' high walls) or lesser reinforced 8" masonry (as required for 6' high walls per Section R323.2.3).

Total costs for individual residences will vary linearly according to the foundation enclosure’s perimeter wall length and nonlinearly according to wall height since reinforcement requirements increase with wall height. The following total cost examples are based on the 60’x30’ wood-framed residence (180’ long perimeter wall) used to model flood load resistance for this proposal. For 2’ high masonry foundation walls requiring #4 bar at 72” on center, the cost increase over unreinforced masonry would average approximately $1.00 per square foot ($13.47 vs. $12.47). The total wall surface area is 360 square feet for a total cost increase of approximately $360. For a 6’ high wall requiring #5 bar at 32” on center, the cost increase over the current requirements for 8" masonry with #4 bar at 48" on center (per Section R306.2.3 and Table R404.1.2.1(2)) would average approximately $0.84 per square foot ($14.80 vs. $13.96) for a total cost increase of approximately $907.

This code change proposal will increase the cost of construction for a limited set of perimeter wall foundations in flood hazard areas with coastal sourced flooding, not including Zones V or CAZ. But the additional costs are modest and will significantly reduce the likelihood of failure under anticipated flood loads, and thus will decrease future costs associated with repairs and rebuilding after flood and flood/high wind events.

Estimated Immediate Cost Impact Justification (methodology and variables):

Estimates are based on 8”x8”x16” hollow concrete masonry units having no core fill and a compressive strength of 2000 psi as provided by 2024 RSMeans Construction Costs Index.

RB95-25

RB96-25

IRC: R306.3.6.1

Proponents: Gary Ehrlich, representing NAHB (gehrlich@nahb.org)

2024 International Residential Code

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Revise as follows:

R306.3.6.1 Protection of building envelope. A solid wood or composite door not less than 1-3/8 inches (35 mm) nominal in thickness, a solid or honeycomb-core steel door not less than 1-3/8 inches (35 mm) nominal in thickness, or an equivalent door ~~An exterior door that meets the requirements of Section R609~~ shall be installed at the top of *stairs* that provide access to the *building* and that are enclosed with walls designed to break away in accordance with Section R306.3.5.

Reason: This code change revises the requirement added in the 2015 IRC that an exterior door be provided at the top of a stairway enclosed by breakaway walls and providing access to a dwelling located in a Coastal A Zone or Zone V special flood hazard area and elevated on piers or piles.

While having a door at the top of such a stair may be good practice as it provides a way to secure the dwelling if the breakaway walls are washed away, the additional requirements associated with it being an exterior door are overly conservative, particularly if the door at the bottom of the enclosed stair is also an exterior door.

By requiring compliance with all of the requirements of Section R609, the specified door would need to have a design pressure rating consistent with the design wind speed for the site, the door frame would need to be stiffened to resist the loads from such a door, proper anchorage of the door to the frame would need to be provided, and the door opening would need head, jamb, and sill flashing, even if the door is to be installed in a wall that would otherwise be considered an interior, non-structural wall.

The specified nominal door thicknesses and types (e.g., solid wood doors) are consistent with typical exterior doors and will provide some structural resistance beyond just a standard hollow-core wood interior door. It just would not need to be wind rated or meet other performance requirements associated with exterior doors.

It is noted that this requirement does not appear in the basic construction requirements of the National Flood Insurance Program in accordance with 44 CFR 60.3. It is also not specified as a practice that a community would earn credit for mandating and enforcing under FEMA's Community Rating Service and would not lead to discounted flood insurance premiums under the CRS or under Risk Rating 2.0.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The minimum added cost to provide a standard wind-rated exterior door with flashing in lieu of a standard interior door is around $300. A hurricane wind-rated door adds an additional $200-$300 to the minimum costs. Hence the code change would save on the order of $500 to $600 per home.

Estimated Immediate Cost Impact Justification (methodology and variables):

The minimum added cost to provide a standard wind-rated exterior door with flashing in lieu of a standard interior door is around $300. A hurricane wind-rated door adds an additional $200-$300 to the minimum costs. Hence the code change would save on the order of $500 to $600 per home.

RB96-25

RB97-25

IRC: R310.3

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

2024 International Residential Code

SECTION R310
SMOKE ALARMS

Revise as follows:

R310.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional *story* of the *dwelling unit,* including *basements* and *habitable attics* and not including *crawl spaces* and uninhabitable *attics*. In *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.
4. Not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by this section.
5. In the hallway and in the room open to the hallway in *dwelling units* where the *ceiling height* of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches (610 mm) or more.
6. Within the room to which a *sleeping loft* is open, in the immediate vicinity of the *sleeping loft*.
7. Where the floor area for a level of a dwelling unit is 1000 ft^2 (93 m^2) or greater, smoke alarms shall be installed in accordance with all of the following:
   7.1. All points on the ceiling shall have a smoke alarm 30 ft (9.1 m) or less apart measured horizontally or shall have an equivalent of one smoke alarm per each 500 ft^2 (46 m^2) of floor area.
   7.2. Where dwelling units include great rooms, or include vaulted or cathedral ceilings extending over multiple floors, smoke alarms located on the upper floor that are intended to protect such areas shall be considered part of the lower floor's protection scheme.

Reason: Due to the volume of air in such large rooms, smoke has the potential to collect in a non-uniform manner across the ceiling - that is, some areas may have more smoke than others. Without adequate smoke alarms as required by these provisions, detection of smoke and notification of occupants could be significantly delayed depending on the location of the fire in relation to the location of the smoke alarm, since it takes longer for the smoke to fill a large room than it does to fill a small one.

Section R310 requires smoke alarms to comply with NFPA 72. NFPA 72, Sections 29.8.1.3, 29.8.1.3.1, and 29.8.1.3.2 provide requirements for rooms with large floor areas. This proposal adds these requirements into the list of required locations for smoke alarms, to ensure these requirements are not missed and to minimize problems when utilizing both standards. Since these provisions are already required in NFPA 72, and the IRC requires compliance with NFPA 72, these provisions are already required - this proposal simply adds these provisions into the IRC, to prevent confusion in the application of these provisions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Since the IRC requires compliance with NFPA 72 for smoke alarms, and NFPA 72 already has these provisions, there is no change in the requirements for smoke alarms. This proposal simply adds the language from NFPA 72 into the IRC to prevent confusion in the application of these provisions.

RB97-25

RB98-25

IRC: R310.7, R310.7.3, R311.7, R311.7.3

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

SECTION R310
SMOKE ALARMS

Revise as follows:

R310.7 Fire alarm systems. Fire alarm systems <u>that are not leased, and that are owned by the building owner,</u> shall be permitted to be used in lieu of smoke alarms and shall comply with Sections R310.7.1 through R310.7.4.

R310.7.3 Permanent fixture. Where a household fire alarm system is installed, it shall become a permanent fixture of the occupancy~~, and owned by the homeowner~~.

SECTION R311
CARBON MONOXIDE ALARMS

R311.7 Carbon monoxide detection systems. Carbon monoxide detection systems <u>that are not leased, and that owned by the building owner,</u> shall be permitted to be used in lieu of *carbon monoxide alarms* and shall comply with Sections R311.7.1 through R311.7.4.

R311.7.3 Permanent fixture. Where a household carbon monoxide detection system is installed, it shall become a permanent fixture of the occupancy ~~and owned by the homeowner~~.

Reason: This code change is has two targets: first, to remove the point of the IRC facilitating property ownership and, second, to remove the term "homeowner" from the code.

Under a strict reading, the existing code language positions the IRC to dictate that fire warning and carbon monoxide detection systems installed into residences, once installed, are immediately a permanent fixture of the occupancy and are then owned by the homeowner/building owner. The intent of the code was not to facilitate or mandate a transfer of ownership but rather delineate which systems could be used in lieu of smoke alarms and carbon monoxide alarms, respectively. The proposed language reaffirms the intent and moves the burden of ownership to before the IRC's interaction.

The second target, is to remove the term "homeowner" from the code, which is only used three times across the I-Codes. Homeowner synonymous for property/building *owner* where used. The proposed language replaces the language.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is primarily language cleanup to remove unintended inferences of the code's intent and to delete a misnomer. There is no direct cost impact.

RB98-25

RB99-25

IRC: R310.4, R311.5

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Residential Code

SECTION R310
SMOKE ALARMS

Revise as follows:

R310.4 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling unit* in accordance with Section R310.3, the smoke alarm devices shall be interconnected in such a manner that the actuation of one smoke alarm will activate all of the smoke alarms in the individual *dwelling unit*. Physical interconnection of smoke alarms shall not be required where *listed* wireless alarms are installed and all alarms sound upon activation of one alarm.

SECTION R311
CARBON MONOXIDE ALARMS

R311.5 ~~Interconnectivity~~ Interconnection. Where more than one *carbon monoxide alarm* is required to be installed within an individual *dwelling unit* in accordance with Section R311.3, the *carbon monoxide* alarm devices shall be interconnected in such a manner that the actuation of one *carbon monoxide* alarm will activate all of the *carbon monoxide* alarms in the individual *dwelling unit*. Physical interconnection of *carbon monoxide alarms* shall not be required where *listed* wireless alarms are installed and all alarms sound upon activation of one alarm.

> **Exception:** Interconnection of *carbon monoxide alarms* in existing areas shall not be required where *alterations* or *repairs* do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an *attic*, *crawl space* or *basement* available that could provide access for interconnection without the removal of interior finishes.

Reason: This code change clarifies that interconnection of alarms is intended to only require interconnection of like alarms.
Where combination smoke/carbon monoxide alarms are interconnected they should be interconnected within the function they serve.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change is editorial and provides clarification for smoke and carbon monoxide alarms.

RB99-25

RB100-25

IRC: R311.3

Proponents: Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov); Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com)

2024 International Residential Code

SECTION R311
CARBON MONOXIDE ALARMS

Revise as follows:

R311.3 Location. *Carbon monoxide alarms* in *dwelling units* shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel-burning *appliance* is located within a bedroom or ~~its attached bathroom~~ a room or space only accessed through a bedroom or sleeping area, a *carbon monoxide alarm* shall be installed within the ~~bedroom~~ sleeping area.

Reason: The code currently only requires carbon monoxide detectors to be added to a bedroom when there is a fuel burning appliance in the adjacent bathroom. Builders are installing gas appliances in the closet that opens to the bedroom. The risk is that a room containing a fuel burning appliance that opens to the bedroom could potentially fill the bedroom with dangerous levels of carbon monoxide before the detectors in the hallway outside of the bedroom go off. Adding this language will require a carbon monoxide detector for bedrooms that have any adjacent rooms accessed only through the bedroom containing fuel burning appliances.

The term bedroom is problematic as it is not a defined term and does not capture other sleeping areas such as sleeping lofts and sleeping units.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$15

Estimated Immediate Cost Impact Justification (methodology and variables):

Adding a carbon monoxide detector to the bedroom will add approximately $15 as the wiring is already there for a smoke detector and the cost would only be the difference in the price of a smoke detector and a combination detector. Where the builder may choose to install a separate CO detector at an additional cost, the combination detector would satisfy the minimum code requirements.

RB100-25

RB101-25

IRC: R312.1, R312.2

Proponents: Lisa Hartwig, City of Minneapolis, representing Self (lisa.hartwig@minneapolismn.gov)

2024 International Residential Code

SECTION R312
MINIMUM ROOM AREAS

Revise as follows:

R312.1 Minimum area. Habitable rooms shall have a contiguous floor area of not less than 70 square feet (6.5 m^2).

Exception: *Kitchens*.

R312.2 Minimum dimensions. The required floor area of habitable ~~Habitalbe~~ rooms shall be not less than 7 feet (2134 mm) in any horizontal dimension.

Exception: *Kitchens*.

Reason: This proposal aims to clarify current code requirements. The code requires habitable rooms other than kitchens to be 70 square feet or larger, with the smallest dimension no less than 7 feet. Thus, habitable rooms (such as bedrooms) must be at least 7'x10' to meet the space criteria of R312.

However, habitable rooms - especially bedrooms - may not be a simple rectangle. Per the letter of the code, if a room has a horizontal dimension of less than 7 feet at any location that it would not qualify as a habitable room.

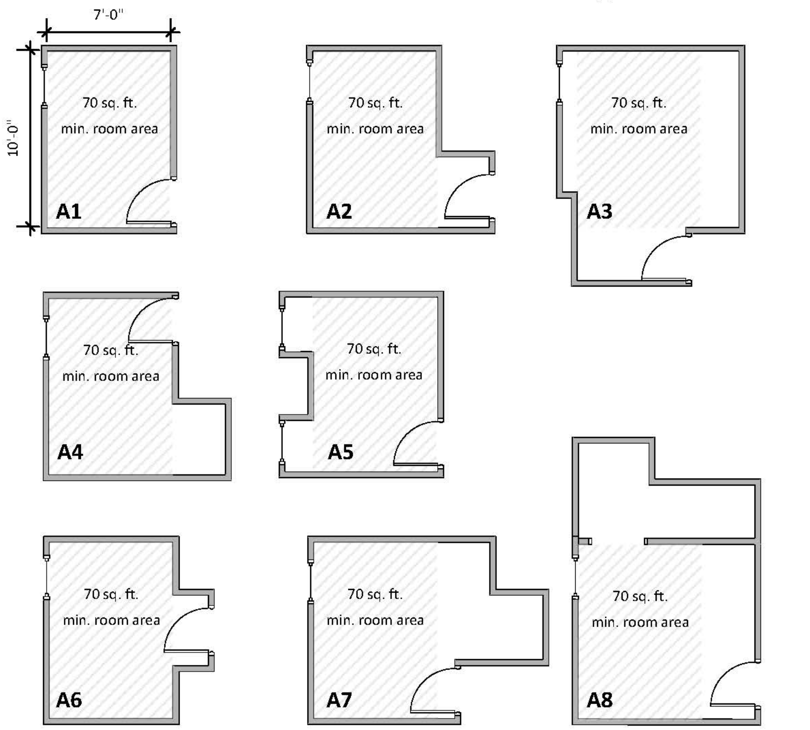
I believe that the intent of the code is to ensure that the 7 foot required minimum horizontal dimension should apply to the minimum floor area (70 square feet) and that portions of a room having dimensions of less than 7 feet are not a concern so long as the primary egress door (bedroom door) and emergency escape and rescue opening are located within the compliant 70 square foot minimum room area (that is also not less than 7 feet in any horizontal dimension).

See the illustrations of bedrooms in shapes other than a simple rectangle would comply per the proposed changes in this proposal.

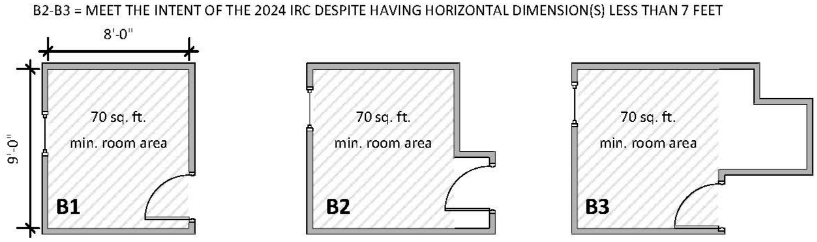
Minimum room areas (11962)

R312.1 MINIMUM AREA.
HABITABLE ROOMS SHALL HAVE A <u>CONTIGUOUS</u> FLOOR AREA OF NOT LESS THAN 70 SQUARE FEET
R312.2 MINIMUM DIMENSIONS.
<u>THE REQUIRED FLOOR AREA OF</u> HABITABLE ROOMS SHALL BE NOT LESS THAN 7 FEET IN ANY HORIZONTAL DIMENSION.

EXAMPLES OF CONTIGUOUS MINIMUM ROOM AREA WITH 1) ONE DIMENSION NO LESS THAN 7 FEET AND 2) THE OTHER DIMENSION NO LESS THAN 7 FEET AND SUFFICIENT TO MEET 70 SQUARE FEET (**7'x10' = 70 SQUARE FEET**)
A1 = MEETS THE LETTER OF THE 2024 IRC
A2-A8 = MEET THE INTENT OF THE 2024 IRC DESPITE HAVING HORIZONTAL DIMENSION(S) LESS THAN 7 FEET



EXAMPLES OF CONTIGUOUS MINIMUM ROOM AREA WITH 1) ONE DIMENSION NO LESS THAN 7 FEET AND 2) THE OTHER DIMENSION NOT LESS THAN 7 FEET AND SUFFICIENT TO MEET 70 SQUARE FEET (**8'x9' = 72 SQUARE FEET**)
B1 = MEETS THE LETTER OF THE 2024 IRC
B2-B3 = MEET THE INTENT OF THE 2024 IRC DESPITE HAVING HORIZONTAL DIMENSION(S) LESS THAN 7 FEET



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is just a clarification of the existing code requirements.

RB101-25

RB102-25

IRC: R312.1, R312.2

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R312
MINIMUM ROOM AREAS

Revise as follows:

R312.1 Minimum area. Habitable rooms shall be not less than 7 feet (2134 mm) in any horizontal dimension for ~~have~~ a floor area of not less than 70 square feet (6.5 m^2).

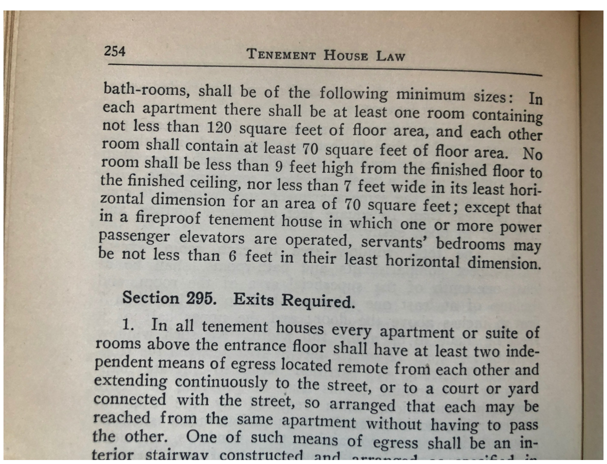
Exception: *Kitchens*.

Delete without substitution:

~~**R312.2 Minimum dimensions.** Habitable rooms shall be not less than 7 feet (2134 mm) in any horizontal dimension.~~

~~**Exception:** *Kitchens.*~~

Reason: There is no reason to mandate that every portion of a habitable room be a minimum of 7 feet wide. This requirement dates to tenement housing laws recommended by the National Board of Fire Underwriters in the 1920 (or earlier) National Building Code. The intent was to provide a limit to how small of a room could be rented to tenants. In this code, the minimum 7 feet was only required within the minimum required 70 square feet, which appears to make sense (see attached photo from 1920 NBC) If the minimum required area of 70 feet is provided and is not less than 7 feet wide, I see no logically reason to prohibit the room from being larger and less than 7 feet wide. There are many instances where if the current minimum 7-foot dimension was enforced strictly, unnecessary design limitations would result. I have provided two examples that I use when educating building officials across the country and not once has anyone said they have a problem with these areas being less than 7 feet. The 2024 IRC is over 1100 pages and should be simplified where possible. This proposal combines two separate sections into one and uses less lines of repeating text.

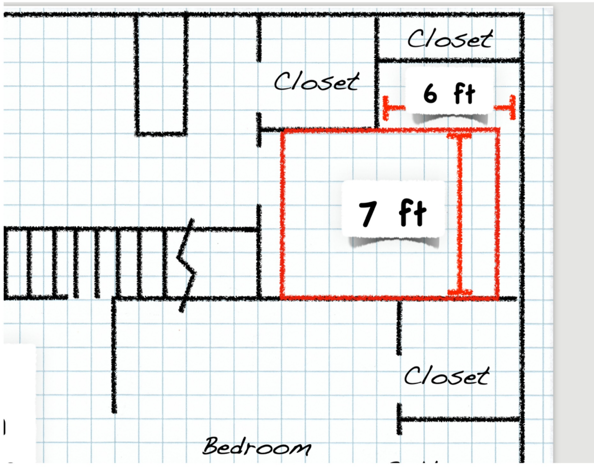


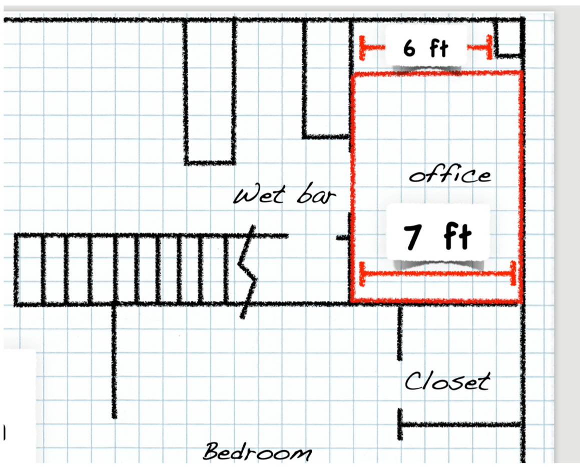
254 TENEMENT HOUSE LAW

bath-rooms, shall be of the following minimum sizes: In each apartment there shall be at least one room containing not less than 120 square feet of floor area, and each other room shall contain at least 70 square feet of floor area. No room shall be less than 9 feet high from the finished floor to the finished ceiling, nor less than 7 feet wide in its least horizontal dimension for an area of 70 square feet; except that in a fireproof tenement house in which one or more power passenger elevators are operated, servants' bedrooms may be not less than 6 feet in their least horizontal dimension.

Section 295. Exits Required.

1. In all tenement houses every apartment or suite of rooms above the entrance floor shall have at least two independent means of egress located remote from each other and extending continuously to the street, or to a court or yard connected with the street, so arranged that each may be reached from the same apartment without having to pass the other. One of such means of egress shall be an interior stairway constructed and





Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal increases design freedom and thus has no regulatory effect on the cost of construction.

RB102-25

RB103-25

IRC: R312.2

Proponents: Jay Osborne, representing FreeFarmhouse LLC (jay@freefarmhouse.com)

2024 International Residential Code

SECTION R312 MINIMUM ROOM AREAS

Revise as follows:

R312.2 Minimum dimensions. Habitable rooms shall include a usable floor area of not less than 7 feet by 7 feet (2134 mm by 2134 mm) that is free of permanent obstructions, such as walls, columns, and guards. ~~be not less than 7 feet (2134 mm) in any horizontal dimension.~~

Exception: *Kitchens*.

Reason: I know how to design small houses. Rule 1: Provide Flexibility.

I've designed dozens of small houses that are being constructed all around America. Each of these designs includes one or more furniture arrangements, so I know how well everything fits in the rooms. The projects often compel me to push the limits, making spaces that barely meet code. It's not ideal, but it can still work perfectly fine for the situation. I know that best practices (and rules of thumb) should not become rigid requirements. Any competent architect or builder should also know that.

Regulations need to give flexibility so people can respond to nuanced, site-specific needs. Bedroom door widths are not mandated by code, but designers and builders still make them just fine. A door at a loft reached by a tiny spiral staircase doesn't need to be as wide as one that a king size bed fits through. In the same way, small rooms need to be allowed to have some flexibility. If requested, I could provide you many diagrams showing how practical my proposal would be, even in the worst case scenarios.

How small homes are under attack.

Some code enforcers think they can forbid bay windows and alcoves unless they're more than 7' wide. Such a code interpretation is utterly idiotic. Obviously, those people have never designed a house. Unfortunately, many anti-creative code enforcers seem to have a vendetta against all new development (especially homes meant for poorer people). So this part of the building code may need to be rewritten— not for builders or architects, but because of prejudicial code enforcers who use it as a means to block the construction of small houses. They shamelessly exacerbate today's housing crisis.

Seven feet is what you need to stretch out.

The 7' room dimension is extremely important. You can't fit a bed in a room unless it's about 7 feet wide. In a living area, this requirement lets you stretch out your arms and twirl around without hitting the walls. Seven feet is an ergonomic reality. Hammurabi himself could have specified a code requirement like that, and it would still be relevant after thousands of years.

Why it's bad to make it "7 feet wide for only the minimum floor area"?

Compared to the 7 feet requirement, the 70 square feet minimum room area is quite arbitrary. That's why some places require 80 square feet. (Or even 90, for whatever reason.) Square footage is more about convention than ergonomic reality. So 7'x7' provides adequate space for a bed or for stretching out your arms, but the remaining 21 square feet (about 1/3) of the floor area should be allowed to be designed based on individual circumstances. After all, why would bay windows be banned in 70 square foot rooms? And if it's 90 square feet required, what's the necessity of a 7'x13' dimension? It's completely arbitrary. Give me the chance, and I'll show you a wide variety of useful rooms that would be banned by such a restriction.

A room is often constrained by outside circumstances, so 7'-wide rooms are common. But why is 7'x10' a terrible minimum requirement? It forces all small rooms to be boxes. It leaves no room for discretion-- like fitting a 5'-wide bed alcove between structural supports. Or wrapping an L-shaped bedroom around a staircase. So with a 7'x10 requirement, small bedrooms couldn't fit in many places. And because rooms often have to be placed around obstacles, 7'x10' would prevent even existing *large rooms* from being code-compliant.

Small houses are practical and safe. Yet many people block their construction for horrible reasons.

Unless you're trying to block the construction of small houses, requiring a 7'x10' clear area is a terrible idea. And since we have an ethical obligation to do something about today's housing crisis, we need to make it clear that code enforcers cannot block the construction of inexpensive, yet enduringly practical homes. My 7'x7' proposal allows things like bay windows and bed alcoves in small bedrooms, which makes them better. And it makes them easier to build in the first place.

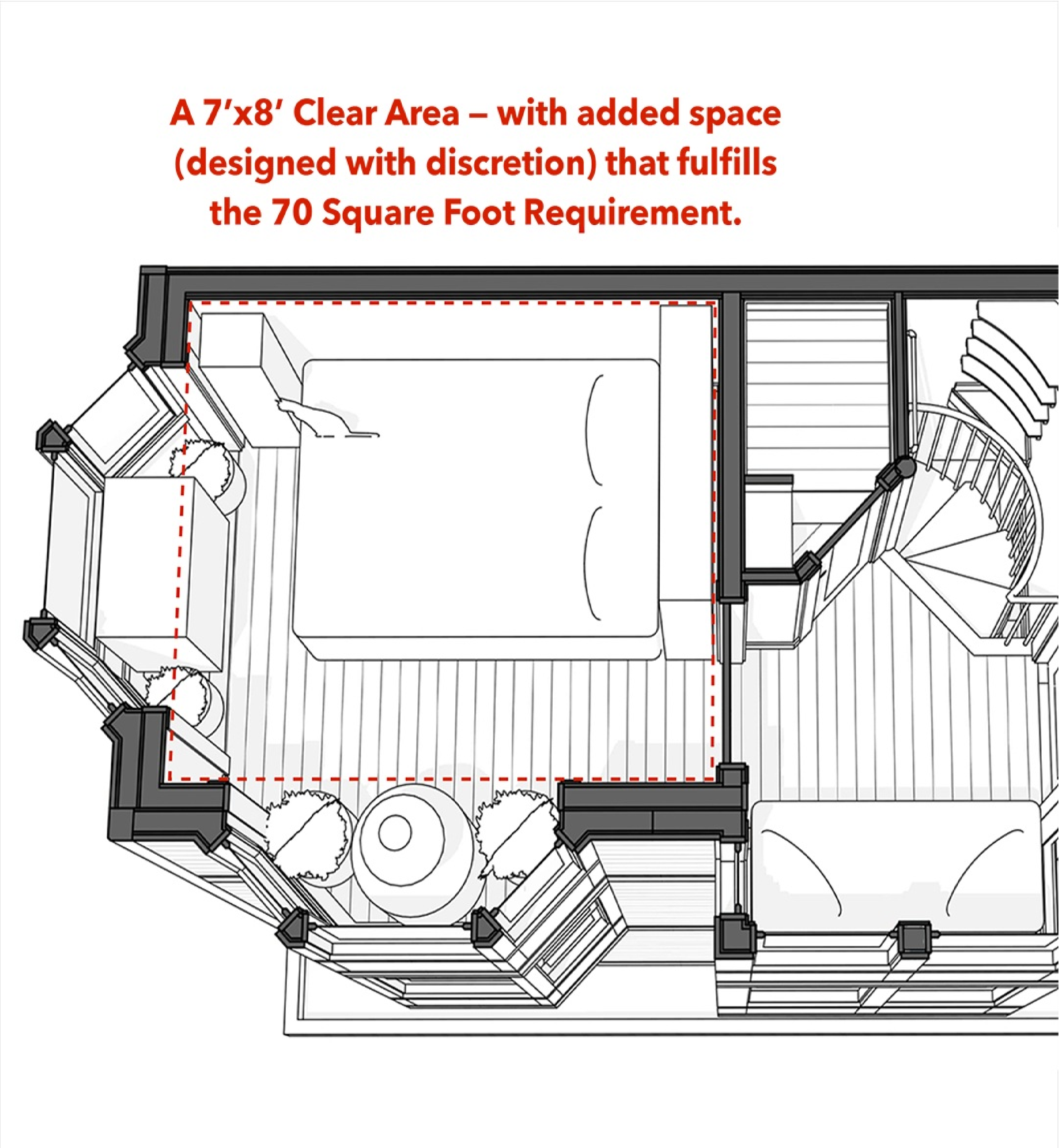
Is there any reason we should make small houses harder to build by enforcing new requirements? If someone can't imagine living in a small house, should their prejudices be considered?

Please support this 7'x7' minimum room area proposal.

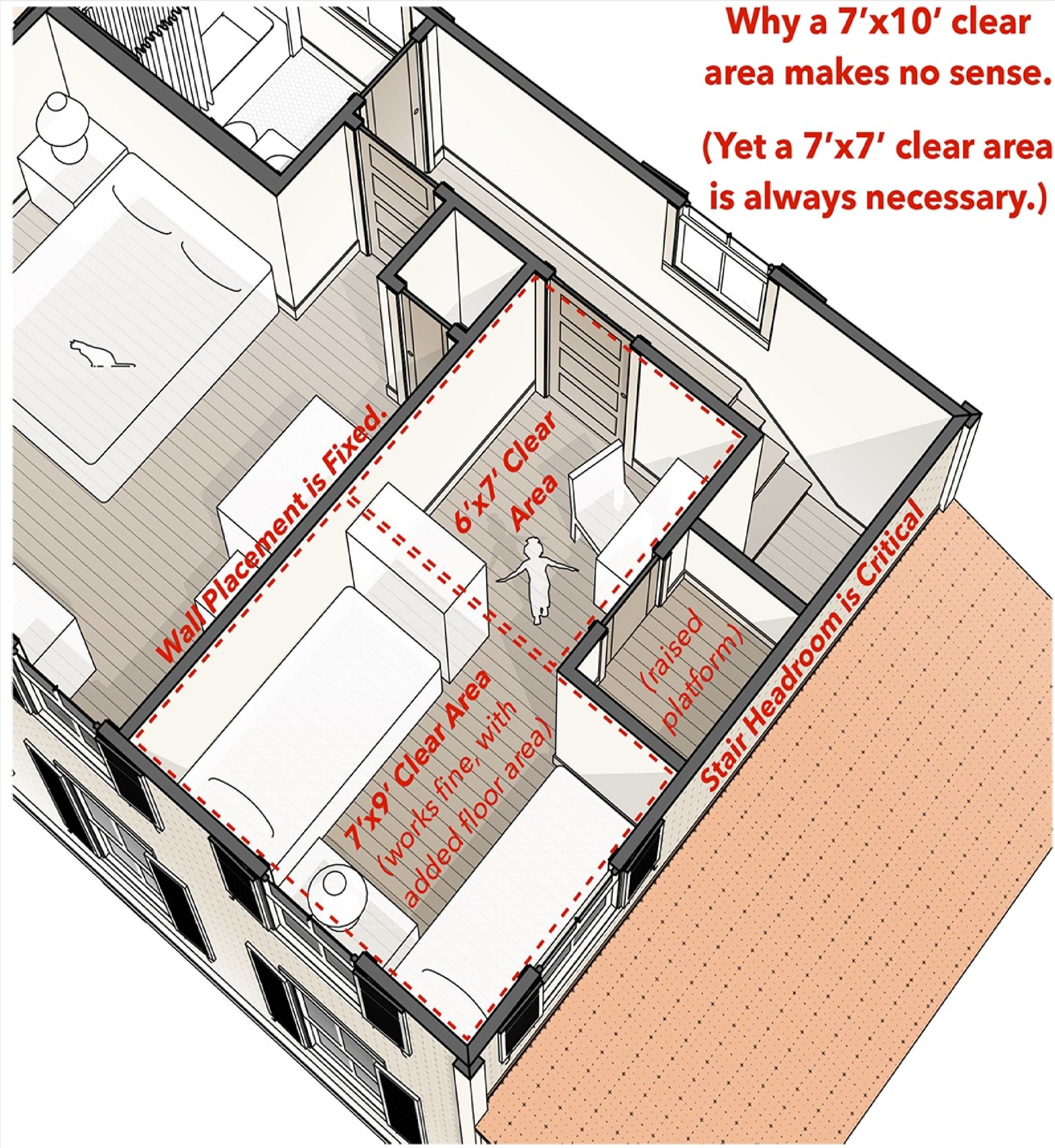
Bibliography:

A 7'x7' minimum clear area goes well with the 70 square foot requirement.

Here I show a couple of my projects. Notice that a 7'x10' requirement is ridiculous, but 7'x7' (with the added floor area requirement) is undeniably necessary. Small homes are highly functional and desirable, but they become impractical (and financially impossible to build) if requirements disallow their ability to have small rooms. The remaining 21 square feet would be designed based on the practical needs, not arbitrary conventions.



Bay windows, alcoves, and angled forms can be necessary and functional -- especially in houses that are constrained in space. They should be allowed even in the smallest rooms.



If a 7'x10' room is mandated as a minimum, that would make tens of millions of US bedrooms non-compliant. Yet 7'x7' is absolutely necessary, based on fundamental ergonomics.

I design small houses based on the successes of the past.

Visiting old homes, I always carry a laser measurer. I learn how they grew over time. And where they failed. I believe the best houses are those that have proven worth preserving. So my architectural designs embody time-tested folk wisdom.

And -- this is incredibly rare-- I create designs that are open source. All kinds of people are building them, all across the world. They're made to be adapted to local needs. Also, anybody can critique or learn from the blueprints. You can download some (for free and without permission) at FreeFarmhouse.com.

Here are some of my projects (evidence that I might know what I'm talking about):

If you want more diagrams or photos which help prove the claims I make, just let me know. We need to support the development of small, low-cost housing.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This will make small houses easier to build. Exact numbers are meaningless. But by allowing more flexibility in the design of small homes, they will obviously be more economical to build.

Starter homes are an endangered species in the US. That's partly because it's so hard to get them approved. The clarity of this proposed code change will make it more obvious if a room is large enough to meet code. It doesn't depend so much on interpretation.I hope you understand that the design and permitting of small houses is prohibitively expensive.

I think it's obvious that this proposal can save thousands of dollars in a small house project-- if only in design fees. It takes time and ingenuity to figure out how rooms fit in a small house. In projects where clearances are tight, it's common to spend a large chunk of the design process making sure there's enough space in the tightest parts. In normal scenarios, that means about 10-50 hours at $100-200 per hour (so $1,000-$10,000 in design fees alone). So it's fair to say this proposal can save thousands of dollars in the design fees for a small house. And probably a lot more in the construction-- because making it clear that a flexible room configuration is permissible (within the 70-square-foot minimum floor area) will let houses have a smaller footprint.

The dollar amount isn't precise -- it's order of magnitude. I don't want to spark debates about pennies. This primarily serves small or urban houses (and renovations), and is mostly irrelevant to the design of McMansions. It's absolutely crucial to recognize that this proposal will undoubtedly reduce costs for building small homes.

Estimated Immediate Cost Impact Justification (methodology and variables):

The difficulty of dealing with harsh or unclear regulations has a major impact on the economic feasibility of small homes. I hate to state the obvious, but there it is.
Less obvious: Small, functional houses are harder to design than sprawling McMansions. They have to follow most of the same requirements, and also need to be smart with space and budget.

Most architects are too expensive to be involved in the design of small homes, so the regulations need to be simple and straightforward. And they shouldn't be written based on the preferences of mansion owners. Small rooms aren't a luxury. They're a necessity, and should be regulated based on the needs, not fashionable desires.

Also, by allowing more flexibility in the design of rooms, this code amendment will undeniably make it easier to build small homes.

RB103-25

RB104-25

IRC: SECTION 202, R313.1, R313.1.1, 313.1.2 (New), 313.1.3 (New), R313.1.2, R312.3

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

[RB] CEILING HEIGHT. The clear vertical distance from the final ~~finished~~ floor surface to the ~~finished ceiling.~~ final ceiling or soffit surface or to the bottom of beams or girders.

SECTION R313
CEILING HEIGHT

R313.1 Minimum height. Minimum *ceiling height* shall be in accordance with Sections R313.1.1 through R313.1.3. Smoke and carbon monoxide alarms, fire sprinklers, luminaires, louvers, registers, and similar items shall be permitted to project below the minimum required *ceiling height*. ~~*Habitable space*, hallways and portions of *basements* containing these spaces shall have a *ceiling height* of not less than 7 feet (2134 mm). Bathrooms, toilet rooms and laundry rooms shall have a *ceiling height* of not less than 6 feet 8 inches (2032 mm).~~

~~**Exceptions:**~~

1. ~~For rooms with sloped ceilings, the required floor area of the room shall have a *ceiling height* of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a *ceiling height* of not less than 7 feet (2134 mm).~~
2. ~~The *ceiling height* above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a *ceiling height* of not less than 6 feet 8 inches (2032 mm) above an area of not less than 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.~~
3. ~~Beams, girders, ducts or other obstructions in *basements* containing *habitable space* shall be permitted to project to within 6 feet 4 inches (1931 mm) of the finished floor.~~
4. ~~Beams and girders spaced apart not less than 36 inches (914 mm) in clear finished width shall project not more than 78 inches (1981 mm) from the finished floor.~~

Delete and substitute as follows:

~~**R313.1.1 Basements.** Portions of *basements* that do not contain *habitable space* or hallways shall have a *ceiling height* of not less than 6 feet 8 inches (2032 mm).~~

~~**Exception:** At beams, girders, ducts or other obstructions, the *ceiling height* shall be not less than 6 feet 4 inches (1931 mm) from the finished floor.~~

R313.1.1 Habitable rooms. *Habitable rooms*, *habitable* attics, hallways, and basements within the *building thermal envelope* shall have a *ceiling height* of not less than 7 feet (2134 mm). *Habitable space* and hallways created in the basement or *attic* of an existing *building* shall have a *ceiling height* of not less than 6 feet 8 inches (2032 mm).

Exceptions:

1. *Ceiling height* not less than 6 feet 4 inches (1931 mm) shall be permitted under beams, girders, ducts or other obstructions in basements.
2. *Ceiling height* not less than 6 feet 6 inches (1981 mm) shall be permitted under beams and girders spaced apart not less than 36 inches (914 mm) in clear finished width.

3. For *habitable rooms* with sloped ceilings, the minimum required floor area in Section R312.1 shall have a *ceiling height* of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a *ceiling height* not less than 7 feet (2134) or not less than 6 feet 8 inches (2032 mm) in *habitable space* created in an existing *building*. The *ceiling height* shall be permitted less than 5 feet (1524 mm) over floor areas in excess of the minimum area required by section R312.1.

Add new text as follows:

313.1.2 Sanitation rooms. Bathrooms, toilet rooms, laundry rooms, and similar rooms used for sanitation and washing purposes shall have a *ceiling height* of not less than 6 feet 8 inches (2032 mm). Where created in the basement or *attic* of an existing *building*, the *ceiling height* shall be not less than 6 feet 4 inches (1931 mm).

Exception: The *ceiling height* above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a *ceiling height* of not less 6 feet 8 inches (2032 mm) above an area of not less than 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.

313.1.3 Storage and utility. *Closets*, laundry *closets*, pantries, storage rooms, crawlspaces, and mechanical and utility rooms, whether finished or unfinished, shall not have a minimum required *ceiling height*.

Delete without substitution:

~~**R313.1.2 Habitable attics and basements in existing buildings.** Where a *habitable attic* or habitable space in a *basement* is created in an *existing building*, *ceiling height* shall not be less than 6 feet 8 inches (2032 mm). Bathrooms, toilet rooms and laundry rooms shall have a *ceiling height* of not less than 6 feet 4 inches (1930 mm).~~

~~**Exceptions:**~~

1. ~~For rooms with sloped ceilings, the required floor area of the room shall have a *ceiling height* of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a *ceiling height* of not less than 6 feet 8 inches (2032 mm).~~
2. ~~At beams, girders, ducts or other obstructions, the *ceiling height* shall be not less than 6 feet 4 inches (1930 mm) from the finished floor.~~

~~**R312.3 Height effect on room area.** Portions of a room with a sloping ceiling measuring less than 5 feet (1524 mm) or a furred ceiling measuring less than 7 feet (2134 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required habitable area for that room.~~

Reason: The provisions for minimum ceiling height have been built upon a number of times since the original 2000 edition and appear to have gotten a little messy. This proposal does not intend to change the intent of this section in the way I believe it is understood. Here are a few observations that motivated this proposal.

1) As written, a large pantry off the main floor kitchen does not have a minimum ceiling height, but a pantry off a wet bar in a finished basement has a 6 foot 8 inch minimum ceiling height.

NOTE: Section R313.1.1 states "portions of basement that do not contain habitable space or hallways shall have a ceiling height of not less than 6 feet 8 inches." A pantry is not habitable space or a hallway.

2) It is confusing to have basements included in the section about habitable rooms and an exceptions for beams and ducts, and then have another section specific to basements with the identical exception.

NOTE: This proposal attempts to clarify basements a little bit and place them in one section. Basements are tricky because unfinished basements are sort of habitable space and they are sort of not. This proposal makes it clear that new basements need to have at least a

7 foot ceiling height. What you finish your basement into later will then have ceiling heights the same as if on the main floor.

3) Typically codes are not written in permissive language, so I understand that the proposed section on storage and utility that specifies no requirement is out of the norm. However, I feel it might be fitting for this subject of "use of rooms" and there is a little precedence set in the definition of "habitable rooms" that does the same thing. It makes it clear which rooms are NOT habitable rooms. I think that clarification for ceiling height might be helpful.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The purpose of this proposal is to change how the information is presented but not change the intent or the common interpretation of the intent.

RB104-25

RB105-25

IRC: R313.1

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov)

2024 International Residential Code

SECTION R313 CEILING HEIGHT

Revise as follows:

R313.1 Minimum height. *Habitable space*, hallways and portions of *basements* containing these spaces shall have a *ceiling height* of not less than 7 feet (2134 mm). Bathrooms, toilet rooms and laundry rooms shall have a *ceiling height* of not less than 6 feet 8 inches (2032 mm).

Exceptions:

1. For rooms with sloped ceilings, the required floor area of the room shall have a *ceiling height* of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a *ceiling height* of not less than 7 feet (2134 mm).
2. The *ceiling height* above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a *ceiling height* of not less than 6 feet 8 inches (2032 mm) above an area of not less than 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.
3. Beams, girders, ducts or other obstructions in *basements* containing *habitable space* shall be permitted to project to within 6 feet 4 inches (1931 mm) of the finished floor.
4. Beams, ~~and~~ girders , ducts or other obstructions spaced ~~apart not less than~~ 36 inches (914 mm) or more apart in clear finished width shall be permitted to project ~~not more than 78 inches~~ to within 6 feet 6 inches (1981 mm) ~~from~~ of the finished floor.

Reason: This proposal revises the language for exception #4 to match exception #3. Additionally, the distance "78 inches" was revised to "6 feet 6 inches" in order to be consistent with the distance units used throughout the section. This revision provides clarity in the application of this exception and revises the format of exception #4 to be consistent with the rest of the requirements in Section R313.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not change the code provision, just revises the wording to match that found elsewhere in the same section.

RB105-25

RB106-25

IRC: R314.2

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

SECTION R314 MEZZANINES

Revise as follows:

R314.2 Mezzanines. The clear height above and below *mezzanine* floor construction shall be not less than 7 feet (2134 mm).

<u>**Exception:** The ceiling height above the mezzanine shall be permitted to comply with Section R313.1 where the mezzanine meets the minimum room size in Section R312.</u>

SECTION R316 HABITABLE ATTICS

R316.2 Minimum dimensions. A *habitable attic* shall have a floor area in accordance with Section R312 and a *ceiling height* in accordance with Section R313.

Reason: The provisions for minimum room area (R312) and ceiling height (R313) provide criteria for with habitable rooms/spaces and basements, but neither specifically mentions mezzanines (R314) or habitable attics (R316). Habitable attics does reference R312 and R313 for minimum size and height, so you can do sloped ceilings or beams in the habitable attic. However, the current text does not address a sloped ceiling or beams in a mezzanine. While we do not believe it is the intent to require a mezzanine to be at least 70 sq.ft. or at least 7 feet in each direction the same as a room, the proposal would allow for mezzanines with sloped ceilings beams where the mezzanine was the size of a room.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2024 and 2025 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/building-code-action-committee-bcac/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a clarification only for mezzanines constructed under sloped roofs. It will increase design options without increasing requirements.

RB106-25

RB107-25

IRC: R315.2

Proponents: Lisa Hartwig, representing Self (lisa.hartwig@minneapolismn.gov)

2024 International Residential Code

SECTION R315
SLEEPING LOFTS

Revise as follows:

R315.2 Sleeping loft limitations. *Sleeping lofts* shall comply with the following conditions:

1. The sleeping loft floor area shall be less than 70 square feet (6.5 m^2).
2. The sleeping loft *ceiling height* shall not exceed 7 feet (2134 mm) for more than one-half of the sleeping loft floor area.
3. <u>The sleeping loft shall be located in a habitable room within the dwelling unit or sleeping unit.</u>

Reason: Since sleeping lofts are intended for sleeping, the rooms or spaces containing sleeping lofts should meet all minimum requirements for habitable spaces including lighting, minimum room area, ventilation, ceiling height, and heating - in addition to the emergency escape and rescue opening that is currently required in rooms to which a sleeping loft is open.

These requirements would:

- ensure that sleeping lofts are not placed in non-habitable spaces, such as garages, hallways, or closets.
- ensure that occupants of sleeping lofts have the same ability to access and choose between the emergency escape and rescue opening or the primary (required) means of egress to safely exit the dwelling, just like occupants in other sleeping rooms or habitable spaces within the dwelling.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Sleeping lofts are not required, but are a design option.

RB107-25

RB108-25

IRC: R316.3

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R316 HABITABLE ATTICS

Revise as follows:

R316.3 Story above grade plane. A *habitable attic* shall be considered a *story above grade plane.*

Exceptions: A *habitable attic* shall not be considered to be a *story above grade plane* provided that the *habitable attic* meets all the following:

1. The aggregate area of the *habitable attic* is either of the following:
   1.1. Not greater than one-third of the floor area of the *story* below.
   1.2. Not greater than one-half of the floor area of the *story* below where the *habitable attic* is located within a *dwelling unit* equipped with an automatic sprinkler system in accordance with Section P2904.
2. The occupiable space is enclosed by the *roof assembly* above, knee walls, if applicable, on the sides and the floor-ceiling assembly below.
3. The floor of the *habitable attic* does not extend beyond the exterior walls of the story below.
4. Where a *habitable attic* is located above a third ~~story~~ <u>*story above grade plane*</u>, an automatic sprinkler system in accordance with Section P2904 shall be installed in the *habitable attic* and remaining portion of the *townhouse unit* or *dwelling unit* or units located beneath the *habitable attic*.

Reason: The intent of this section is to require a fire sprinkler system when a habitable attic is above a third story "above grade plane". A basement is by definition a story, but not usually a story above grade plane.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is made under the understanding that the term "story" is not the intended application and rather "story above grade plane". Under this understanding, this proposal is only to clarify the existing intent and thus has no impact in the cost of construction.

RB108-25

RB109-25

IRC: R317.2

Proponents: Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Gregory Benton, NYS, representing Department of State, Division of Building Standards and Codes (gregory.benton@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov)

2024 International Residential Code

SECTION R317
GARAGES AND CARPORTS

Revise as follows:

R317.2 Carports. Carports shall ~~be open on~~ <u>have</u> not less than two ~~sides~~ <u>openings with the bottom located at grade level, each having an open and unobstructed rectangular area equal to or greater than 60% of the total area of the wall upon which they are located</u>. Carport floor surfaces shall be of *approved noncombustible material*. Carports ~~not open on two or more sides~~ <u>that do not have the required open and unobstructed openings</u> shall be considered to be a garage and shall comply with the provisions of this section for garages.

The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

Exception: Asphalt surfaces shall be permitted at ground level in carports.

Reason: Section R317.2 of the 2024 IRC says that a carport must be open on at least two sides. That doesn't say completely open and for good reason: Otherwise bracing between the floor and the ceiling and mid-span columns would be prohibited within the open sides and that would block access for carports to the IRC's prescriptive structural solutions. However, Section R317.2 also doesn't limit how small those openings can be before they cause a carport to instead be a garage, and it doesn't prohibit those opening from being covered by screening such as chain-link security fencing.

The predominate difference between a garage and a carport from a safety perspective is that the occupants of a carport can much more easily escape from a carport, and the products of combustion are immediately naturally exhausted from under a carport's ceiling. A garage much more significantly limits egress, and garages concentrate the products combustion such as carbon monoxide, smoke, and heat.

This proposal refines Section R317.2 of the 2024 IRC to specify the minimum size and configuration of a carport's required openings and it specifies that those openings must be unobstructed (e.g. no doors, screens, half-walls, etc.).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The macro-economic costs of the various enforcement scenarios are balanced, which may vary from one extreme where the code official only accepts custom designed carports that don't have any posts or bracing or gable or sloped roof or anything else within the required open "sides" and the other extreme where the code official agrees that by merely removing the doors from a garage's doorways on at least two exterior walls it can instead be a carport. Although this proposal reduces the limits of those extremes, it doesn't affect the macro economic balance of their costs.

RB109-25

RB110-25

IRC: R317.6, R317.6.1 (New), R317.6.2 (New), R317.6.3 (New), R317.6.4 (New), UL Chapter 44 (New)

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Philip Oakes, representing NASFM; Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Residential Code

SECTION R317
GARAGES AND CARPORTS

Revise as follows:

R317.6 Electric vehicle charging systems. Where provided, electric vehicle charging ~~systems shall be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be *listed* and *labeled* in accordance with UL 2202. *Electric vehicle supply equipment* shall be *listed* and *labeled* in accordance with UL 2594.~~ shall comply with Sections R317.6.1 through R317.6.4.

Add new text as follows:

R317.6.1 Installation. Electric vehicle charging stations shall be installed in accordance with NFPA 70 , the manufacturer's installation instructions, and the listing.

R317.6.2 Equipment listings. Equipment used in electric vehicle charging stations shall be *listed* and *labeled* as applicable in accordance with the following:

1. Electric vehicle charging equipment in accordance with UL 2202.
2. Electric vehicle supply equipment in accordance with UL 2594.
3. Electric vehicle wireless power transfer equipment in accordance with UL 2750.

R317.6.3 Electric vehicle power export equipment. *Electric vehicle power export equipment* shall comply with Section 1208 of the *International Fire Code*.

R317.6.4 Protection from vehicle impact damage. Electric vehicle charging stations shall be protected from vehicle impact damage.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

2750-2023	Wireless Power Transfer Equipment for Electric Vehicles

Reason: The purpose of this proposal is to provide clarity regarding the charging of electric vehicles (EV).
The current Section R317.6 is broken down into separate subsections to address installation, listings, and vehicle impact protection.

There are four types of equipment used for charging EVs:

1. EV charging system equipment (UL 2202) – conductive charging equipment is located off board of the EV
2. EV power export equipment (UL 9741) - can be unidirectional or bidirectional. Unidirectional EVPE equipment exports power from the vehicle to an offboard load, such as a receptacle bank. Bidirectional equipment provides power to the vehicle for charging of the onboard battery, and exports power to the grid, premise or load, but export and charging do not occur at the same time.

3. EV supply equipment (UL 2594) - provide power to a charger that is on-board the EV
4. EV wireless power transfer equipment (UL 2750) - infrastructure equipment (off board an EV) that transfers power to an EV through a magnetic resonance coupling between the off-board equipment and the EV.

The use of the term “electric vehicle charging system” does not encompass all four of the different types of equipment used.

New Section R317.6.1 – Equipment used in a EV charging station needs to be installed in accordance with NFPA 70, as well as with the manufacturer’s installation instructions and the listing.

New Section R317.6.2 – Clarifies the different equipment used, and the listing requirements. This includes the wireless power transfer equipment.

New Section R317.6.3 - EV power export equipment (EVPE) has additional requirements established by F175-24 in Group A.

New Section R317.6.4 – Suitable vehicle impact protection is needed for this equipment.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no increase in construction costs of buildings with this change as it is an editorial and correlation proposal. It also provides additional options for charging of electric vehicles.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
UL 2750-2023 Wireless Power Transfer Equipment for Electric Vehicles

RB110-25

RB111-25

IRC: R318.1, R318.3.1, R319.1, R319.2.4

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.1 Means of egress. *Dwelling units* shall be provided with a means of egress in accordance with this section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the *dwelling unit* to the required egress door without requiring travel through a garage. The required egress door shall open directly to the outdoors. Where opening under a roof, floor, or deck open to the outdoors, a *ceiling height* of no less than 7 feet (mm) shall be provided.~~into a *public way* or to a *yard* or *court* that opens to a *public way*.~~ Where the egress door exterior landing required by Section R318.3.1 is not at *grade*, access to *grade* shall be provided by means of a ramp in accordance with Section R318.8 or a *stairway* in accordance with Section R318.7. A path of egress travel not less than 36 inches wide and 7 feet in height shall be provided from the required egress door to a *public way*, without requiring travel through a *building* or garage.

Exception. Gates having a minimum clear width of 32 inches when opened at 90 degrees shall be permitted in the path to the *public way*.

R318.3.1 Floor elevations at the required egress doors. Landings or finished floors at the required egress door shall be not more than $1^1/_2$ inches (38 mm) lower than the top of the threshold.

Exception: The landing or floor on the exterior side shall be not more than $7^3/_4$ inches (196 mm) below the top of the threshold provided that the door does not swing over the landing or floor.

~~Where exterior landings or floors serving the required egress door are not at *grade*, they shall be provided with access to *grade* by means of a *ramp* in accordance with Section R318.8 or a *stairway* in accordance with Section R318.7.~~

SECTION R319
EMERGENCY ESCAPE AND RESCUE OPENINGS

R319.1 Emergency escape and rescue opening required. *Basements, habitable attics,* the room to which a sleeping loft is open, and every sleeping room shall have not less than one operable *emergency escape and rescue opening*. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room. *Emergency escape and rescue openings* shall open directly to the outdoors and be provided an unobstructed path of not less than 36 inches (914 mm) in width to a *public way*. ~~into a *public way*, or to a *yard* or *court* that opens to a *public way*.~~

Exceptions:

1. Basements used only to house mechanical *equipment* not exceeding a total floor area of 200 square feet (18.58 m^2).
2. Storm shelters constructed in accordance with ICC 500.
3. Where the dwelling *unit* or *townhouse unit* is equipped with an automatic sprinkler system installed in accordance with Section P2904, sleeping rooms in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:
   - 3.1. One means of egress complying with Section R318 and one *emergency escape and rescue opening*.
   - 3.2. Two means of egress complying with Section R318.

4. Gates having a minimum clear width of 32 inches when opened at 90 degrees shall be permitted in the path to the *public way.* ~~A *yard* shall not be required to open directly into a *public way* where the *yard* opens to an unobstructed path from the *yard* to the *public way*. Such path shall have a width of not less than 36 inches (914 mm).~~

R319.2.4 Emergency escape and rescue openings under decks, porches and cantilevers. *Emergency escape and rescue openings* installed under decks, porches and cantilevers shall be fully openable and ~~provide~~ provided a path not less than 36 inches (914 mm) in height and 36 inches (914 mm) in width until no longer underneath. ~~to a *yard* or *court*.~~

Reason: "Yard" and "Court" are defined in the original 1971 CABO one and two family dwelling code. Only 19 terms were defined at that time. The only use of those terms in that code are for allowing glazed openings (windows) to be located under "roofed porches" provided they abutted a "yard or court". This requirement is still reflected in the IRC today in Section R325.1.1, exception 1. This is the significance of the definitions of "yard" and "court" in stating they must be "open to the sky". This is so sunlight can reach the edge of the porch roof that opens to a "yard or court". This is also why a "court" can be bound 3 ore more sides by definition, which means it could be bound on all sides. The definition of "court" was never intended to apply to egress provisions, as found in the IRC today. These two definitions were carried over into the 2000 IRC and still had no use other than for glazed openings under roofs. In the 2006 IRC, provisions for EERO's were changed to require them to open to a public way or to a "yard or court" that opens to a public way. However, by definition, that would not allow an EERO to open under a porch roof or under a deck, due to the "open to the sky" language. However, a new section was added in 2006 to provide a minimum height of 36 inches when EERO's open under decks. This seems to reveal that the intent of using the terms "yard or court" were never meant to prohibit an EERO from opening under a roof. In the 2015 IRC the language about opening to a yard or court in the EERO section was duplicated in the egress door section. By definition, this would prohibit the egress door from opening under a porch roof. It would also allow the door to open into a court bound on all sides. That would not be a very safe egress path to a public way.

This is why the terms "yard" and "court" should only be used for their original 1971 purpose, glazed openings for natural light. I believe this is a perfect example of "scope creep", where a vintage code provisions is slowly over time misused and/or adapted such that it no longer makes sense the IRC. This is very common for the IRC and requires occasional cleanup. That is the purpose of this proposal.

I also suggest moving the requirement for "access to grade" up to the primary section about means of egress. It seems like that section is about the whole path of egress to a public way and the landing elevation section is more about the relationship of the landing and the door.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only clarifies the intended use of terms and does not have an impact on the cost of construction.

RB111-25

RB112-25

IRC: R318.2

Proponents: Stuart Foster, representing self

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.2 Egress door. Not less than one egress door shall be provided for each *dwelling unit* . The egress door shall be side-hinged, <u>swinging, pivoted, or *balanced*,</u> and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The clear height of the door opening shall be not less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the *dwelling unit* without the use of a key or special knowledge or effort.

Reason: These types of doors are commonly used in residential construction already. This simply creates consistency with IBC section **1010.1.2 Egress door types**.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Allowing multiple door types does not have any cost impact on construction, it simply allows for choices.

RB112-25

RB113-25

IRC: R318.2

Proponents: Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov); Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.2 Egress door. Not less than one egress door shall be provided for each *dwelling unit* . The egress door shall be <u>of the</u> side-hinged, <u>swinging door, pivoted door, or balanced door types,</u> and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The clear height of the door opening shall be not less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. <u>The required egress door shall not require more than 30-pound (133 N) force to set in motion and shall move to full-open position when subject to not more than a 15-pound (67 N) force.</u>Egress doors shall be readily openable from inside the *dwelling unit* without the use of a key or special knowledge or effort.

Reason: To correlate the language of the International Building Code requirements for egress door types, per section 1010.1.2 Egress door types, the International Residential Code should also provide provisions for "swinging door, pivoted door, and balanced door types."

The International Residential Code as currently written, prevents the use of pivot doors, which are growing in popularity as front doors for residential buildings. The intent of this code amendment is to provide opportunities for unique door designs/systems to be used in residential construction, while preserving the intent of providing adequate egress capabilities.

The IBC Commentary states: "The maximum width for a means of egress door leaf in a swinging door is 48 inches (1219 mm) because larger doors are difficult to handle"

While we somewhat agree with this statement in the IBC Commentary, it is the width plus the height and the construction of the door (i.e. weight) which results in a door which may be difficult to open and / or close. The performance requirements in IBC Section 1010.1.3, door opening force requirements effectively result in the design and installation of appropriately-sized doors. Adding this language into the code that allows these additional door types and includes opening force requirements provides the designers with additional options without reducing the life safety of the building.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds options to the existing requirements. It does not prevent installations that are currently allowed by the code.

RB113-25

RB114-25

IRC: R318.2, R319.3

Proponents: Jennifer Hatfield, J. Hatfield & Associates, representing Fenestration & Glazing Industry Alliance (formerly AAMA) (jen@jhatfieldandassociates.com)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.2 Egress door types. Not less than one egress door shall be provided for each *dwelling unit* . The egress door shall be of the side-hinged swinging door, pivoted door or balanced door types, and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The clear height of the door opening shall be not less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the *dwelling unit* without the use of a key or special knowledge or effort.

SECTION R319
EMERGENCY ESCAPE AND RESCUE OPENINGS

R319.3 Emergency escape and rescue doors. Where a door is provided as the required *emergency escape and rescue opening*, it shall be a side-hinged swinging door, pivoted door, balanced door, or a sliding door.

Reason: The 2021 IBC updated sections 1010.1.2 and 1010.1.2.1 to add balanced doors to the other common types of swinging doors allowed and used in the means of egress. Pivoted doors were already allowed and listed in the IBC prior to 2021, along with swinging door types. That previous proposal, E42-18, also revised the title of the section to denote it is "egress door types".

This proposal intends to update the Section R318.2 of the IRC to coordinate with the changes made in the IBC, to make it clear all common types of swinging doors are allowed and used in the means of egress.

The reasoning statement for the previous E42-18 included the fact it appears the intent was always that balanced doors were allowed as a means of egress due to the fact section 1010.1.10.2 of the 2018 IBC provided the following:

> **2018 IBC 1010.1.10.2 Balanced doors.** If balanced doors are used and panic hardware is required, the panic hardware shall be the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side

This proposal also seeks to better align Section R319.3 EERO language with that of 1031.4 of the IBC, which allows for swinging doors or a sliding door as a type of EERO. Side-hinged, pivoted and balanced doors are all types of swinging doors. To be consistent with the listing out of all types in Section R318.2 (and Section 1010.1.2 and 1010.1.2.1 of the 2024 IBC), the list of swinging doors are provided in R319.3 as well.

Bibliography: Proposal E42-18 by John Woestman, Builders Hardware Manufacturers Association (BHMA) that was adopted AS for the 2021 IBC

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal updates the code to more closely match types of doors being installed in the means of egress and to better align with current IBC language.

RB115-25

IRC: R318.2.1 (New)

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

R318.2 Egress door. Not less than one egress door shall be provided for each *dwelling unit* . The egress door shall be side-hinged, and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The clear height of the door opening shall be not less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the *dwelling unit* without the use of a key or special knowledge or effort.

Add new text as follows:

<u>**R318.2.1** **Door Locking**. Entrance doors for dwelling units and sleeping units shall be provided with devices which tightly secure the door and are designed to provide security for the occupants and property within. Doors shall be equipped with a deadbolt lock designed to be readily openable from the side from which egress is to be made without the need for keys, special knowledge or effort and shall have a minimum lock throw of 1 inch (25 mm). Such deadbolt locks shall be installed according to the manufacturer’s specifications. For the compliance with this section, a sliding bolt shall not be considered an acceptable deadbolt lock.</u>

Reason: The International Property Maintenance Code requires locks to be installed on doors leading into dwelling and sleeping units (see section text included below). Providing locks on exterior doors to residential buildings is also standard industry practice. However, there are no requirements in the International Residential Code currently requiring such security features. This proposal adds a section with language similar to that found in the IPMC.
IPMC sections:

> **304.15 Doors.** Exterior doors, door assemblies, operator systems if provided, and hardware shall be maintained in good condition. Locks at all entrances to dwelling units and sleeping units shall tightly secure the door. Locks on means of egress doors shall be in accordance with Section 702.3.
>
> **304.18 Building security.** Doors, windows or hatchways for dwelling units, room units or housekeeping units shall be provided with devices designed to provide security for the occupants and property within.
>
> **304.18.1 Doors.** Doors providing access to a dwelling unit, rooming unit or housekeeping unit that is rented, leased or let shall be equipped with a deadbolt lock designed to be readily openable from the side from which egress is to be made without the need for keys, special knowledge or effort and shall have a minimum lock throw of 1 inch (25 mm). Such deadbolt locks shall be installed according to the manufacturer’s specifications and maintained in good working order. For the purpose of this section, a sliding bolt shall not be considered an acceptable deadbolt lock.

As the code books are currently written, if a jurisdiction adopts both the IRC and the IPMC, a building could be built without door locks in compliance with the IRC and issued a certificate of occupancy, then immediately cited for non-compliance with the IPMC. This proposal would solve such an issue by ensuring that buildings built to the IRC are also compliant with the IPMC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Using locking door hardware is standard industry practice for doors providing entrance into dwelling units in most locations. Additionally, in any location that has adopted the IPMC, such hardware is required by the IPMC. Additionally, a survey of door hardware available for purchase showed no appreciable difference in cost between locking and non-locking door hardware, so even for locations which do not adopt the IPMC, this requirement will not cause an impact on the cost of construction.

RB115-25

RB116-25

IRC: R318.7

Proponents: Joseph Summers, Mashantucket Pequot Tribal Nation, representing Self

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

R318.7 Stairways. Where required by this code or provided, *stairways* shall comply with this section.

Exceptions:

1. *Stairways* not within <u>and not</u> ~~or~~ serving a *building*, porch or deck.
2. *Stairways* leading to nonhabitable attics.
3. *Stairways* leading to *crawl spaces*.

Reason: grammar has lead to inspectors interpreting that a stairway on the a building is not required to comply with section R318.7. This proposal is to correct this miss interpretation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Fix of a a grammatical error.

RB116-25

RB117-25

IRC: R318.5, R318.6, R318.6.1 (New), R318.6.1.1 (New), R318.7, R320.2 (New), R321.1.2 (New), R321.1.2, R321.1.3, R321.1.4, R507.2 (New), R507.2

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

~~**R318.5 Landing, deck, balcony and stair construction and attachment.** Exterior landings, decks, balconies, *stairs* and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.~~

~~**R318.6**~~ <u>**R318.5**</u> **Hallways.** The width of a hallway shall be not less than 3 feet (914 mm).

~~**R318.7**~~ <u>**R318.6**</u> **Stairways.** Where required by this code or provided, *stairways* shall comply with this section.

Exceptions:

1. *Stairways* not within or serving a *building*, porch or deck.
2. *Stairways* leading to nonhabitable attics.
3. *Stairways* leading to *crawl spaces.*

Add new text as follows:

<u>**R318.6.1 Stairway anchorage.** Landings, balconies, and stairs shall be positively anchored to the structure to resist the applicable loads in Section 301.5. Attachment shall not be accomplished by use of nails subject to withdrawal.</u>

<u>**R318.6.1.1 Exterior stair,landing, deck, and balcony anchorage.** Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.</u>

SECTION R320
HANDRAILS

R320.1 General. Handrails shall comply with Section R320.

Revise as follows:

<u>**R320.2 Handrail anchorage.** Handrails shall be positively anchored to resist the applicable loads in Section 301.5. Attachment shall not be accomplished by use of nails subject to withdrawal.</u>

SECTION R321
GUARDS AND WINDOW FALL PROTECTION

R321.1 Guards. *Guards* shall be provided in accordance with Sections R321.1.1 through ~~R321.1.4~~ R321.1.5.

R321.1.1 Where required. *Guards* shall be provided for those portions of open-sided walking surfaces, including floors, *stairs*, *ramps* and landings that are located more than 30 inches (762 mm) measured vertically to the floor or *grade* below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a *guard*.

R321.1.2 Guard anchorage. Guards shall be positively anchored to resist the applicable loads in Section 301.5. Attachment shall not be accomplished by use nails subject to withdrawal.

~~**R321.1.2**~~ **R321.1.3 Height.** Required *guards* at open-sided walking surfaces, including *stairs*, porches, balconies or landings, shall be not less than 36 inches (914 mm) in height as measured vertically above the adjacent walking surface or the line connecting the *nosings*.

Exceptions:

1. *Guards* on the open sides of *stairs* shall have a height of not less than 34 inches (864 mm) measured vertically from a line connecting the *nosings*.
2. Where the top of the *guard* serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) as measured vertically from a line connecting the *nosings*.

~~**R321.1.3**~~**R321.1.4 Opening limitations.** Required *guards* shall not have openings from the walking surface to the required *guard* height that allow passage of a sphere 4 inches (102 mm) in diameter.

Exceptions:

1. The triangular openings at the open side of *stair*, formed by the *riser*, tread and bottom rail of a *guard*, shall not allow passage of a sphere 6 inches (153 mm) in diameter.
2. *Guards* on the open side of *stairs* shall not have openings that allow passage of a sphere $4^{3}/_{8}$ inches (111 mm) in diameter.

~~**R321.1.4**~~**R321.1.5 Exterior plastic composite guards.** *Plastic composite* exterior *guards* shall comply with the requirements of Section R507.2.2.

SECTION R507
EXTERIOR DECKS

R507.1 Decks. Wood-framed decks shall be in accordance with this section. Decks shall be designed for the *live load* required in Section R301.5 or the ground snow load indicated in Table R301.2, whichever is greater. For decks using materials and conditions not prescribed in this section, refer to Section R301.

R507.2 Construction and anchorage. Landings, decks, balconies, stairs and similar facilities shall be constructed and anchored in accordance with Section R318.6.1.1

~~**R507.2**~~**R507.3 Materials.** Materials used for the construction of decks shall comply with this section.

Reason: Although this change is comprehensive involving Stairway, Handrail, Guard and Deck sections of the code the premise is simple. The code currently only addresses anchorage of exterior stairs, landings, decks and balconies and fails to consider their interior counterparts and other structural elements subject to the loads specified in R301.5, namely handrails and guards.

Since all stairs, handrails and guards need to be positively anchored we have added an anchorage requirement to each of these sections and placed the current text of R318.5, verbatim, in a new section R318.6.1.1 within the stairway section renamed appropriately with the term anchorage. Since decks are included we have added a pointer to this section in R507 Exterior Decks to assure this is not missed by users of the code, offering improved understanding of the status quo.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change provides clarity of the existing requirements and incorporates editorial changes for anchorage of stairways with no requirements affecting a increase in material or labor that would increase or decrease the cost of construction.

RB117-25

RB118-25

IRC: R318.5.1 (New)

Proponents: Charles Anderson, City of Minneapolis, representing Self (c.scott.anderson@minneapolismn.gov)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Add new text as follows:

R318.5.1 Landing, deck, balcony and stair construction at required egress door. Frost protection shall be provided at exterior landings, decks, balconies, *stairs* and similar facilities at the required egress door.

Reason: This change is similar to the requirement in the IBC for frost protection at required egress doors. This change clarifies that the landings outside the required egress door need to be provided with frost protection.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

While this change clarifies this requirement and even if this were to be a change in application the cost increase would be nominal based on the relative frost depth vs the min depth of an individual footing.

RB118-25

RB119-25

IRC: R318.7.2, R318.7.11.1

Proponents: Jay Osborne, representing FreeFarmhouse LLC (jay@freefarmhouse.com)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.7.2 Headroom. The headroom in *stairways* shall be not less than 6 feet 6 inches (1982 mm) ~~6 feet 8 inches (2032 mm)~~ measured vertically from the sloped line adjoining the tread *nosing* or from the floor surface of the landing or platform on that portion of the *stairway*.

Exceptions:

~~1.~~ Where the *nosings* of treads at the side of a *flight* extend under the edge of a floor opening through which the *stair* passes, the floor opening shall not project horizontally into the required headroom more than $4^3/_4$ inches (121 mm).

~~2. The headroom for *spiral stairways* shall be in accordance with Section R318.7.11.1.~~

R318.7.11.1 Spiral stairways. The clear width at and below the *handrails* at *spiral stairways* shall be not less than 26 inches (660 mm) and the walkline radius shall be not greater than $24^1/_2$ inches (622 mm). Each tread shall have a depth of not less than $6^3/_4$ inches (171 mm) at the walkline. Treads shall be identical, and the rise shall be not more than $9^1/_2$ inches (241 mm). ~~Headroom shall be not less than 6 feet 6 inches (1982 mm).~~

Reason:

Ceiling heights for houses should be less than for commercial buildings.

The minimum ceiling height for commercial buildings is 7'-6". For houses, it's 7'-0". It's lower for many reasons. You probably understand those reasons. But then why are staircase head clearance the same 6'-8" in both cases?

Why shouldn't it be lower for houses? For the exact same reasoning. The code seems to contradict its own logic.

Measuring ergonomic and demographic considerations.

If staircase ceilings could be as low as 6'-4", they'd still be high enough. About 99.5% of the US population is shorter than that. When you account for how people are ergonomically hunched and shorter when navigating stairs, make it 99.9% of the population. And when you understand the myriad ways that people have adapted old staircases with low clearances (simply with a cheap pad), you'd realize that 6'-4" is enough.

Remember the reasons why commercial buildings are required to be more spatially accommodating. And remember that small houses don't have to appeal to everyone.

The ceiling height is most applicable at one small point.

Also— and this is very important to remember — staircases usually have higher-than-normal head space, but the clearance is often pinched only where it approaches the floor structure. The edge of the floor structure is effectively identical to a beam.

Since beams are allowed to be as low as 6'-4" above a finished floor, it only makes sense to allow a lower ceiling at this particular part of the staircase. A 6'-4" exception may be hard to codify, but a 6'-6" height requirement would be simple, rational, and appropriate.

The 6'-8" stair headroom requirement strongly affects small houses.

As someone who has designed dozens of small houses, I've found that number to be a significant impediment. I also measure countless old houses (with my trusty laser measurer), and discovered they're still fine if the clearance is even lower than 6'-4". I'm not a professional basketball player, but if you measured them, too, you'd realize that 6'-8" is much higher than what's necessary in a small house. It's a luxury. What about the miniscule fraction of Americans who are professional basketball players? They still have plenty of other options for housing. The minimum shouldn't be the ideal. No house is "one-size-fits-all".

The challenge of designing small houses usually deals with ceiling heights-- especially at staircases. So by relaxing that height clearance, small houses become easier to build-- and no worse.

Why 6'-6" is an important difference.

So I'm proposing the minimum stair ceiling clearance to be lowered to 6'-6". That also eliminates an exception found for spiral staircases (there, 6'-6" also works perfectly fine). In Canada, staircase ceilings are allowed to be more than an inch lower (and there it also works perfectly fine). Maybe 6'-6" seems too small a change to bother, but it still will have a significant impact.

As someone who designs small houses (including 1.5-story backyard cottages), I understand very well how much they're affected by this requirement. This one little amendment will solve a lot of big problems. Even just a few saved inches can make modular construction economically feasible. That would obviously lower the cost of building small homes.

And this is just rational. Since it's smart to require commercial buildings to have higher ceilings than residences, then staircase ceiling heights should also follow the same logic. Why wouldn't they?

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This code change will immediately make it easier to build smaller houses. Especially houses like Accessory Dwelling Units (ADUs), which are a necessary solution to today's housing crisis.

Two story houses are often necessary in places with rising land values, like small towns and suburbs. One story isn't enough to be worth building. So by saving space in the design of staircases, small 2-story houses become more economically feasible.It saves little on material costs. But it can easily save a thousand dollars in design fees. Small houses are hard to design. Don't make it harder for no good reason.

When designing a small 2-story house, staircase headroom becomes a critical factor affecting room layouts. For a 2-story house under 1000 square feet in a size, an architectural designer can expect to spend at least 1 hour, and up to 5 hours, tweaking mere inches around the staircase. At $100-200 an hour, that means $100-1000 in design fees alone. Construction costs are even more significantly reduced, because it's very expensive to fix such issues on a job site. So this proposal will almost certainly save hundreds of dollars in the creation of small houses, which are desperately needed today.

This proposed change will have little effect in designing houses over 2000 square feet in size (it's easy to deal with space in larger houses). Just as a 6'-4" minimum beam clearance allows for a necessary degree of flexibility in the design of houses, staircases (with that same sort of localized head-height condition) should be easier and less expensive to design. Especially for small homes, where cost matters most. Luxury designers and "feature creep sellers" may not care, but reducing costs for building small houses has major ethical implications. "

Estimated Immediate Cost Impact Justification (methodology and variables):

Backyard cottages are finally being legalized, but they're often subjected to some extreme height limitations. As a compromise to their legalization, NIMBYs have forced ADUs to be barely large enough for a second floor (a half story, usually). The floor area limitation also make it harder to fit a staircase.

Space matters in a small house. And in a 2-story houses, the head clearance at the staircase is one of the hardest things to design for. It also tends to trigger other issues, like those related to room size minimums. And its one of those things that's hard to correct if a builder forgets to add a chamfer at the ceiling.

So most of all, this allows small houses to be buildable. And you probably know that starter homes are in desperately short supply in America.

RB119-25

RB120-25

IRC: R318.7.2

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

R318.7.2 Headroom. The headroom in *stairways* shall be not less than 6 feet 8 inches (2032 mm) measured vertically from the sloped line adjoining the tread *nosing* or from the floor surface of the landing or platform on that portion of the *stairway*.

Exceptions:

1. Where the *nosings* of treads at the side of a *flight* extend under the edge of a floor opening through which the *stair* passes, the floor opening shall not project horizontally into the required headroom more than $4^3/_4$ inches (121 mm).
2. <u>A reduction of the headroom shall be allowed on one side of the stairway where a sloped ceiling extends not more than 12 inches (305 mm), measured horizontally into the width of the stairway and not more than 8 inches (203 mm) into the required headroom.</u>

~~2~~ <u>3</u>. The headroom for *spiral stairways* shall be in accordance with Section R318.7.11.1.

Reason: The code allows for sloped ceilings in hallways and rooms however offers no relief for minor intrusions into the required headroom of stairways. Where spatial trade offs are common in minimalistic trends of home design we are seeing more intances where passing flights pass over each other, or gable end/dormer ceilings may slope across the width of a stairway and project into the headroom. In some cases these are reasoned to comply with the intent of the code based upon the other sloped ceiling requirements. The projection into the headroom cited in the exception occurs where the slope of the ceiling intersects with the wall at the side of the stairway. See photo included with red arrow indicating the point where this exception would apply. The exception allows for a typical 8/12 sloped ceiling that would not extend beyond the clear area above the shoulder and between the head of the user and the side of the stairway.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Although this may in some cases allow greater economy of space we do not think that this will result in any impact of consequence on the cost of construction.

RB120-25

RB121-25

IRC: R318.7.5.1, R318.7.5.2

Proponents: Jeffrey Munsterteiger, National Association of Home Builders, representing National Association of Home Builders; Gary Ehrlich, representing NAHB (gehrlich@nahb.org)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.7.5.1 Risers. The *riser* height shall be not more than 8 1/4 inches (210 mm) ~~7 3/4 inches (196 mm)~~. The riser height shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any *flight* of stairs shall not exceed the smallest by more than $^3/_8$ inch (9.5 mm). *Risers* shall be vertical or sloped from the underside of the *nosing* of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. At open *risers*, openings located more than 30 inches (762 mm), as measured vertically, to the floor or *grade* below shall not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exceptions:

1. The opening between adjacent treads is not limited on *spiral stairways* .
2. The riser height of *spiral stairways* shall be in accordance with Section R318.7.11.1.

R318.7.5.2 Treads. The tread depth shall be not less than 9 inches (229 mm) ~~10 inches (254 mm)~~. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any *flight* of stairs shall not exceed the smallest by more than $^3/_8$ inch (9.5 mm).

Reason: What will this amendment do?

This amendment restores the stair geometry requirements allowed by prior editions of model building codes. This amendment will allow the use of the 8 ¼" x 9" geometry, the dimensions still in use in Federal regulations and by many state and local jurisdictions regulations across the country.

What are the benefits?

The benefits are from a reduction in the stairway's length. In a home that has an 8' ceiling and 2 X 10 floor framing above this new geometry results in one less stair tread, and the remaining treads consume 1" less of length each. It is a reduction of 23" in the overall length of the stairway and at 36" in width a savings of 5.75 square feet overall. This saving of space applies to both levels accessed by the stairway. In smaller footprint homes, which are increasingly being built due to affordability barriers, and when renovating such homes these savings can have a big impact. The reduced length allows more flexibility in the placement of the stairway and the additional square footage becomes valuable usable space.

If the footprint of the house must be increased to accommodate the additional space needed, adequately sized living spaces are sacrificed without any demonstrated gain. This can lead to an economic hardship on first-time home buyers of smaller homes, and for construction on smaller lots, infill projects, and townhomes.

Has residential stairway geometry always been 7 ¾" X 10"?

No, earlier model code editions allowed stair geometry of 8" X 9" or 8 ¼" X 9", the latter being most common. And in fact, many states today amend their statewide codes to restore these dimensions. In recent research conducted using publicly available code adoption data, 46% of states that adopt a residential building code statewide make such amendments.

And in US manufactured homes which are designed to be used as dwelling units, US Federal regulations 24 CFR Part 3280.114 requires a stairway geometry of 8 ¼"(max) X 9" (min).

Precedent set in the IRC.

There is precedent for less restrictive stair geometry in the IRC. The International Residential Code has long permitted other stairways, such as spiral stairs having 9 ½” X 7 ½” geometry. Beginning in the 2015 version, alternating tread devices (2015 IRC R311.7.11) and ship’s ladders (2015 IRC R311.7.12) were introduced as an access to any area as a secondary means of egress. And in the 2018 edition both types were permitted to provide the only means of egress from lofts, mezzanines, and similar areas of 200 gross square feet or less. In both systems a 9 ½” X 5” geometry is required. Mezzanines are not restricted as to their use, and the equivalent space can be that of the minimum required space of 2+ bedrooms. Mezzanine areas may see frequent use in a home and are permitted to be accessed and served by much steeper stairways/means of egress.

A discussion of residential stairway safety.

In prior cycle’s IRC proposals regarding stairway geometry, several studies are often cited and said to reflect the safety of residential stairways.

In one study that looked at data from emergency room visits related to non-fatal consumer product injuries[1], only a small portion of the study’s report is dedicated to residential stairways. In its findings it lists stairways as the number one source of injury, second to floors. The overall difference between them is 1.2% of the total injuries in the study, <u>and floors have a mean cost per injury greater than stairways; a difference of $11,362 per injury.</u> One should conclude from this that the general geometry of a stairway is not a significant contributing factor because floors are flat and contribute to nearly as many injuries. Also missing is any indication of where or how these stairway injuries occurred. Missing is any explanation of whether these were commercial or residential stairways, or if they were interior or exterior to the building. Also missing are references to the age and condition of the stairway, what its built geometry was, or if adequate lighting or handrails were present. And no indications were given if the injured person was carrying something or was otherwise impaired. (i.e. wearing darkened sunglasses, not wearing prescription glasses, or wearing slippery footwear, etc.)

In discussions about stairway safety, European studies[2] are often quoted which are said to provide the overall best geometry of a stairway for safety. Its important to note that in many European countries where these studies were conducted, a more restrictive stairway geometry isn’t required.

For example, in the UK, private stairways, or “A stair intended to be used for only one dwelling”, have a maximum rise and minimum run (or “going” as it’s referred to in UK documents), both of 220 mm (8 11/16”). The maximum pitch of a private stairway in the UK is 42-degrees. Note that the pitch of a stairway built at 8 ¼” X 9” is 42.5 degrees.[3]

Similarly in Spain, “restricted stairways” which include stairways in individual dwelling units require a max 20 cm rise (7 7/8") & min 22 cm run (8 2/3").[4]

Conclusion.

The safety benefits of the 7 ¾” riser and 10" tread stair geometry are technically unsubstantiated and are not practical in many home designs. The 8 ¼” x 9” geometry adequately provide for stair safety in residential occupancies. No sound documentation or data has been presented demonstrating these proposed dimensions are any less safe or are a contributing factor in accidental residential falls than current stair geometry.

There is already precedent in the IRC to allow steeper means of egress stairways to habitable living areas in mezzanines. And US federal regulations also allow the proposed stairway geometry (8 ¼” X 9”). As outlined in Section R101.3 of the IRC, the intent of the code is to provide minimum requirements for occupant safety and health and there is adequate substantiation to show that 8 ¼” X 9” stairway geometry provides this minimum level of occupant safety.

[1] Lawrence BA, Spicer RS, Miller TR. Inj Prev 2015;21:23–29. “A fresh look at the costs of non-fatal consumer product injuries (2014)”

[2] UK at the Building Research Establishment (BRE)

[3] UK Building Regulations

[4] Spanish Safety of Use and Accessibility-Basic Document

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposal will lower the costs of construction.

8 1/4" X 9"				7 3/4" X 10"			
Component	Amount	Cost	Subtotal	Component	Amount	Cost	Subtotal
14'- 2X12 stringers	4	$ 27.49	$ 109.96	16'- 2X12 stringers	4	$ 29.42	$ 117.68
Oak Stair treads	12	$ 14.59	$ 175.08	Oak Stair treads	13	$ 14.59	$ 189.67
Risers-1 x 10 x 3' Red Oak Board	13	$ 22.44	$ 291.72	Risers-1 x 10 x 3' Red Oak Board	14	$ 22.44	$ 314.16
Oak 14' Handrail	1	$ 92.12	$ 92.12	Oak 16' Handrail	1	$ 105.28	$ 105.28
1/2" x 44" Wrought Iron 1-Basket Baluster	24	$ 6.15	$ 147.60	1/2" x 44" Wrought Iron 1-Basket Baluster	39	$ 6.15	$ 239.85
Total			**$ 816.48**	**Total**			**$ 966.64**
		Savings	**$ 150.16**				

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal will lower the costs of construction. Costs are lowered first by a reduction in materials to construct a stairway, including materials for stringers, finish treads & risers and handrails/guardrails. (see materials estimates below) Framing structural requirements may also be reduced because the openings in the floors are smaller, resulting in shorter spans for materials and smaller loads. And lastly by increasing the amount of usable space recovered by the reduction in area used by the stairway.

An owner is paying for this space even though it's used by the stairway. At an average cost of $300/ft^2, returning that additional square footage to usable floor space can equate to an added value per floor served of $1200-$1500.

RB121-25

RB122-25

IRC: R318.7.5.2.1, R318.7.8

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.7.5.2.1 Winder treads. *Winder* treads shall have a tread depth of not less than 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. *Winder* treads shall have a tread depth of not less than 6 inches (152 mm) at any point within the clear width of the *stair*. Within any *flight* of stairs, the largest *winder* tread depth at the walkline shall not exceed the smallest *winder* tread by more than $^{3}/_{8}$ inch (9.5 mm). Consistently shaped *winders* at the walkline shall be allowed within the same *flight* of stairs as rectangular treads and shall not be required to be within $^{3}/_{8}$ inch (9.5 mm) of the rectangular tread depth. Adjacent winder tread segments within a flight of stairs that reverse the rotation of travel direction shall be separated by not less than one tread adjoining parallel risers and handrails complying with Section R320 shall be required on both sides of the flight.

Exception: The tread depth at *spiral stairways* shall be in accordance with Section R318.7.11.1.

R318.7.8 Handrails. *Handrails* shall be provided on not less than one side of each *flight* of stairs with four or more *risers*.

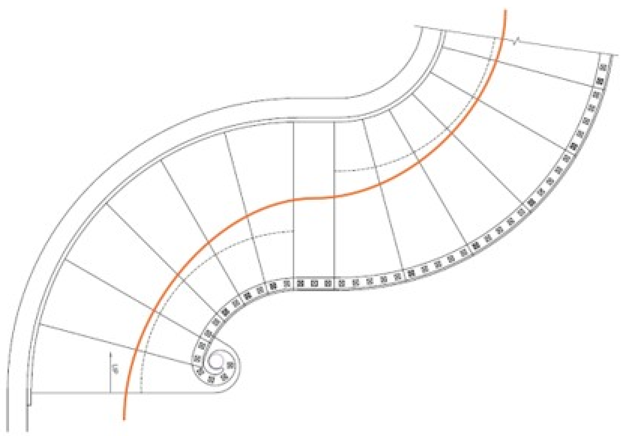
Exception: A flight of stairs with winders that reverse the direction of rotation within a flight in accordance with Section R318.7.5.2.1, shall have handrails on both sides.

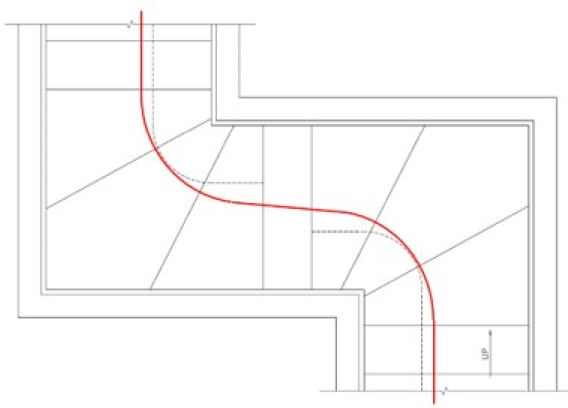
Reason: Stairways of an 'S'-shape in plan are becoming prevalent and are not being designed properly. The code currently lacks critical guidance for the designer. An 'S'-shaped stair requires the user to reverse the direction of travel and this most commonly is accompanied by a traverse to the opposite side of the stairway to take the shortest route and minimize the gait change required if they were to maintain travel on the same side of the stairway. *Please see the figure below illustrating this behavior.*

This change provides for a transition step that has a constant tread depth across the width of the stair and a handrail on both sides to assist with postural stabilization through the required gait change and transverse traverse across the flight. It is important to note that this would only be required where winder segments are reverse with in a flight. Reversing winder segments within separate flights of a stairway would have a landing between them to provide for the gait change and the single handrail could be located on the side most convenient for the user.

Properly Designed Reversing Winder or ’S’- Shaped Stairways

The black dashed line indicates the walkline per R318.7.4. The red line indicates the most common path on reversing winder stairways. Both these stairs have a single flyer (tread with parallel edges) to aid in gait transition. This transition flyer prevents walking from a narrow tread to a wide tread as the user moves to the opposite side of the stair and eliminates radical pitch changes in the handrail. A second handrail would provide additional support as the user changes gait and shifts to the opposite side.





Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change only provides clarifying guidance currently lacking in the code for the safe design of 'S'-shaped stairs and has no impact of the cost of construction.

RB122-25

RB123-25

IRC: R318.7.5.2.1

Proponents: Jay Osborne, representing FreeFarmhouse LLC (jay@freefarmhouse.com)

2024 International Residential Code

SECTION R318 MEANS OF EGRESS

Revise as follows:

R318.7.5.2.1 Winder treads. *Winder* treads shall have a tread depth of not less than 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. *Winder* treads shall have a tread depth of not less than 6 inches (152 mm) at any point within the clear width of the *stair*. Within any *flight* of stairs, the largest *winder* tread depth at the walkline shall not exceed the smallest *winder* tread by more than $^3/_8$ inch (9.5 mm). Consistently shaped *winders* at the walkline shall be allowed within the same *flight* of stairs as rectangular treads and shall not be required to be within $^3/_8$ inch (9.5 mm) of the rectangular tread depth.

~~Exception~~ Exceptions:

1. Winder treads are permitted to converge to a single point at the inside of the stair turn under the following conditions:
   1.1. The treads shall turn either 30 degrees or 45 degrees per tread, with no variation, to complete a 90-degree turn.
   1.2. No single set of winder treads shall exceed a total turning angle of 90 degrees within the stair flight.
2. The tread depth at *spiral stairways* shall be in accordance with Section R318.7.11.1.

Reason:

Modern winder regulations are always confusing people.

Over the last 10 years, I've designed 9 small houses that included winder stairs. Though code-compliant, I've seen that builders tend to change them at the last minute, often by pushing around walls and creating other problems. No matter how detailed my documentation, modern winders seem to scare builders. And regarding details, I've heard of too many code interpretations.

Current US codes make winders overly complicated and expensive to design and build. Architects (who spend countless hours working out those details) don't complain because they can just charge their clients a ton of money. Winders are typically used in challenging, spatially-constrained situations.

The design of winder stairs often costs more than the construction.

Roughly 98-99% of homes aren't custom designed by architects. Yet the vast majority of people can benefit, (or have benefited) from winder stairs. Because these people tend to live in urban areas or smaller residences, they would need winders most of all.

The winders proposed here are perfectly legal in most countries.

Winder stairs have proven their worth for millennia. And from Canada to the Netherlands, they're still allowed to go to a point. They are, of course, much more regulated than in the past. For instance, those exemplary countries allow winders to have 30-degree or 45-degree treads, for a 90-degree turn. If we learn from history, we'll see such well-developed countries are perfectly correct to allow winders to go to a point. And those countries care more about safety than the US does.

All across America, I've visited countless old buildings with winder stairs.

I always talk to tour guides about winders. They know that 99.999% of their unique visitors can safely navigate winder stairs that go to a point. Even the extremely steep ones, like those built in the 1700s.

I take note of where the treads are worn down. And the reality is that the walkline is different than what the code says. People always walk a few inches further from the inside corner. That's an ergonomic reality, easily seen in worn-out winder stairs. The stairs worth preserving are the stairs we should learn from.

Modern winders fail at their primary purpose.

Having designed so many houses with code-compliant winders, I'm still extremely frustrated that modern ones waste so much space. When you also account for head clearances, they're hard to squeeze into small houses, like backyard cottages. And that's where they're needed most.

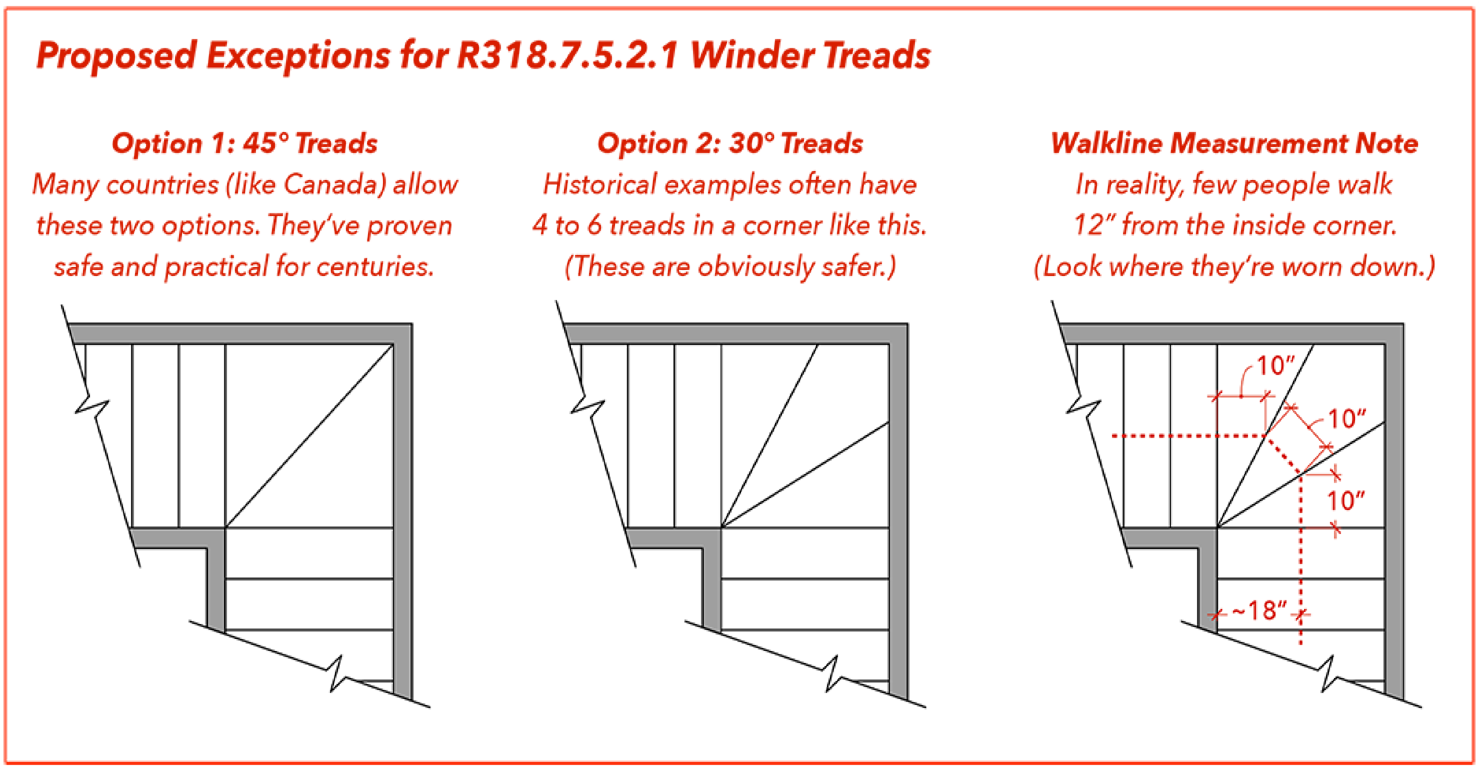
Modern US codes allow a pleasant degree of flexibility in the design of winders, but the most common and practical application is neglected. That is, they're best when making a 90-degree turn, as spatially- and cost-efficient as possible. Historically, that was their main purpose.

Current regulations are still useful, but we need a simple exception.

I'm proposing to just copy the code from other countries, to make an exception where — ***in a very limited (but common) condition*** — winders can go to a point.

Other countries have shown these to be just as safe as the current IRC requirements. They're almost necessary for buildings with narrow footprints. And since such winders are fantastic for low-cost, small houses, this amendment will show that the ICC cares about today's housing crisis.

Bibliography:



I can provide more diagrams, renderings, or photos upon request.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The most immediate costs are about design and permitting.

I'm very good at designing small houses with winder stairs, but it still takes hours to create plans for them. Their design demands hours to be crafted to a particular situation (head clearances and assembly details are the hardest parts). And it takes hours more to make sure the documentation is clear for builders. Hours more to make sure they aren't cutting corners. And hours more to make sure that code officials don't flag it for whatever reason.

Altogether, winder stairs can take 10-40 hours worth of design services, costing $100-200 per hour. In other words, the design of winder stairs adds $1000-8000 to a budget, even for projects where the design is mostly copied. And that's not even including the added construction costs.

Estimated Immediate Cost Impact Justification (methodology and variables):

Winders are best for small and economical houses.

If you're designing huge mansions, like most architects, the added cost is not a major issue. But winders make the most sense in spatially-constrained houses. They're a fallback solution (no pun intended) that's needed when there isn't enough space for a full 36"x36" landing. Yet such staircases are extremely common throughout history because they've proven safe and adequate for their purpose.

The design price tag is one thing. Then you have to wonder if the builders are going to move something by a few inches, causing all kinds of headaches and added costs. In my experience, this is almost to be expected in projects where architects aren't in full control. In other words, low-cost housing.

Simplicity saves money.

By adopting the same requirement as Canada (etc), my proposal simplifies the design and construction of the most useful application of winder stairs: A quick turn that prevents you from wasting precious space in a small house. It's easier to design. It's easier to build. And it's easier to understand its purpose.

RB123-25

RB124-25

IRC: R318.7.6

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Residential Code

SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.7.6 ~~Landings for stairways~~Stairway landings. There shall be a floor or landing at the top and bottom of each *flight* of stairs. The width perpendicular to the direction of travel shall be not less than the width of the *flight* served. For landings of shapes other than square or rectangular, the depth at the walk line and the total area shall be not less than that of a quarter circle with a radius equal to the required landing width. Where the *stairway* has a straight run, the depth in the direction of travel shall be not less than 36 inches (914 mm).

Exceptions:

1. The top landing of an interior *stairway*, including those in an enclosed garage, shall be permitted to be on the other side of a door located at the top of the *stairway* , provided that the door does not swing over the stairs.
2. At an enclosed garage, the top landing at the *stair* shall be permitted to be not more than $7^3/_4$ inches (197 mm) below the top of the threshold.
3. Where there are not more than two risers at ~~At~~ an exterior door ~~s,~~ and the door does not swing over the tread a top landing is not required ~~for an exterior stairway of not more than two risers, provided that the door does not swing over the *stairway*~~.
4. An exterior *flight of stairs* ~~Exterior *stairways*~~ to grade with three or fewer *risers* serving a deck, porch or patio shall have a bottom landing width of not less than 36 inches (914 mm), provided that the stairway is not the required access to grade serving the required egress door.

Reason: The changes to exceptions 3 and 4 are intended to more clearly state the intent of the code.

- In exception 3 a stair with two risers and no landing is not a stairway but rather a single tread. Substitution of tread for stairway eliminates a confusing misuse of the defined term. Changes to the syntax eliminates verbiage and clarifies.
- In exception 4 the defined term "stairway" is incorrect. Substitution of "flight of stairs" for "stairway" allows application of the exception for a flight of stairs that is part of a stairway of more than 3 risers but includes an intermediate landing and a bottom flight of 3 or fewer risers.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change simply provides editorial substitutions using defined terms for stairways correctly to clarify the intent of the code with no changes impacting the cost of construction.

RB124-25

RB125-25

IRC: R318.7.7

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Residential Code

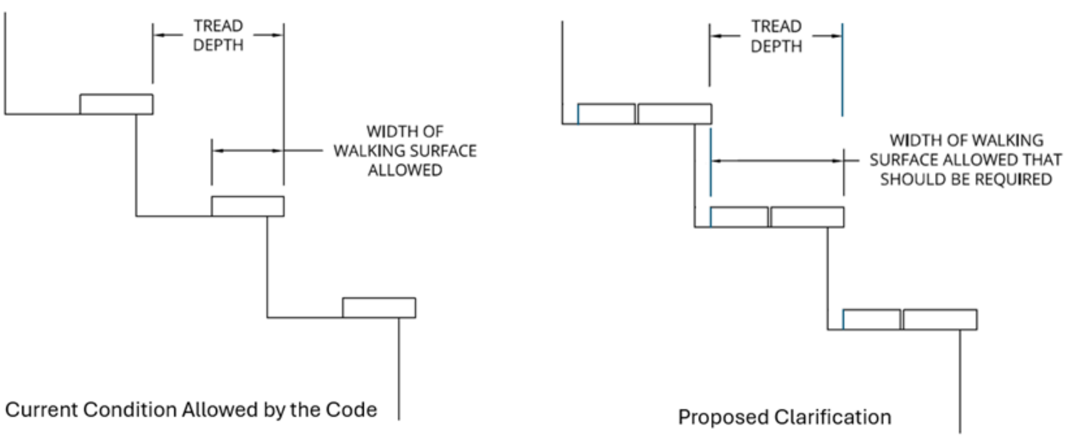
SECTION R318
MEANS OF EGRESS

Revise as follows:

R318.7.7 Stairway walking ~~surface~~ surfaces. The width of stairway walking surfaces in the direction of travel shall be not less than the required tread or landing depth and the length perpendicular to the direction of travel shall extend to a point not more than 2 inches (51 mm) measured horizontally from the wall, face of the guard infill or other surface limiting the opening at the end of the walking surface. The walking surface of treads and landings of *stairways* shall be sloped not steeper than 1 unit vertical in 48 units horizontal (2-percent slope).

> **Exception:** Where the surface of a landing is required elsewhere in the code to drain surface water, the walking surface of the landing shall be sloped not steeper than 1 unit vertical in 20 units horizontal (5-percent slope) in the direction of travel.

Reason: The code currently only requires a distance measured from <sic> "nosing to nosing" described as tread depth but fails to describe the width or length of the actual walking surface. This proposal adds appropriate requirements to the existing section **Walking surface** to provide an adequate surface for placement and support of the users feet in ascent and descent of the stairway providing width and depth requirements in addition to the current slope limit. The drawings and pictures below illustrate the need for this change.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change offers clarification by further describing the walking surface and has no impact on the cost of construction.

RB126-25

IRC: R319.1

Proponents: Jenifer Gilliland, Seattle Department of Construction and Inspections, representing Washington Association of Building Officials Technical Code Development Committee (jenifer.gilliland@seattle.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov)

2024 International Residential Code

SECTION R319
EMERGENCY ESCAPE AND RESCUE OPENINGS

Revise as follows:

R319.1 Emergency escape and rescue opening required. *Basements, habitable attics,* ~~the room to which a sleeping loft is open,~~ and every sleeping room shall have not less than one operable *emergency escape and rescue opening*. Where *basements* contain one or more sleeping rooms, an *emergency escape and rescue opening* shall be required in each sleeping room. *Emergency escape and rescue openings* shall open directly into a *public way*, or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. Basements used only to house mechanical *equipment* not exceeding a total floor area of 200 square feet (18.58 m^2).
2. Storm shelters constructed in accordance with ICC 500.
3. Where the dwelling *unit* or *townhouse unit* is equipped with an automatic sprinkler system installed in accordance with Section P2904, sleeping rooms in *basements* shall not be required to have *emergency escape and rescue openings* provided that the *basement* has one of the following:
   3.1. One means of egress complying with Section R318 and one *emergency escape and rescue opening*.
   3.2. Two means of egress complying with Section R318.
4. A *yard* shall not be required to open directly into a *public way* where the *yard* opens to an unobstructed path from the *yard* to the *public way*. Such path shall have a width of not less than 36 inches (914 mm).
5. <u>Sleeping lofts shall be permitted to be served by an *emergency escape and rescue opening* in the room to which the sleeping loft is open.</u>

Reason: This proposal coordinates the 2027 IRC with proposed changes for the 2027 IBC Appendix P Sleeping Lofts being heard in the IBC General Committee. A new exception 5 permits a sleeping loft to be served by an EERO in the room it opens into (a sleeping room or another room, like a family room, den, etc.) **OR** by an EERO in the sleeping loft itself. An EERO does not have to be located in the sleeping loft to provide adequate safety. It can be impractical to locate the EERO in the loft in many dwelling unit configurations because the loft would either have to abut an exterior wall or be located just below a roof. Given the presence of good early warnings for sleeping loft occupants (the sleeping loft must be open to the space with a smoke alarm in close proximity), having an EERO in the room where the sleeping loft is located should provide adequate safety.

These changes are not intended to override the requirement for an EERO in a sleeping room or to allow a single EERO located in a sleeping loft to be the only EERO serving the sleeping room that the loft opens into. If the loft is located within a bedroom, a person sleeping on the bedroom level should not have to climb up into the sleeping loft to get to an EERO. In cases where a sleeping loft opens into a space like a family room, the family room itself wouldn't be required to have an EERO, but the sleeping loft would, and the EERO could be located in the loft or the family room.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact. The proposed changes would clarify that the placement of the EERO can be either in the sleeping loft itself or in the space that the sleeping loft opens into.

RB126-25

RB127-25

IRC: SECTION R202 (New), R319.1.1

Proponents: Mike Fischer, Fischer Advocacy, representing Mighton Products (mdfischer@outlook.com)

2024 International Residential Code

Add new definition as follows:

<u>WINDOW OPENING CONTROL DEVICE.</u> <u>A window hardware device that controls the window sash opening and includes a release mechanism that allows the window to serve as an *emergency escape and rescue opening*.</u>

SECTION R319
EMERGENCY ESCAPE AND RESCUE OPENINGS

R319.1.1 Operational constraints and opening control devices. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys, tools or special knowledge. <u>The use of window stops, night latches or other devices that restrict the window from opening to the *emergency escape and rescue opening* dimensions required by this section shall not be permitted.</u> Window opening control devices and fall prevention devices complying with ASTM F2090 shall be permitted for use on windows serving as a required *emergency escape and rescue opening* and shall be not more than 70 inches (178 cm) above the finished floor.

Reason: There is confusion among child safety advocates regarding the use of devices to help reduce child window fall incidents. As an example, some public health groups recommend the use of window locks, window stops, or night latches to reduce the clear window opening. While well-intentioned, this safety messaging almost universally ignores the potential impact of window locks on the emergency escape and rescue provisions of the code.

This proposal adds a definition of window opening control device to help establish the dual role of the devices- child fall safety and home fire safety. The additional provision regarding window locks and other devices makes it clear that such devices are not permitted on windows used as emergency escape and rescue openings. With the definition, this provision will aid in code enforcement by making it crystal clear that only ASTM F20290 compliant devices can be used on windows that serve as emergency escape and rescue openings.

WDMA and FGIA released a technical bulletin in 2024 (AAMA/WDMA TB-24-01) that includes the following information about window hardware:

"Vent stops and night latches are devices that may be installed on windows (typically single or double-hung windows or sliding or gliding windows) as a means of providing natural ventilation while attempting to discourage unwanted entry of an intruder. It can be confusing, as these devices can look similar to or even partially function similar to WOCDs, but do not meet the requirements of the ASTM F2090 standard and should not be mistaken as a window fall prevention device. Caution should be taken before using vent stops or night latches on any window designated or intended for emergency escape and rescue. Vent stops and night latches which cannot be released, and which restrict the sash from being fully opened should not be used on windows designated or intended for emergency escape and rescue."

And:

"Vent limiters, night latches and other limiting devices Other types of devices that limit the window sash opening include vent limiters, night latches or vent stops — none of which fall under the scope of ASTM F2090. These devices can be installed on all operable window types (hung, sliding or gliding, or casement/awning styles) to limit the sash opening to let air in or out for ventilation. Vent limiters are devices that restrict the sash opening and typically require a tool or removal of a fastener to open the sash fully. As such, these devices should not be installed on windows required for emergency escape and rescue. If a vent limiter restricts a sash to a less than a four-inch opening, it is possible that a building code official will accept it as an option to the minimum sill height code requirement provided that the vent limiter is not installed on a required emergency escape and rescue (egress) opening. Vent limiters may also be used in applications where windows are installed greater than 75 feet above grade. Vent stops or night latches are devices that may limit the sash opening but do not meet the criteria for a WOCD per ASTM F2090. Therefore, they would not be allowed as an option to the minimum sill height code requirement but may be of interest to occupants as a way of restricting the sash opening. Night latches allow the sash to open a limited distance for ventilation, while limiting the amount a window sash is open, which can help support home security. Caution should be taken before using vent stops or night latches on any window designated or intended for emergency escape and rescue. Vent stops and night latches which cannot be released, and which restrict the sash from being fully opened should not be used on windows designated or intended for emergency escape and rescue."

To download the Technical Bulletin visit:
https://wdma.memberclicks.net/assets/docs/TechnicalCenter/AAMA-WDMA_TB-24-01_UL.pdf

This proposal will assist code officials with interpretation and enforcement of the window fall and emergency escape and rescue opening provisions of the code, while also providing an opportunity to improve child safety and home fire safety advocacy programs. It is critical that both fall and fire safety issues are considered when enforcing the code and educating the public.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal adds no mandatory requirements.

RB127-25

RB128-25

IRC: R319.4.1, FIGURE R319.4.1 (New)

Proponents: David Hoagland, representing Rockwell Window Wells (dave@rockwellinc.com); Rodney Slade, representing Rockwell Window Wells (rodney@rockwellinc.com); Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

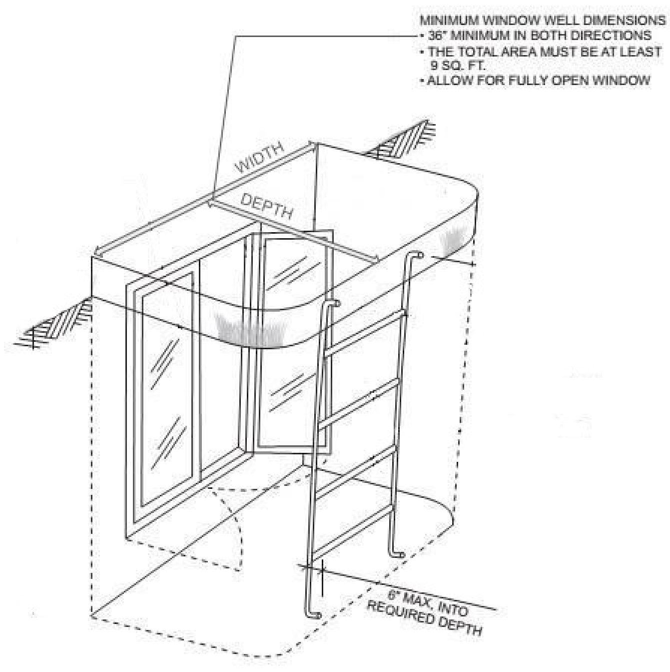
SECTION R319
EMERGENCY ESCAPE AND RESCUE OPENINGS

Revise as follows:

R319.4.1 Minimum size. <u>The minimum horizontal projection of the area well shall be 36 inches (914mm) at the center of the emergency opening and the minimum horizontal width shall be 36 inches (914mm) in the plane of the opening along the wall, in accordance with Figure 319.4.1.</u> The <u>minimum</u> horizontal area of the area well shall be ~~not less than~~ 9 square feet (0.9 m^2)~~, with a horizontal projection and width of not less than 36 inches (914 mm). The size of the area well~~ <u>and</u> shall allow the *emergency escape and rescue opening* to be fully opened.

> **Exception:** The ladder or steps required by Section R319.4.2 shall be permitted to encroach not more than 6 inches (152 mm) into the required dimensions of the area well.

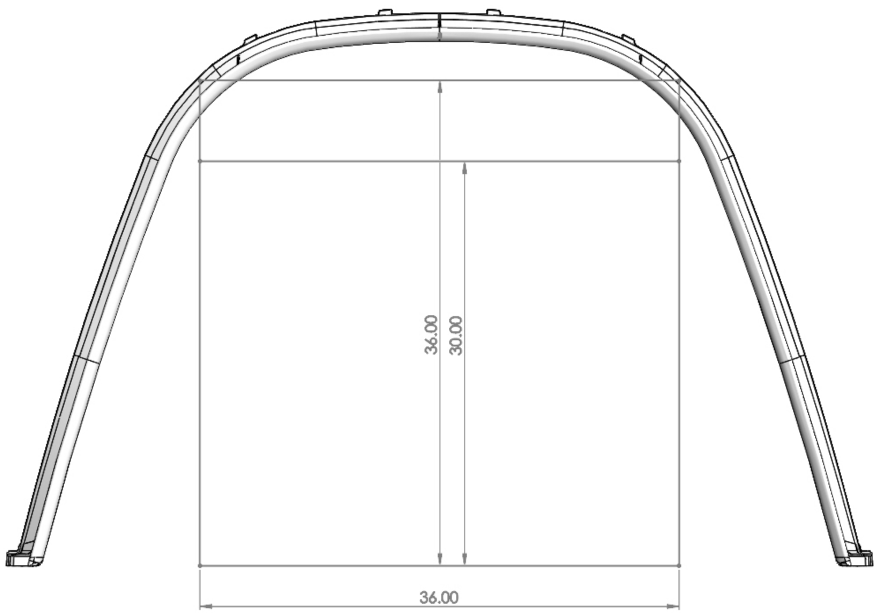
Add new text as follows:



<u>FIGURE R319.4.1 MINIMUM HORIZONTAL PROJECTION FOR AREA WELLS</u>

Reason: Window wells are not manufactured in square shapes with sharp corners, and this is due to the need to resist lateral soil loads. Window wells, like windows, come in all different shapes, and the location of the window within the well is not always the same. For this reason, when window well minimum requirements were originally added to the 1994 Uniform Building Code, both a minimum dimension and a minimum area was included. In the same way an emergency opening can have different minimum dimensions, yet also must meet a minimum area, so must a window well.

However, as written, the IRC is often interpreted as requiring a 36-inch by 36-inch square outside the window opening. If this were the intent, there would have never been a reason to state that 9 square feet is also required. A 36-inch x 36-inch square is always 9 square feet. It is for this reason we believe the 36-inch dimensions should be clarified, and they should be so clarified with relation to the window location. Due to the structural necessity of window well design, the outside corners are typically curved, and the sides are angled as they return to the foundation wall. These designs provide for a 36-inch dimension at the window opening against the wall and a 36-inch dimension away from the wall at the center of the well. Though the outside corners of the well are less than 36 inches from the foundation wall, due to the non-square shape, 9 square feet of area is still achieved, but not as a 3'x3' square. The exception of allowing a ladder or steps to encroach up to 6 inches further demonstrates that a theoretical 3'x3' square is not intended to be the interpretation of the dimensional requirements.



We do not believe these shapes present a hazard to escape and rescue. Utilizing clear minimum dimensions with relation to the window and separately requiring a minimum area, will allow for a greater variety of strong and inexpensive design options for consumers of window wells. Currently no nationally distributed window wells provide an area equal to a 36-inch by 36-inch square. Clarification supporting this proposal is currently presented in the International Fire Code Commentary to section 1030.5.1, stating that the critical width dimension is “in the plane of the window along the wall”.

1030.5.1 Minimum size.

The minimum horizontal area of the window well shall be 9 square feet (0.84 m^2), with a minimum dimension of 36 inches (914 mm). The area of the window well shall allow the *emergency escape and rescue opening* to be fully opened.

C ❖ This section specifies the size of the window well that is needed for a rescue person in full protective clothing and breathing apparatus to use the rescue opening. The required 9 square feet (0.84 m^2) is the size of the window well. Thus, the window well must project away from the plane of the window at least 3 feet (914 mm), and the required dimension in the plane of the window along the wall is also 3 feet (914 mm) (see Commentary Figure 1030.5).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The change proposal seeks to further clarify where to measure the required dimensions and has no impact on the cost of construction.

RB129-25

IRC: R319.4.1

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com); MICHAEL ENDERLIN, The Bilco Company, representing Residential Products Sales Manager (michael.enderlin@bilco.com)

2024 International Residential Code

SECTION R319
EMERGENCY ESCAPE AND RESCUE OPENINGS

Revise as follows:

R319.4.1 Minimum size. The horizontal area of the area well shall be not less than 9 square feet (0.9 m^2), with a horizontal projection and width of not less than 36 inches (914 mm). The size of the area well shall allow the *emergency escape and rescue opening* to be fully opened.

~~Exception~~: Exceptions:

1. The ladder or steps required by Section R319.4.2 shall be permitted to encroach not more than 6 inches (152 mm) into the required dimensions of the area well.
2. Where bulkhead enclosure stairways are in accordance with Section R318.7.11.2 and Section R319, the 36 inch (914 mm) horizontal projection shall not be required at the bottom of the stairway.

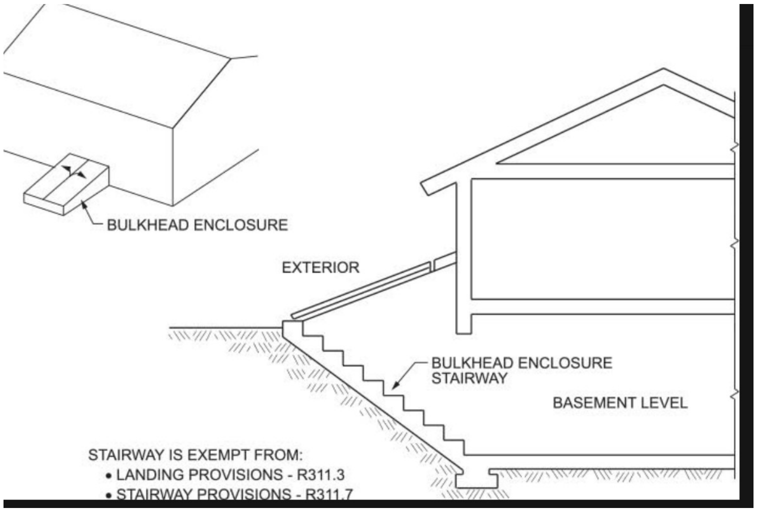
Reason: The current language in the 2024 IR would not allow a typical bulkhead enclosure to function as an emergency escape and rescue opening where the stairs end at a door at a foundation opening. This is due to there being no 36 inch clearance from the door to the first step.From the last few cycles of changes it looks like this was an unintended consequence.

In the 2015 IRC, R310.3.2 does not provide clearances outside of doors for EERO at bulkheads, as the "window well" sizes were in R310.3.3. The illustration provided with this proposal was allowed as an EERO.

In the 2018 IRC proposal RB96-16 argued that there should be no difference between doors and windows for EERO, however, R310.3.2 was changed to only include the 36 inch width for door, but nothing for 36 inches from the door. Typical bulkhead doors were still acceptable.

In the 2021 IRC, proposal RB100-19 changed these section to create an "area well" section for both EERO windows and doors. This effectively ended the use of the typical bulkhead stairs that terminate at the door from being an EERO. However, there is no mention of that as an intent in the reason statement of the proposal. In the testimony for this change during the hearing it was twice stated that "there is no technical change". I testified to this proposal for a different reason, and I didn't notice either that there actually was a change in application.

I am making this proposal to be sure this elimination of bulkhead stairs for EERO is the intended goal of the IRC. It seems like a door to a stairway not more than 8 feet tall and in a bulkhead enclosure would be a pretty good EERO, considering you could also be on the other side of a third story window screaming for rescue and that is an acceptable EERO.



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are many different ways to design an emergency escape and rescue opening. This proposal allows for a method that was previously permitted. It's a new choice, so it has no affect on the cost of construction. It just provides more freedom of design.

RB129-25

RB130-25

IRC: R319.4.2.2, R319.4.2.3 (New)

Proponents: David Hoagland, representing Rockwell Window Wells (dave@rockwellinc.com); Rodney Slade, representing Rockwell Window Wells (rodney@rockwellinc.com); Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R319
EMERGENCY ESCAPE AND RESCUE OPENINGS

Revise as follows:

R319.4.2.2 Steps in area wells around doors. Steps in an area well around doors shall have an inside width of not less than 12 inches (305 mm), a minimum tread depth of 5 inches (127 mm) and a maximum riser height of 18 inches (457 mm) for the full height of the area well.

Add new text as follows:

R319.4.2.3 Steps in area wells around windows. Steps in areas wells around window shall have an inside width of not less than 12 inches (305 mm), a minimum tread depth of 3 inches (127 mm) and a maximum riser height of 18 inches (457 mm) for the full height of the area well.

Reason: Proposal RB101-19 in the creation of the 2021 IRC changed the requirements for steps leading from an EERO by clearly stating a minimum required 5-inch horizontal depth for area wells. Prior to this approved change, and since the original 2000 edition of the IRC, steps in a window well were most commonly interpreted as requiring the same 3-inch depth required for ladders. Many window well manufacturers have been manufacturing wells with steps built in that meet the previous 3 inch distance. There has been no evidence presented during this time or during the code development hearings that the previous dimension presented a hazard, created injury, or prohibited escape or rescue.

It is understandable that since there was no clear definition of step dimensions, one was needed. In an effort to align with IBC code, the term "area well" was used to define the feature/space. Area well has a broad meaning and can include space outside a door, window, or even utilities, such as HVAC systems. Area wells, giving access to doors and utilities, have the potential for being used far more often than just for emergency escape and rescue (see Images 1 and 2). Window wells are a specific subset of area wells that are intended solely for emergency escape and rescue (see Image 3), and as such, warrant its own code requirement within a residential application.

Key Differences

Feature	Window Well	Area Well
Size	Smaller, fits around windows	Larger, fits around doors or utility spaces
Purpose	Light, ventilation, egress for windows	Access, protection, maintenance
Shape	Semicircular or rectangular	Typically rectangular
Use	Residential and light-duty	Utility, maintenance, heavy-duty

Image 1- Area Well

Image 2- Area Well

Image 3- Window Well

Additionally, the code was added during a time of challenging communication and input when both COVID 19 and divergent code affected the process. Because of this, due diligence and communication was difficult. The code change increases the cost of egress on the window well as well as options that are available to the consumer. Furthermore, the code change has a significant impact on the safety of side yards which are trending to be smaller and more restrictive due to home affordability. Contrary to the previous proposal, most of the current window wells on the market do not meet the current R319.4.2.2 code, including the example of an acceptable window well in the orginal proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Although Proposal RB101-19 in the creation of the 2021 IRC stated that it had no cost impact, the result required a larger product which increases materials to produce, requires additional excavation, and consumes more space on the property. All of these impacts increase the cost to the manufacturer, builder, and homeowner.

This change proposal seeks to allow the current code for area wells to remain unchanged, while allowing current window well products to remain as an affordable option that does not increase these costs.

RB130-25

RB131-25

IRC: R319.4.4.1 (New)

Proponents: Thomas Zuzik Jr, Railingcodes.com, representing National Ornamental and Miscellaneous Metals Association (NOMMA) (coderep@railingcodes.com)

2024 International Residential Code

SECTION R319
EMERGENCY ESCAPE AND RESCUE OPENINGS

R319.4.4 Bars, grilles, covers and screens. Where bars, grilles, covers, screens or similar devices are placed over *emergency escape and rescue openings*, bulkhead enclosures or area wells that serve such openings, the minimum net clear opening size shall comply with Sections R319.2 through R319.2.2 and R319.4.1. Such devices shall be releasable or removable from the inside without the use of a key or tool or force greater than that required for the normal operation of the escape and rescue opening.

Add new text as follows:

R319.4.4.1 Opening assist devices. Where provided, non-powered actuators shall be permitted to assist the opening and lifting of a cover, hatch or grill and shall comply with each of the following:

1. A minimum of 2 actuators shall be installed for safety redundancy.
2. A single actuator shall operate the opening and lifting assist upon failure of the other actuator.

Reason: When grates, grills or other coverings are installed over an area well of an EERO. These units are sometimes installed with non powered assist devices to off set the weight of opening the grill, grate, hatch or cover with minimum effort.

Members of NOMMA have had these types of coverings over EERO area wells questioned and held up on acceptance by authorities having jurisdiction (AHJ) for not providing fail safe or backup.

This proposal is being submitted to provide a simplified solution with a safety redundancy that an AHJ can inspect simply in the field.

The following weblink is provide for watching a short video of an installation with a set of assist actuators installed. https://railingcodes.com/eeror319/

As to the requirement, this code proposal is not requiring that assist devices be installed, just clarifying they are allowed to be installed, and if installed that the grill, grate, hatch or cover be able to be opened with the use of one assist device and that a second unit is also installed as redundancy for if the other fails.

Bibliography: Website: https://railingcodes.com/eeror319/

Cost Impact: Increase

Estimated Immediate Cost Impact:

Estimated to be less than $60.00

Estimated Immediate Cost Impact Justification (methodology and variables):

If this non required assist device is elected to be installed to offset the weight of the grill, hatch or cover, the additional cost is for the 2nd unit only as redundancy safety for if one fails and is no longer simple to open.

Estimated Life Cycle Cost Impact:

The life cycle of these assist devices are similar to those used in the auto industry for lifting hoods, and range in life cycles based on the unit used.

These devices should be checked when the home's EERO exits are inspected.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

The cost for these items are under $100.00 and could be changed, every 10 years or less, when the homes smoke detectors are swapped out.

RB131-25

RB132-25

IRC: SECTION R321, R321.1, R321.1.1, R321.1.2, R321.1.3, R321.1.4, SECTION R322 (New), R321.2, R321.2.1, R321.2.2

Proponents: Thomas Zuzik Jr, Railingcodes.com, representing National Ornamental and Miscellaneous Metals Association (NOMMA) (coderep@railingcodes.com)

2024 International Residential Code

Revise as follows:

SECTION R321
GUARDS ~~AND WINDOW FALL PROTECTION~~

R321.1 ~~Guards~~ General. *Guards* shall be provided in accordance with Sections R321.2 through R321.5 ~~R321.1.1 through R321.1.4.~~

R321.2 ~~R321.1.1~~ Where required. *Guards* shall be provided for those portions of open-sided walking surfaces, including floors, *stairs*, *ramps* and landings that are located more than 30 inches (762 mm) measured vertically to the floor or *grade* below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a *guard*.

R321.3 ~~R321.1.2~~ Height. Required *guards* at open-sided walking surfaces, including *stairs*, porches, balconies or landings, shall be not less than 36 inches (914 mm) in height as measured vertically above the adjacent walking surface or the line connecting the *nosings*.

Exceptions:

1. *Guards* on the open sides of *stairs* shall have a height of not less than 34 inches (864 mm) measured vertically from a line connecting the *nosings*.
2. Where the top of the *guard* serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) as measured vertically from a line connecting the *nosings*.

R321.4 ~~R321.1.3~~ Opening limitations. Required *guards* shall not have openings from the walking surface to the required *guard* height that allow passage of a sphere 4 inches (102 mm) in diameter.

Exceptions:

1. The triangular openings at the open side of *stair*, formed by the *riser*, tread and bottom rail of a *guard*, shall not allow passage of a sphere 6 inches (153 mm) in diameter.
2. *Guards* on the open side of *stairs* shall not have openings that allow passage of a sphere $4^3/_8$ inches (111 mm) in diameter.

R321.5 ~~R321.1.4~~ Exterior plastic composite guards. *Plastic composite* exterior *guards* shall comply with the requirements of Section R507.2.2.

Add new text as follows:

SECTION R322
WINDOW FALL PROTECTION

Revise as follows:

~~R321.2~~ R322.1 General ~~Window fall protection.~~ Window fall protection shall be provided in accordance with Sections ~~R321.2.1 and R321.2.2~~ R322.2 and R322.3.

~~R321.2.1~~ R322.2 Window opening height. In *dwelling units*, where the bottom of the clear opening of an operable window opening is located less than 24 inches (610 mm) above the finished floor and greater than 72 inches (1829 mm) above the finished *grade* or other surface below on the exterior of the *building*, the operable window shall comply with one of the following:

1. Operable window openings will not allow a 4-inch-diameter (102 mm) sphere to pass through where the openings are in their largest opened position.
2. Operable windows are provided with window opening control devices or fall prevention devices that comply with ASTM F2090.

~~R321.2.2~~ R322.3 **Emergency escape and rescue openings.** Where an operable window serves as an *emergency escape and rescue opening*, a window opening control device or fall prevention device, after operation to release the control device or fall prevention device allowing the window to fully open, shall not reduce the net clear opening area of the window unit to less than the area required by Sections R319.2.1 and R319.2.2.

Reason: Guards and Window fall protection are two different products and industries and 2 different forms of minimum protection.

By separating the two into their own Sections, it removes all questions of them working in conjunction.

Furthermore with each subject now in their own section, citing of the code is also simplified with the reduction of run on decimal places being removed from the equation.

As to the additional wording added in newly number section R321.5 exterior plastic composite guards, this is an editorial change that clarifies that these specific types of guards are also required to meet R507.2.2, in addition to R321.

We believe this code change proposal is editorial in nature and only helps clarify the code for the common user, in addition to the code enforcement community.

With the separation of the two, Window Fall Protection is moved to the next Section number, and the sections that follow after are to be renumbered in current order by staff.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a renumbering of a shared Section number by Guards & Window Fall Protection and splitting them into their own Section Numbers and clarifying plastic composite guards. The proponent of this proposal submits that there is no increase or decrease in costs as it is editorial.

RB132-25

RB133-25

IRC: R321.1.2

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Residential Code

SECTION R321
GUARDS AND WINDOW FALL PROTECTION

Revise as follows:

R321.1.2 Height. Required *guards* at open-sided walking surfaces, including *stairs*, porches, balconies or landings, shall be not less than 36 inches (914 mm) in height as measured vertically above the adjacent walking surface or the line connecting the *nosings*.

Exceptions:

1. *Guards* on the open sides of *stairs* shall have a height of not less than 34 inches (864 mm) measured vertically from a line connecting the *nosings*.
2. Where the top of the *guard* serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) as measured vertically from a line connecting the *nosings*.
3. At the transition of the handrail to the guard at the top of a flight the required guard height shall be not less than the handrail height for a distance not greater than 12 inches (305 mm) as measured horizontally from the landing nosing.

Reason: This proposed exception adds the language as approved by the IBC MOE committee in CAH2.

This is a needed change for two critical reasons:

1. Most consumers feel it advantageous to have the handrail at the lower end of the required height range, especially in homes with children and older persons unable to maintain erect posture or with shrinking stature that is inherent with aging.

2. The code measures stair guard and handrail height from a line connecting the nosings however guards at landings and floors are measured from the walking surface. Handrails must be continuous to a point directly above the riser however the landing extends beyond the riser as much as 1 ¼ inches. Currently the stair guard would have to be the exact same height as the level guard with a "sharp" and precise transition or a considerably higher stair guard to allow for a smooth transition by an over easing or a wreathed fitting, i.e. curved stair handrails. (A wreathed handrail "twists" to conform to the angle of incidence of the users grip as they ambulate through the raked turn of the stair).

The ability to make a smooth rounded transition from stair guard to the level guard at the landing allows a safe and continuous grasp of the handrail. This proposal offers a superior alternative to the use of a gooseneck (vertical type transition) or post at the transition from the stair guard/handrail (allowed in the code) providing a greater level of safety. The minimal decrease from the required landing guard height is only allowed at the top of a flight and occurs for a negligible distance. This type of transition has been common throughout the built environment for hundreds of years. Please review the illustrations below, Figures 1- 4, of common transitions.

Figure 1

Handrail to Post as permitted by code

Gooseneck from Handrail to Post as permitted by code

Gooseneck from Handrail to Guard as permitted by code

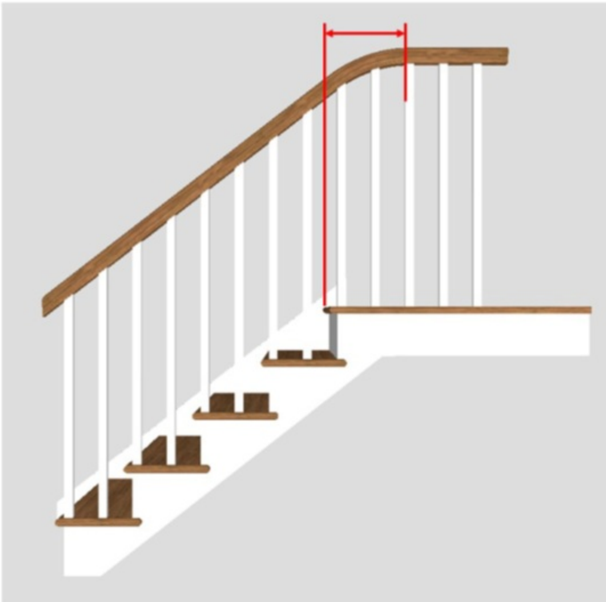
Figure 2

Simple Bisect of Handrail and Guard at Exactly Same Height
The arrow indicates area addressed by new exception

Figure 3

Wreathed transitions from Handrail to Landing Guard that provide continuous grip without interruption but require the proposed exception to the required landing guard height.

Figure 4



Preferred smooth transition of Handrail to landing Guard using over-easing at the top of a flight provides for continuous grip without interruption. Red dimension arrow indicates maximum 12 Inch distance where guard height exception would apply.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal offers needed clarification that will provide for safer handrails at the top of flights but does not require additional labor or materials affecting the cost of construction.

RB133-25

RB134-25

IRC: R321.1.3

Proponents: David Cooper, Stair Manufacturing and Design Consultants, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2024 International Residential Code

SECTION R321
GUARDS AND WINDOW FALL PROTECTION

Revise as follows:

R321.1.3 Opening limitations. Required *guards* shall not have openings from the walking surface to the required *guard* height that allow passage of a sphere 4 inches (102 mm) in diameter.

Exceptions:

1. The triangular openings at the open side of *stair*, formed by the *riser*, tread and bottom rail of a *guard*, shall not allow passage of a sphere 6 inches (153 mm) in diameter.
2. *Guards* on the open side of *stairs* and at intermediate landings between flights within a stairway, shall not have openings that allow passage of a sphere $4^{3}/_{8}$ inches (111 mm) in diameter.

Reason: Landings within a stairway must be accessed by a stair where the opening limitation is 4 3/8 inches yet when you get to the landing the code requires a smaller limit. The 4 3/8 inch sphere rule exception was allowed at stair guards for several reasons but of most consequence was the fact that the 95th percentile child of head and chest size susceptible to fall through at greater less than 4 3/8 inches are at the development age of just being able to sit-up and would not be unattended on a stair as might be probable at a floor area adjacent to a guard. We propose that the same reasoning should be applied at intermediate landings within a stairway.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

Although not significant increasing the opening limitation would decrease the cost of a landing guard.

Estimated Immediate Cost Impact Justification (methodology and variables):

A typical intermediate landing guard with vertically oriented balusters or wood or metal might be 42" in length and require 1 less baluster at a material and labor savings of $10 - $25 for most commodity wood or metal balustrades.

RB134-25

RB135-25

IRC: R321.1.3.1 (New), TABLE R321.1.3.1(1) (New), TABLE R321.1.3.1(2) (New)

Proponents: Ashley Goodin, Technical Services, representing Stairbuilders and Manufacturers Association (ashley.goodin@stairways.org)

2024 International Residential Code

SECTION R321
GUARDS AND WINDOW FALL PROTECTION

R321.1.3 Opening limitations. Required *guards* shall not have openings from the walking surface to the required *guard* height that allow passage of a sphere 4 inches (102 mm) in diameter.

Exceptions:

1. The triangular openings at the open side of *stair*, formed by the *riser*, tread and bottom rail of a *guard*, shall not allow passage of a sphere 6 inches (153 mm) in diameter.
2. *Guards* on the open side of *stairs* shall not have openings that allow passage of a sphere 4$^{3}/_{8}$ inches (111 mm) in diameter.

Add new text as follows:

R321.1.3.1 Cable infill opening limitations. Where flexible cables of any material are components of the guard infill located between the walking surface and the required guard height, the guard infill shall comply with all of the following:

1. Each cable shall be installed with hardware designed specifically for use in guard infill systems in accordance with the manufacturers' instructions for the frame materials to be used.
2. When measured with a strain indicator, it must be in accordance with the tension values in Table R321.1.3.1(1) for the cable diameter, cable length, span, and tension used. Alternately, the distance between any two cables or a cable and another surface shall not exceed the applicable opening limitation and the values listed in Table R321.1.2.1(2) when a 4.4 pound (2.0 Kg) mass is suspended at mid span of weight is hung from any individual cable.
3. Cable infill materials used in exterior applications shall be manufactured for use in exterior applications.

Table R321.1.1.3.1(1) shall be in effect for the stated wire diameters, construction (lay), and clear span between supports. Overall cable length between terminations shall be distance between supports or greater. Measurements shall be taken with a hand-held strain gauge at the time of cable installation.

TABLE R321.1.3.1(1) CABLE TENSION BY CLEAR SPAN DISTANCE [a,b,c,d,e,f,g]

			Clear Span Between Supports (inch)							
Wire Diameter (inch)	Construction (Lay)	Wire separation spacing (inch)	24	32	36	40	48	60	72	80
			Minimum Required Tension (lbf)							
3/32	7x7	2-3/8	12.4	42.7	59.1	93.3	107.5	185.0	242.8	256.1
		3-1/8	85.9	141.6	165.1	185.2	230.4	289.6	NP	NP
3/32	1x19	2-3/8	7.9	49.0	69.7	90.4	131.5	182.1	252.9	297.9
		3-1/8	94.4	141.6	165.2	188.8	236.0	314.7	393.4	NP
1/8	7x7	2-3/8	3.4	40.0	60.7	70.6	113.8	148.4	216.9	262.6
		3-1/8	56.2	92.8	112.4	166.6	183.9	243.5	308.0	351.8
1/8	1x19	2-3/8	5.6	41.1	58.7	76.4	116.9	177.6	230.4	265.3
		3-1/8	73.1	124.8	150.6	176.5	230.4	299.0	387.8	445.1
3/16	1x19	2-3/8	1.1	1.1	2.2	3.4	4.5	33.0	133.3	200.1
		3-1/8	6.7	43.2	67.4	93.3	133.3	248.4	292.9	322.6
3/16	7x19	2-3/8	34.8	65.2	80.5	95.5	134.7	193.3	242.8	288.9
		3-1/8	88.6	147.0	176.5	205.7	257.0	333.8	418.1	473.2

For SI: 1 inch=25.6 mm.

a. Lay = number of strands by the individual wires in each strand. For example a lay of 7x19 consists of 7 strands with 19 individual wires in each strand.

b. Where a change of direction is made in a run of wire, the tensioning device is to be placed at the end of the longest span.

c. This table shall be permitted to be used for a set of non-continuous (single) vertical wires forming a barrier using the appropriate clear distance between posts as the vertical clear distance between the rails.

d. Where a 3.0 mm diameter wire is used, the tension figures for 1/8" diameter are applied.

e. Spans labeled "NP" are not allowed because the required tension would exceed the safe load of the wire.

f. Tension shall be measured with a strain indicator.

g. For wire diameters, lays, separation spacing, and spans not listed, results shall be permitted to be interpolated as necessary to meet or exceed stated values.

TABLE R321.1.3.1(2) MAXIMUM PERMISSIBLE DEFLECTION FOR CABLE INFILL BY SPAN [a,b,c,d,e]

		Clear Span Between Vertical Members (inch)					
Wire Diameter (inch)	Wire Separation Spacing (inch)	24	36	48	60	72	80
		Maximum permissible deflection of each wire when a 4.4 lb. mass is suspended at mid-span.(inch)					
3/32	2-3/8	11/16	7/16	3/8	5/16	5/16	5/16
	3-1/8	9/32	3/16	3/16	3/16	NP	NP
1/8	2-3/8	3/4	1/2	5/16	9/32	9/32	9/32
	3-1/8	5/16	1/4	1/4	3/16	3/16	3/16
3/16	2-3/8	3/4	1/2	5/16	5/16	9/32	9/32
	3-1/8	5/16	1/4	3/16	3/16	3/16	3/16

For SI: 1 inch=25.4 mm

a. Where a change of direction is made in a run of wire, the 4.4 lb mass shall be placed at the middle of the longest span.

b. Where a 3.0 mm diameter wire is used, the deflection figures for 1/8" diameter wire are applied.

c. This table shall be permitted to be used for a set of non-continuous (single) vertical wires forming a barrier using the appropriate clear distance between posts as the vertical clear distance between the rails. The deflection (offset) is measured by hooking a standard spring scale to the mid-span of each wire and pulling it horizontally until a force of 4.4 lbf is applied.

d. Spans labeled "NP" are not allowed because the required tension would exceed the safe load of the wire.

e. For wire diameters, separation spacing, and spans not listed, results shall be permitted be interpolated as necessary to meet or exceed stated values.

Attached Files

- **Part 3.9.2 Barriers and handrails _ NCC.pdf**
  https://www.cdpaccess.com/proposal/11819/35610/files/download/9379/
- **Part 2.5 Safe movement and access _ NCC.pdf**
  https://www.cdpaccess.com/proposal/11819/35610/files/download/9375/

Reason: This issue was previously considered during the 2024 cycle for IBC structural. To date, this body has not been presented with evidence of accident or number of injuries related to cable infill nor are such the subject of reports to the public. There is no doubt however that cable infill systems are highly desired by the public who by evidence of the numbers are not wary of cable systems as a life safety issue. Minimalist design, the appeal of the industrial and maritime aesthetics, not to mention visibility and sight lines are driving the demand.

Cable systems are in vogue, however, the conundrum we are here to resolve is solely a lack of guidance for users of the code and a nightmare for regulators that are left to interpret the intent of the code. This is not a life safety issue but purely an enforcement issue.

How do we measure the opening limitation when the opening is flexible? Surely applying the failure load as some have reasoned is overkill. The cable is not in failure mode. In the case of failure there would be no infill and the idea of an opening limitation would be a moot point. The measurement of the distance in question, the diameter of a sphere, is not a structural requirement, nor is this dimension a parameter of the structural properties of the guard system in question. There simply is no correlation of the failure load nor any reasoned portion thereof to the measurement of the opening limitation.

We know what works and it is clearly defined in the installation instructions of the major manufacturers of cable infill systems. When installed properly, Cable systems meet the guard requirements. This proposal provides clear, concise solutions to address conformance to code requirements for manufactureres, installers, and authorities having jurisdiction for enforcement.

This proposal seeks to incorporate elements from the Australian National Construction Code, Volume Two, Amendment 1 – 2019. This model building code allows for two different yet effective assessments for determining the ability of a flexible cable infill system to retain its ability to prevent the maximum allowable opening of 4” to be exceeded. By incorporating either a prescriptive cable installation tension or a measured deflection using a mass suspended at the mid-point of a given span, both the installer and code official have a common, objective assessment methodology for ensuring that a given installation conforms to the opening limitation requirement(s) as applicable.

The 4.4 lb suspended mass utilized in the proposed table can be derived from the 50 lbs. per square foot guard infill load.

12" x 12" = 144 square inches

50 lbs. / 144 square inches = .347 lbs. per square inch

Area of a 4" diameter sphere = 12.57 square inches x .347 lbs/square inch = 4.36 lbs.

Further, if the load were uniformly applied to a 4" x 4" area = 16 square inches x .347 lbs/square inch = 5.55 lbs.

Therefore, the proposed suspended mass of 4.4lbs. is within reason for the existing guard infill load required by the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

As written, this proposal is a clarification for assessment of conformance, therefore no cost impact is anticipated for code-compliant installations. Potentially, there may be a decrease in cost due to current lack of a consistent assessment tool leading to increased cost for overbuilding and/or removal of potentially compliant guard infill systems.

RB135-25

RB136-25

IRC: SECTION 202 (New), R322.1, Figure R322.1 (New)

Proponents: Steven Mickley, representing American Institute of Building Design (steve.mickley@aibd.org); Jack Butler, Butler & Butler, LLC, representing American Institute of Building Design (abutler@mpzero.com)

2024 International Residential Code

Add new definition as follows:

MULTISTORY UNIT. A *dwelling unit* or *sleeping unit* with habitable space located on more than one story.

SECTION R322
ACCESSIBILITY

Revise as follows:

R322.1 Dwelling units or sleeping units. Where there are four or more dwelling *units* or *sleeping units* in a single structure, the provisions of Chapter 11 of the *International Building Code* for Group R-3 shall apply.

~~**Exception**~~ **Exceptions:**

1. *Owner*-occupied *lodging houses* with five or fewer *guestrooms* are not required to be accessible.
2. A *multistory unit* that is not provided with elevator service, as illustrated in Figure R322.1, is not required to comply with this section.

Add new text as follows:

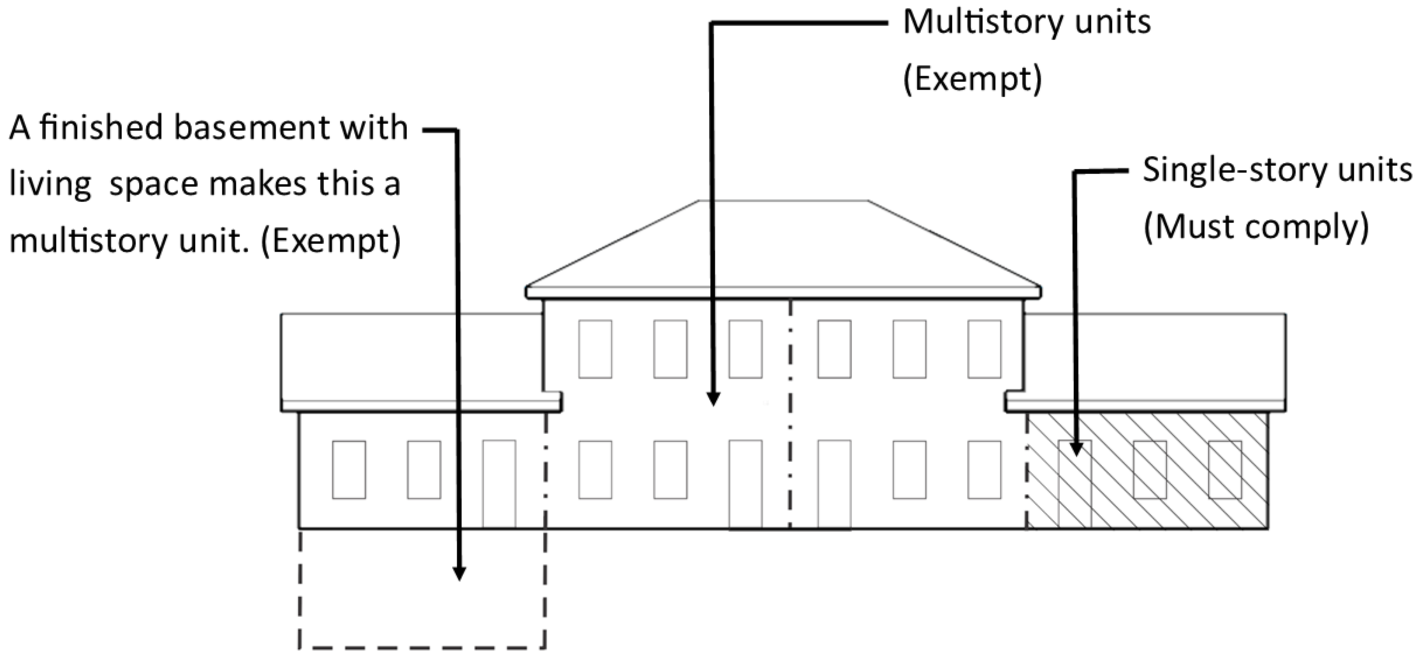


FIGURE R322.1 MULTISTORY UNIT EXCEPTION

Reason: The IRC applies to detached one- and two-family dwellings and townhouses. A townhouse consists of three or more dwelling units, which need not be identical in form. Section R322.1 of the IRC specifies that if a single structure contains four or more dwelling units (each defined as a self-contained unit with independent living facilities for one or more people) or sleeping units, the requirements of Chapter 11 in the IBC for Group R-3 are to be applied. However, Section 1108.7 of the IBC specifically excludes multistory dwelling units and sleeping units within Group R-3 buildings that lack elevator service. This means that, when four or more single-family townhouse dwelling units are grouped into one structure and those units are multistory without elevator access, then the multistory units are exempt from being designated as accessible units. To ensure alignment between the IRC and IBC, including a multistory unit definition in Section R202 and an exemption for multistory units in Section R322 will address all applicable scenarios covered in the scope of the IRC. This change will clarify the intent and improve consistency between the IRC and IBC by removing the need for IRC code users to refer to IBC Chapter 11 when it does not apply.
An accompanying illustration (attachment) is intended to visually assist building officials, building designers, and builders in identifying which units qualify for the exception. The illustration should be identified as FIGURE 322.1 and included with Exception 2.

Bibliography: International Building Code, International Code Council, published 2024, 1108.7.2.

1108.7.2 Multistory units. A multistory dwelling unit or sleeping unit that is not provided with elevator service is not required to be a Type B unit.

Fair Housing Act Design Manual, U.S. Department of Housing and Urban Development, Published August 1996, revised April 1998, page 7.

DWELLINGS COVERED BY THE DESIGN REQUIREMENTS

The design requirements apply to buildings built for first occupancy after March 13, 1991, which fall under the definition of “covered multifamily dwellings.” Covered multifamily dwellings are:

1. all dwelling units in buildings containing four or more dwelling units if such buildings have one or more elevators, and

2. all ground floor dwelling units in other buildings containing four or more units.

To be a covered unit, all of the finished living space must be on the same floor, that is, be a single-story unit, such as single-story townhouses, villas, or patio apartments.

Multistory dwelling units are not covered by the Guidelines except when they are located in buildings which have one or more elevators, in which case, the primary entry level is covered.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no impact on the cost of construction. The proposed change aims to enhance clarity by explicitly incorporating an exemption already outlined in the International Building Code (IBC).

RB136-25

RB137-25

IRC: R324.4.3

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com)

2024 International Residential Code

SECTION R324
GLAZING

Revise as follows:

R324.4.3 Glazing in windows. Glazing in an individual fixed or operable panel that meets all of the following conditions shall be considered to be a *hazardous location*:

1. The exposed area of an individual pane is larger than 9 square feet (0.836 m^2).
2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor or adjacent walking surface.
3. The top edge of the glazing is more than 36 inches (914 mm) above the floor or adjacent walking surface.
4. One or more walking surfaces are within 36 inches (914 mm), measured horizontally and in a straight line, of the plane of the glazing.

Exceptions:

1. *Decorative glazing*.
2. Where ~~glazing is adjacent to a walking surface and~~ a horizontal rail is installed on the walking surface side of the glazing at 34 to 38 inches (864 to 965 mm) above the walking surface, the ~~. The~~ rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and have a cross-sectional height of not less than $1^1/_2$ inches (38 mm).
3. Outboard panes in insulating glass units ~~and~~ or multiple glazing ~~other multiple glazed panels~~ where the bottom exposed edge of the glass is 8 feet (2438 mm) ~~25 feet (7620 mm)~~ or more above any grade or walking surface adjacent to the glass exterior ~~*grade*, a roof, walking surfaces or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior~~.

Reason: Last code cycle, S231-22 proposed to rework a similar section (Section 2406.4.3) in the IBC. The original wording of the IBC provision (which still is present in the IRC) was very unclear with respect to intent. It is not clear why the outboard pane in IGUs would need to be safety glazing when the bottom of the glazing is as much as 25 feet above the adjacent exterior walking surface. After much discussion before the proposal was heard, consensus was reached among various industry representatives with respect to an acceptable wording that would relax the then-current wording and clarify other portions of the section. A floor modification to that effect was proposed, which was accepted by the committee unanimously, and no public comments regarding the change were submitted.

During the testimony at the Committee Action Hearings, a request was made to make the same changes to the sister section in the IRC for the 2027 code cycle, which is what this proposal does. If accepted, Section 324.4.3 of the IRC will match Section 2406.4.3 of the IBC with one minor exception: because part of the IRC wording of Exception 2 (i.e., "... and have a cross-sectional height of not less than $1^1/_2$ inches (38 mm)") is much less awkward than the IBC version (i.e., "and be not less than $1^1/_2$ inches (38 mm) in cross-sectional height."), I am proposing to leave that small portion as-is. The meaning is exactly the same, but the IRC version is better.

The rest of the IRC section is being updated to match the consensus reached in the IBC Structural Committee Action Hearings last cycle. If additional reasoning is needed, the video recording of the testimony regarding S231-22 is available on the ICCs cdpAccess website.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposal will potentially reduce the cost of windows in hazardous locations that are between 8 feet and 25 feet above the grade or adjacent walking surfaces because safety glazing can be omitted from the exterior layer where it was previously required. It will also decrease the need for fully tempered glass, which can be susceptible to nickel-sulfide inclusions that result in breakage after installation, so there may be less need for heat soaking (where glass is kept at elevated temperature for several hours to accelerate the growth of the nickel-sulfide inclusions so that failures caused by that growth happen before the glass is installed) and less need for replacement of glass in the longer term.

When I asked one person who is knowledgeable about the glass industry, he thought that the cost implications would be $0, primarily because most glass is tempered or heat-strengthened anyway, so any reduction in cost would be negligible. However, because heat soaking requires an additional step in the manufacturing process, this cannot have zero-cost implications or everyone would do it for free. When I googled the cost, artificial intelligence first told me that the cost for heat soaking would be 10 to 15 percent of the total cost. But none of the links it gave me had an actual cost or percentage. So I asked again, and it said "a small premium" offered that heat soaking is "often considered a 'marginal' additional cost rather than a signficant expense on its own". But this article I found indicated that the cost is more than just marginal: https://www.pqovens.com/heat-soaked-tempered-float-glass/ The same person I had asked earlier about the cost savings, he indicated that heat soaking can cost $1.50 per square foot per lite, and an IGU is $20 per square foot.

So the short answer is that I do not know for sure how much this will save. If we assume that glass is being installed is tempered and then heat-soaked to mitigate the risk of nickel-sulfide inclusions, then the potential cost savings are roughly $1.50 per square foot wherever the current language would have required safety glass where none would be required according to this proposal. If the existing language is left as-is, then there is the possibility that the existing language may be missed or ignored due to the fact that it does not make much sense, and that may result in significant increased costs post-construction during litigation -- far more than the cost to install heat-soaked, tempered glass in the first place.

Although quantification of all of these variables is difficult, I am sure that there are <u>no construction costs increases</u> associated with this change.

Estimated Immediate Cost Impact Justification (methodology and variables):

The above is my best estimate of the cost implications, using my experience, the Google, and asking my peers.

RB137-25

RB138-25

IRC: R325.2

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R325
LIGHT, VENTILATION AND HEATING

Revise as follows:

R325.2 Bathrooms. Bathrooms, <u>toilet rooms</u> ~~water closet compartments~~ and other similar rooms shall be provided with aggregate *glazing area* in windows of not less than 3 square feet (0.3 m^2), one-half of which shall be openable.

> **Exception:** The glazed areas shall not be required where artificial light and a *local exhaust* system are provided. The minimum *local exhaust* rates shall be determined in accordance with Section M1505. Exhaust air from the space shall be exhausted directly to the outdoors.

Reason: This is the only occurrence in the IRC of the term “water closet compartment”. There are 16 occurrences of the term “toilet room”. For consistency in interpretation, varying terms should not be used if not necessary to imply a different application.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is only for clarification and simplification. There is no change to the intent or application.

RB138-25

RB139-25

IRC: SECTION R325, R325.9 (New)

Proponents: Clayton Trevillyan, representing City of Tucson (clayton.trevillyan@tucsonaz.gov); Jane Gilbert, Miami Dade County, representing Miami-Dade County (jane.gilbert@miamidade.gov); Mary Wright, Office of Heat Response and Mitigation, City of Phoenix, representing self (mary.wright@phoenix.gov); Ali Frazzini, representing Los Angeles County Chief Sustainability Office (afrazzini@cso.lacounty.gov); Stefano Schiavon, representing Self (schiavon@berkeley.edu); Pedro Quintela, Miami Dade County, representing RER (pq2@miamidade.gov)

2024 International Residential Code

Revise as follows:

SECTION R325
LIGHT, VENTILATION AND ~~HEATING~~ TEMPERATURE CONTROL

Add new text as follows:

R325.9 **Required cooling.** In Climate Zones 0, 1, 2, 3, 4, 5A, and 5B, where the outdoor summer design dry-bulb temperature in Table R301.2 is above 85°F (29.4°C), every dwelling unit shall be provided with one or more systems capable of maintaining an indoor temperature at or below 80°F (26.7°C) in the habitable rooms. Where permanently installed fans are capable of generating 120 fpm (0.6 m/s) air speed inside the habitable rooms, the systems shall be capable of maintaining the indoor temperature at or below 85°F (29.4°C). The installation of one or more portable systems shall not be used to achieve compliance with this section.

Exception: Where site-specific climate conditions warrant, as *approved* by the *building official.*

Reason: The codes require minimum heating of habitable space for the safety of the occupants. The code is silent on requirements for cooling, despite the negative impacts of elevated exterior thermal conditions on humans. The built environment is a safe haven from the effects of weather and climatic conditions, heat not being an exception for people to seek shelter from the elements. Media attention to heat-related health emergencies on the elderly and people in underserved communities demonstrates the need for improvements in the built environment[1]. As a result of increased summer temperatures, nearly half of heat-related deaths happen inside a person's home[2] and some jurisdictions have already mandated cooling be provided in new buildings while many others are considering extreme heat related ordinances. A coordinated application of the codes that can be consistently applied to new construction is warranted due to the trend in local agencies with differing requirements throughout the country. The first change includes modifying the section title for consistency with IBC 1203.

This proposal is a performance specification to ensure life safety in the built environment due to higher expected summer thermal conditions. The solution can either be active or passive systems, or a combination of these systems to provide relief from elevated thermal conditions. The active systems may include traditional central mechanical air conditioning systems that are provided in most modern homes and do not represent a significant change to how most buildings are constructed. Passive cooling systems utilize unique design features of the building that prevent heat from entering the building and/or removing heat from the building. Passive design applications include building orientation, insulation, solar control (shading and landscaping), ventilation, cool roofs, and other methods that naturally, and without input energy, would provide and maintain thermal comfort. Passive systems could be more cost effective in both the short term and the long term as compared to active mechanical systems for circumstances where a few design changes could comply with specified interior temperature. The interior temperature of 80°F was selected as the maximum temperature for the thermal comfort of the interior environment based on ANSI/ASHRAE Standard 55-2023[3] and generally at, or above the temperature in most local ordinances.

The second sentence recognizes that air movement provides a cooling effect as experienced by the occupants of the building. ASHRAE Standard 55-2023[3] states that air movement of only 120 feet per minute results in a 5°F cooling effect on the occupants within this temperature range. Where permanent fans are installed, the resulting interior maximum temperature can be increased 5°F above the baseline temperature of 80°F that would be required for either the active or passive systems installed in accordance with the first sentence of the code change proposal. This is an additional energy-efficient and cost-effective method to provide the minimum cooling effect on human bodies where thermal comfort and safety is provided in the built environment. Permanently installed fans can include ceiling fans, wall-mounted fans, bladeless ceiling fans, or any other permanently installed fan that can be verified at the time of final inspection that the equipment is installed.

The third sentence is a carry-over from the heating requirement in R325.8, where the expectation for compliance is permanently installed equipment that can be utilized by the occupant as needed for thermal comfort and life-saving opportunities from dangerous heat related health considerations.

Bibliography:

1. Kenny, Glen P., Jane Yardley, Candice Brown, Ronald J. Sigal, and Ollie Jay. (July 13, 2010). "Heat Stress in Older Individuals and Patients with Common Chronic Diseases." CMAJ 182, no. 10: 1053–60. https://doi.org/10.1503/cmaj.081050
2. Kim, Elizabeth B. (June 19, 2024). Heat waves in the US kill more people in their homes than anywhere else. Cincinnati Enquirer. https://www.cincinnati.com/story/news/2024/06/19/heat-advisory-risk-dying-at-home-or-in-cars/74130082007/
3. ANSI/ASHRAE 55-2023: Thermal Environmental Conditions for Human Occupancy. Atlanta, GA, US: ASHRAE, 2023

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0 - $31+ per square foot of new or renovated habitable buildings.

The immediate cost impact to construction is for newly constructed or renovated buildings. There is no immediate cost to existing buildings. This value ranges greatly depending on variables that include but are not limited to:

- If the proposed construction would include cooling regardless of this code change. Zero cost impact will apply to many regions and project scopes for new permits.
- If the project includes a system that can be further supplemented at relatively low cost due to other air handling equipment that would have otherwise been included in the project scope.
- The method of proposed cooling and quality of equipment.
- Level of efficiency and sustainability of system design.
- The climate zone of project area.

Estimated Immediate Cost Impact Justification (methodology and variables):

1. Estimation from major HVAC contractor (Watsco)

"There are a lot of variables (i.e. size of the building, type of system, region, needs, installation costs). Below are some rough estimates"

- For commercial buildings the average cost can range from $15 to $30 per sq ft for a basic system but can go up to $40+ for more complex or high efficiency systems.
- For multi-family buildings the average cost can range from $2,500-$5,000 per unit for a basic system increasing in price for high efficiency units. ($40 pf @ 2 units for 4000 sf)

Comparison necessary to isolate cost of heating systems alone (e.g. furnace/boiler systems) to identify cost differential.

2. RSMeans Data (remeansonline.com)

$8-30 per sf

https://www.businesshue.com/commercial-hvac-cost-per-square-foot/

3. AC cost report (page 28)

https://www.energytrust.org/wp-content/uploads/2018/06/AC-Research_PhaseII_9MAR2018_Final.pdf

4. Report from IEA, claiming that fans are the best affordable and available active cooling technology.

https://www.iea.org/reports/sustainable-affordable-cooling-can-save-tens-of-thousands-of-lives-each-year

RB139-25

RB140-25

IRC: R329.4.2

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Philip Oakes, representing NASFM; Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Residential Code

SECTION R329
SOLAR ENERGY SYSTEMS

Revise as follows:

R329.4.2 Fire classification. Rooftop-mounted *photovoltaic panel systems* shall have ~~the same~~ a fire classification as ~~the *roof assembly*~~ required in Section ~~R902~~ R902.4.

Reason: The requirements for fire classification for rooftop-mounted PV panel systems are specifically covered in Section R902.4.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides the correct pointer for the fire classification requirements in Section R902.

RB140-25

RB141-25

IRC: R329.6

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Philip Oakes, representing NASFM; Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com)

2024 International Residential Code

SECTION R329
SOLAR ENERGY SYSTEMS

Revise as follows:

R329.6 Roof access and pathways. Roof access, pathways and setback requirements shall be provided in accordance with Sections R329.6.1 through R329.6.2.1. Access and minimum spacing shall be required to provide emergency access to the roof, to provide pathways to specific areas of the roof, provide for smoke ventilation opportunity areas, and to provide emergency egress from the roof.

Exceptions:

1. Detached, nonhabitable structures, including but not limited to detached garages, parking shade structures, elevated PV support structures, carports, solar trellises and similar structures, shall not be required to provide roof access.
2. Roof access, pathways and setbacks need not be provided where the code official has determined that rooftop operations will not be employed.
3. These requirements shall not apply to roofs with slopes of less than 2 units vertical in 12 units horizontal (17-percent slope) ~~or less~~.
4. BIPV systems *listed* in accordance with UL 3741, where the removal or cutting away of portions of the *BIPV system* during firefighting operations has been determined to not expose a firefighter to electrical shock hazards.

Reason: Elevated PV support structures, where used in residential applications, are also detached nonhabitable structures, and thus should not be required to provide roof access. The reference in Exception 3 needs to be aligned with the definitions for low and steep slope. A roof slope of 2:12 is a steep slope, not a low slope.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.

All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This clarifies that elevated PV support structures are not required to provide roof access. This also corrects the reference to the slope of the roof.

RB141-25

RB142-25

IRC: R329.6, R329.6.1, R329.6.3

Proponents: Joshua Costello, representing County of Los Angeles Fire Department (joshua.costello@fire.lacounty.gov)

2024 International Residential Code

SECTION R329
SOLAR ENERGY SYSTEMS

Revise as follows:

R329.6 Roof access and pathways. Roof access, pathways and setback requirements shall be provided in accordance with Sections R329.6.1 through ~~R329.6.2.1~~R329.6.4. Access and minimum spacing shall be required to provide emergency access to the roof, to provide pathways to specific areas of the roof, provide for smoke ventilation opportunity areas, and to provide emergency egress from the roof.

Exceptions:

1. Detached, nonhabitable structures, including but not limited to detached garages, parking shade structures, carports, solar trellises and similar structures, shall not be required to provide roof access.
2. Roof access, pathways and setbacks need not be provided where the code official has determined that rooftop operations will not be employed.
3. These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (17-percent slope) or less.
4. ~~BIPV systems *listed* in accordance with UL 3741, where the removal or cutting away of portions of the *BIPV system* during firefighting operations has been determined to not expose a firefighter to electrical shock hazards.~~

R329.6.1 Pathways. Not fewer than two pathways, on separate roof planes from lowest roof edge to ridge and not less than 36 inches (914 mm) wide, shall be provided on all *buildings*. Not fewer than one pathway shall be provided on the street or driveway side of the roof. For each roof plane with a photovoltaic array, a pathway not less than 36 inches wide (914 mm) shall be provided from the lowest roof edge to ridge on the same roof plane as the photovoltaic array, on an adjacent roof plane, or straddling the same and adjacent roof planes. Pathways shall be over areas capable of supporting firefighters accessing the roof. Pathways shall be located in areas with minimal obstructions such as vent pipes, conduit, or mechanical equipment.

Exception: BIPV systems *listed* in accordance with UL 3741, where the removal or cutting away of portions of the *BIPV system* during firefighting operations has been determined to not expose a firefighter to electrical shock hazards.

R329.6.3 Emergency escape and rescue openings. Panels and modules installed on *dwellings* or *townhouses* shall not be placed on the portion of a roof that is below an *emergency escape and rescue opening*. A pathway not less than 36 inches (914 mm) wide shall be provided to the *emergency escape and rescue opening*.

~~**Exception:** BIPV systems *listed* in accordance with UL 3741, where the removal or cutting away of portions of the *BIPV system* during firefighting operations has been determined to not expose a firefighter to electrical shock hazards.~~

Reason: This proposal is merely a **correction of the mis-placement of the exemption for UL-3741 certified/listed BIPV**. UL 3741 only evaluates the level of hazard to *fire fighters in full intact structural firefighting PPE*, not to occupants, nor to *any* person not in such PPE. **To use that listing/certification as a basis for exempting occupant escape or rescue pathways is simply unfounded; it was a simple error needing correction**. UL 3741 can, however, be legitimately used to exempt BIPV systems from *firefighter-only* pathways, because UL 3741 does [and only does] evaluate the hazard to firefighters in their structural-firefighting gear (which by design provides electrical insulation).

After the actuation of a UL-3741 Hazard Control / "Rapid Shutdown" function of the PV/ BIPV system, an electrocution shock hazard can remain, because <u>the Hazard Control function only attenuates (i.e., partially reduces) the electricity flowing in *and* outside of the array</u>. Also, when fire fighters cross a roof plane to make a rescue or assist an occupant off the roof, they must *always* "sound" their entire path across that portion of the roof (i.e., continually and *forcefully* strike the roof with a blunt object out ahead of where they will next step in order to confirm the roof is structurally sound enough to support their weight and prevent them, and any victims they assist, from falling through the roof); and <u>during that "roof sounding" action, BIPV tiles are broken and wires can easily be exposed</u>.

<u>Without this correction</u>, the UL-3741-based exemption **will be misapplied to pathways for occupant escape and rescue (totally outside the scope of the UL-3741 evaluation) instead of** only to pathways only for **fire fighters in full intact structural-firefighting PPE (which is the actual scope of UL 3741)**.

<u>And if all those reasons are not reasons enough</u>, during such an emergent rescue of an occupant through an upper-story door or window, it will be almost *guaranteed* that fire fighters will not have the time to even locate and activate the hazard control actuation device.

UL 3741 (*Photovoltaic Hazard Control*) is a recent product-listing safety standard for evaluating the electrical hazards posed by photovoltaic (PV) systems to fire fighters performing operations (e.g., roof-cutting operations). "While this standard accounts for fire fighters (FF) wearing new or serviceable used PPE, it does not include consideration for any damage to PPE that occurred prior to fire fighter (FF) interaction with the PV array" (2020 edition, §1.3.2). **UL 3741 is strictly scoped to *only* be "considering potential fire fighter (FF) interactions while performing duties during an emergency" where "personal protective equipment (PPE) [is] in serviceable condition worn by fire fighters (FF) during structural fire fighting operations"** (2020 edition, §1.2.1 and §1.2.2). In other words, **it <u>does *not* pertain to anyone other than fire fighters in full, intact structural firefighting PPE</u>**. The UL-3741 listing can be attained by both PV and building-integrated PV (BIPV) installations.

<u>For "</u>BIPV systems *listed* in accordance with UL 3741, where the removal or cutting away of portions of the *BIPV system* during firefighting operations has been determined to not expose a firefighter to electrical shock hazards<u>", *Item 4 of Section R329.6* allows the BIPV systems to be exempted from the need to provide rooftop pathways *for fire fighters*</u> conducting structure firefighting in full, intact PPE. Unfortunately, however, **the code-development community made a mistake and accidentally placed this exemption in such a way that the IFC <u>mistakenly extended this exemption to pathways on the roof for *occupant* emergency escape and rescue</u>, persons for whom neither the standard nor the exemption was ever meant to have any application, as they are not fire fighters in full, intact structural-firefighting PPE.**

<u>Pathways over which occupants can traverse the roof</u> (by either self-rescue or by being assisted by fire fighters) from an egress opening to the eave <u>are mandated by the code to be free from unnecessary obstructions and electrocution hazards</u>. The presence of *traditional* rooftop PV systems, and the locations of their electrical conductors above the roof deck, are readily identifiable by the untrained eye and can be avoided, but *BIPV* systems usually eliminate the physical obstructions and thereby present what <u>seems</u> to be a safe and unobstructed path directly over them, but **the energized electrical wires are hidden immediately under or within the BIPV tiles themselves and become exposed by essential FF "roof-sounding" operations (i.e., *forcefully* striking the roof with a blunt object in front of each step in order to confirm the roof is structurally sound to support their weight and prevent them, and any victims they assist, from falling through the roof), which shatters or damages the BIPV tiles**. Many a fire fighter have fallen through the roof, even directly into the fire below, and injuries therefrom are real, and sometimes lethal, even in a one- or two-family dwelling. "Sounding the roof" is standard practice and absolutely essential; roofs often appear intact during a fire eating away at their structural members below the surface.

The intent of the requirements (in IRC Section R329.6) are that rooftop occupant pathways to and from emergency escape and rescue openings be preserved from being negatively impacted by the presence of PV/BIPV installations; **<u>it has never been the intent to direct unknowing occupants into an electrocution shock hazard nor to set fire fighters up to unknowingly assist them directly through one.</u>** Hazard Control (previously termed "Rapid Shutdown") do not required nor usually use a full disconnection of the circuitry upon actuation; rather, they merely require the attenuation (i.e., partial reduction) of electricity in the conductors in and leaving the PV array. In other words, **after the actuation of the Hazard Control / "Rapid Shutdown" function of the PV/ BIPV system, an electrocution shock hazard can remain.**

<u>And if all those reasons are not reasons enough</u>, during such an emergent rescue of an occupant through an upper-story door

or window, it will be almost *guaranteed* that fire fighters will not have the time to locate and activate the hazard control actuation device. It is true than some hazard-control systems may self-actuate in certain scenarios, but as noted above, they only need to *partially reduce* the electrical flow in and from the BIPV array, and not even below the electrocution shock-hazard threshold.

Occupants do not wear structural-firefighting PPE, yet that is the clearly stated [very limited] scope of the UL-3741 standard, and further confirmed by the technical committee thereof. **The only justifiable rooftop-pathways application of the UL-3741 certification is to *firefighting* pathways, and that is what this proposal corrects and retains.**

Bibliography: **UL 3741 (*Photovoltaic Hazard Control*)**
https://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=38258

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is merely a **correction** in placement of an exemption. It is clearly based on the ***actual scope clearly stated in the UL-3741 standard.*** See https://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=38258.

RB142-25

RB143-25

IRC: IRC: R329.6.4 (New)

Proponents: Ali Fattah, representing Self (afattah@sandiego.gov)

2024 International Residential Code

SECTION R329
SOLAR ENERGY SYSTEMS

2024 International Residential Code

Add new text as follows:

R329.6.4 Pathways adjacent to chimneys. Where a roof-mounted photovoltaic panel system is located adjacent to a chimney that is constructed to comply with Sections R1003 or Section M1805, a pathway not less then 36-inch-wide (914 mm) shall be provided between the chimney and any panels or modules. The pathway adjacent to a chimney shall connect to a roof access point.

Attached Files

- **F168-24-FATTAH-C1 Part I Installation photos.pdf**
  https://www.cdpaccess.com/proposal/10744/35269/files/download/8950/
- **F168-24-FATTAH-C1 Part I How to Clean Your Chimney.pdf**
  https://www.cdpaccess.com/proposal/10744/35269/files/download/8949/

Reason:
The proposed code change addresses a regulatory gap in the IBC, IRC and IMC where the interaction of rooftop solar PV systems with chimneys serving solid fuel-burning fireplaces and appliances is not addressed. Chimneys convey heat and products of combustion that include glowing sparks, which can land on solar PV systems and pose a fire hazard. The IBC, IRC and IMC do not require spark arrestors; however, the IBC addresses the construction of spark arrestors when added atop a chimney primarily to address possible interference with drafting a chimney. The IBC, IRC and IMC also do not address working clearance around chimneys since it was not envisioned that structures occupying large portions of the roof area would be placed on the roof near chimneys. Solar photovoltaic systems are becoming very common, and the proposed code changes address clearances adjacent to the chimney necessary for firefighting access and for servicing a chimney.
The code change also addresses a lack of standards addressing service and firefighting access to chimneys where solar pv systems are present on the roof. chimney sweeps required clearances to be able to repair and clean chimneys exhausting solid fuel burning appliances and fireplaces. If a chimney fire occurs during daylight solar systems will be energized and will have to be obscured through spray foam or blankets by firefighting personnel to allow for safe removal of arrays to access a chimney fire. Maintenance personal during non-fire conditions will require an electrician to remove one or more PV modules to allow chimney access.
Code change RB285-22 was submitted for the 2024 IRC, and the submitted public comment, similar to this proposed code change, was not considered during the PCH since insufficient votes were available to overturn the Committee. Several IRC Building Committee members at the time were receptive to the issue, which in the initial submittal focused on treating the solar PV installation as a part of the building and, therefore, requiring the chimney to extend 2 ft higher than solar PV within 10 ft the chimney. The report of the CAH states in part, " When you add the roof-mounted photovoltaic system to a building, it becomes a portion of the building.", which styles the initial issue.
The proposed code change will be processed in three parts since the IBC Structural Committee and the IRC Building Committee convene in the Group B cycle in 2025. The International Fire Code Committee and the International Mechanical Code Committee in Group A will consider the first two parts during 2024. The code change to the IRC is not dependent to the approval of the other code changes processed in GRoup A.
A similar code change was heard by the Fire Code Committee and the International Mechanical Code Committee. F168-24 Part I and II were not approved, proponent was not able to attend both committee hearings. Recordings of the hearing stated that justification or data

was not provided and that representative from the chimney industry were not in attendance. A comment submitted for the Group A CAH# 2 included photos taken in a California community showing what is being proposed for the pathway is being implemented. Fire loss data do not specifically capture this issue

This code change addresses a problem identified during the CAH in 2024: firefighting and maintenance access to a Chimney. Plumbing vents and mechanical equipment had been the most common roof projections until the popularity of solar PV systems, with the latter occupying large areas of the roof when compared to discreet items that the plumbing code and mechanical regulates in proximity to product conveying ducts.

The proposed code change addresses the fire hazards and roof access issues the two independently regulated rooftop components pose. It is worth noting that the IBC, IRC, and IMC do not require spark arrestors and that the two building codes only address the construction of spark arrestors; the proposed code changes will address this regulatory gap. Additionally, chimney requirements have not changed for decades, and documentation regarding their functionality is not available or proprietary.

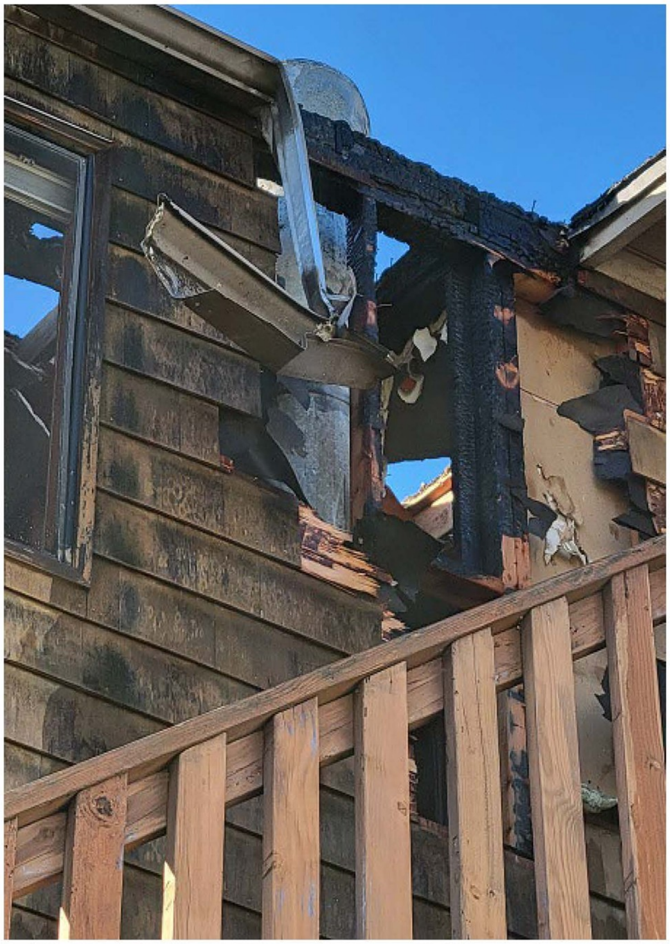
The proposal includes photos showing three cases (photos 3 to 5 spark arrestors would be required as well as 3 ft pathways) of what could happen when solar PV installations adjacent to the chimney are not regulated. Two photos (1 and 2) of a chimney fire to highlight why roof clearance should be required.

The message that has come across from the testimony past hearings in that the solar industry does not view this as their responsibility but rather for chimney sweeps and they do not appear to be concerned that the homeowner will incur costs to remove and replace the roof top solar modules to allow for any chimney maintenance. The fire service does not view the pathway issues as a concern since they can remove the solar modules out of their way. So, it is left up to the local building official to advocate for the property owner and for fire safety. Hopefully proponent will be able to testify at the Grup B CAH1 hearing coming up in the spring of 2025. The committee is requested to weigh common sense and accept that not all code changes can be technically justified, a good example is fire access requirements for roofs with solar where data was not provided on cases where firefighting was impeded, however common sense ruled the day.

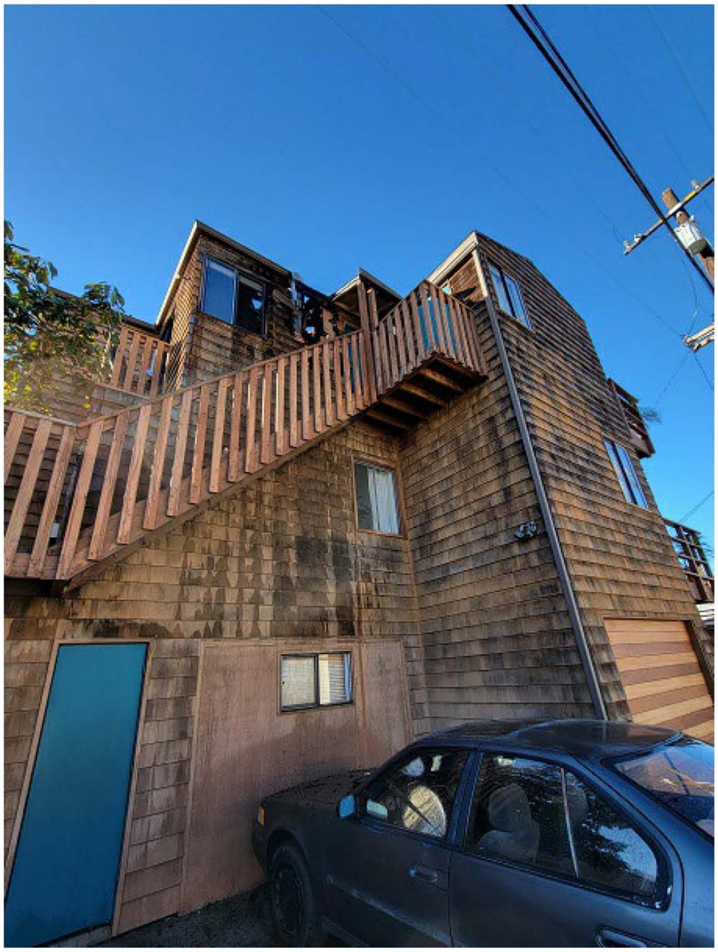
The committee will hear testimony that it is difficult to make solar projects pencil out and that every inch of the roof counts however it is never mentioned that solar technology has improved with more efficient panels resulting in fewer pv panels or that realistically there will always be a pathway to the ridge and the layout can adjust the location to also accommodate the chimney access needs. Opponents swill also state that there is no data to support the code change from fire loss history. While some code changes are reactionary to solve an issue that occurred previous to the code change, many code changes over the past two decades were preventative trying to solve an issue before it manifests itself.

Attachment 1 and 2 show photos of extremes that chimney sweeps take to service chimneys and examples of installations that resemble what is proposed. This is mainly an existing building issue ad not new construction so solar follows chimney. The committee is requested to approve as submitted.

Chimney Fire



Chimney Fire



Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed code change may result in a rearrangement of some solar installations and opponents in the last code cycle did not quantify cost increases since the code change does not prohibit an uninstallation and merely requires a pathway that can be coincident with pathways alrteady required.

RB143-25

RB144-25

IRC: R330.1, R330.1.1 (New), R330.2, R330.3, R330.3.1, R330.4, R330.5, R330.6, R330.7, R330.6.1 (New), R330.8, R330.8.1, FIGURE R330.8.1, R330.8.2, R330.8.3, R330.9, R330.10, R330.11, NFPA Chapter 44 (New)

Proponents: Robert Davidson, Davidson Code Concepts LLC, representing Self (rjd@davidsoncodeconcepts.com); Robert Marshall, representing FCAC (fcac@iccsafe.org); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

SECTION R330 ENERGY STORAGE SYSTEMS

Revise as follows:

R330.1 General. *Energy storage systems (ESS)* with an aggregate capacity of 1 kWh (3.6 megajoules) or greater shall comply with ~~the provisions of~~ this section and Chapter 15 of NFPA 855.

~~**Exceptions:**~~

1. ~~*ESS listed* and *labeled* for use in habitable spaces, in accordance with UL 9540 and where installed in accordance with the listing, the manufacturer's instructions and NFPA 70.~~
2. ~~*ESS* less than 1 kWh (3.6 megajoules).~~

Add new text as follows:

R330.1.1 Compliance with NFPA 855 only. The following ESS systems shall only be required to comply NFPA 855:

1. ESS systems that comply with all of the requirements of Section 15.1.3 of NFPA 855.
2. Flywheel energy storage systems (FESS) that are installed in accordance with Chapter 13 of NFPA 855

Revise as follows:

R330.2 Equipment listings. *Energy storage systems (ESS)* shall be *listed* and *labeled* in accordance with UL 9540.

Exception: ~~Where *approved*, repurposed unlisted battery systems from electric vehicles are allowed to be installed outdoors or in detached sheds located not less than 5 feet (1524 mm) from exterior walls, property lines and *public ways*.~~ All types of lead-acid, aqueous nickel based, and aqueous metal-air batteries that comply with Section 15.2.2 of NFPA 855.

R330.3 Manufacturer's Installation instructions. *ESS* shall be installed in accordance with the manufacturer's installation instructions and their *listing*.

R330.3.1 Spacing. Individual units shall be separated from each other by not less than 3 feet (914 mm) , and when installed outdoors or on the exterior side of exterior walls shall be located not less than 3 feet (914 mm) from doors and windows directly entering the dwelling unit, except where other separation distances are specified by the ESS listing and the manufacturer's installation instructions.

R330.4 Locations. *ESS* shall be installed only in the following locations:

1. Detached garages and detached *accessory structures*.
2. Attached garages separated from the *dwelling unit living space* in accordance with Section R302.6.

3. Outdoors or on the exterior side of exterior walls ~~located not less than 3 feet (914 mm) from doors and windows directly entering the *dwelling unit*, except where smaller separation distances are permitted by the UL 9540 listing and manufacturer's installation instructions.~~
4. Enclosed utility *closets*, *basements*, storage or utility spaces within *dwelling units* with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood-framed construction shall be provided with not less than $^5/_8$-inch (15.9 mm) *Type X gypsum wallboard*. Openings into the dwelling shall be equipped with solid wood doors not less than $1^3/_8$ inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than $1^3/_8$ inches (35 mm) in thickness, or doors with a 20-minute fire protection rating. Doors shall be self-latching and equipped with a self-closing or an automatic-closing device. Penetrations through the required *gypsum wallboard* into the dwelling shall be protected as required by Section R302.11, Item 4.

ESS shall not be installed in sleeping rooms, or *closets* or spaces opening directly into sleeping rooms.

R330.5 Energy ratings. Individual *ESS* units shall have a maximum rating of 20 kWh. The aggregate rating of the *ESS* <u>in each location</u> shall not exceed <u>the capacities in Section 15.5 of NFPA 855. Where the maximum rating for individual ESS or the maximum aggregate rating is exceeded the installation shall comply with the *International Fire Code*.</u>~~:~~

1. ~~40 kWh within utility *closets*, *basements* and storage or utility spaces.~~
2. ~~80 kWh in attached or detached garages and detached *accessory structures*.~~
3. ~~80 kWh on exterior walls.~~
4. ~~80 kWh outdoors on the ground.~~

~~*ESS* installations exceeding the permitted individual or aggregate ratings shall be installed in accordance with Section 1207 of the *International Fire Code*.~~

Delete without substitution:

~~**R330.6 Electrical installation.** *ESS* shall be installed in accordance with NFPA 70. Inverters shall be *listed* and *labeled* in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters *listed* for utility interaction.~~

~~R330.7~~ <u>R330.6</u> Fire detection. Rooms and areas within *dwelling units*, *basements* and attached garages in which *ESS* are installed shall be protected by smoke alarms in accordance with Section R310. A heat detector, *listed* and interconnected to the smoke alarms, shall be installed in locations within *dwelling units* and attached garages where smoke alarms cannot be installed based on their listing.

Add new text as follows:

<u>R330.6.1</u> <u>Feasibilty or practical problem</u>. <u>Where compliance with Section R330.6 addressing interconnection presents a feasibility or practicality problem a fire alarm system complying with R310.7 shall per permitted.</u>

Revise as follows:

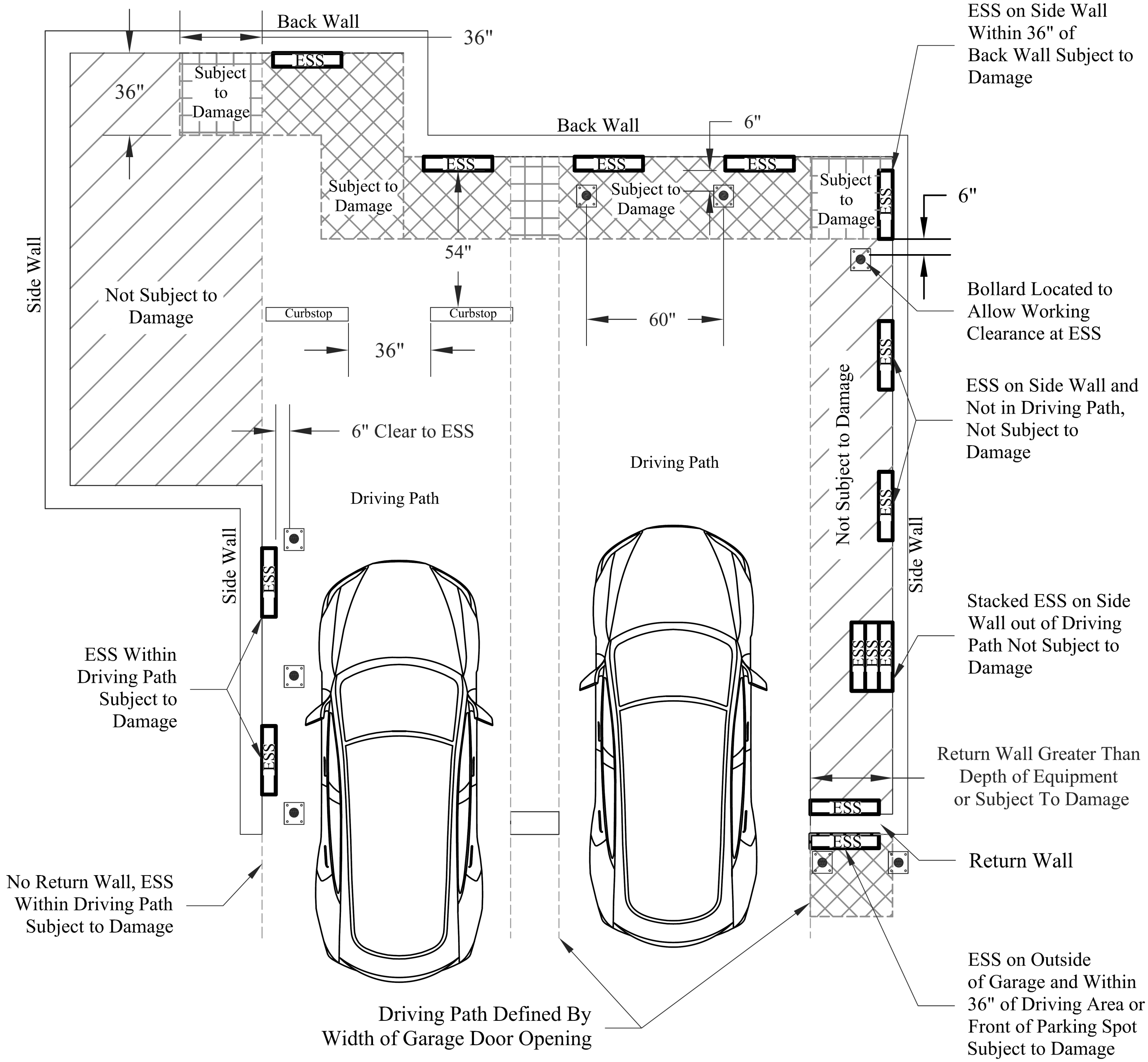
~~R330.8~~ <u>R330.7</u> Protection from impact. *ESS* installed in a location subject to vehicle damage shall be protected in accordance with Section ~~R330.8.1~~ <u>R330.7.1</u> or ~~R330.8.2~~ <u>R330.7.2</u>.

~~R330.8.1~~ <u>R330.7.1</u> Garages. Where an ESS is installed in the normal driving path of vehicle travel within a garage, impact protection complying with Section ~~R330.8.3~~ <u>R330.7.3</u> shall be provided. The normal driving path is a space between the garage vehicle opening and the interior face of the back wall to a height of 48 inches (1219 mm) above the finished floor. The width of the normal driving path shall be equal to the width of the garage door opening. Impact protection shall also be provided for an ESS installed at either of the following locations (see Figure ~~R330.8.1~~ <u>R330.7.1</u>):

1. On the interior face of the back wall and located within 36 inches (914 mm) to the left or to the right of the normal driving path.

2. On the interior face of a side wall and located within 24 inches (610 mm) from the back wall and 36 inches (914 mm) of the normal driving path.

Exception: Where the clear height of the vehicle garage opening is 7 feet 6 inches (2286 mm) or less, ESS installed not less than 36 inches (914 mm) above finished floor are not subject to vehicle impact protection requirements.



For SI: 1 inch = 25.4 mm.

FIGURE ~~R330.8.1~~ R330.7.1 ESS VEHICLE IMPACT PROTECTION

~~R330.8.2~~ R330.7.2 Other locations subject to vehicle impact. Where an ESS is installed in a location other than as defined in Section ~~R330.8.1~~ R330.7.1 and is subject to vehicle damage, impact protection shall be provided in accordance with Section ~~R330.8.3~~ R330.7.3.

~~R330.8.3~~ R330.7.3 Impact protection options. ESS protection shall comply with one of the following:

1. Bollards constructed in accordance with one of the following:
   1.1. Minimum 48 inches (1219 mm) in length by 3 inches (76 mm) in diameter Schedule 80 steel pipe embedded in a concrete pier not less than 12 inches (305 mm) deep and 6 inches (152 mm) in diameter, with not less than 36 inches (914 mm) of pipe exposed, filled with concrete and spaced at a maximum interval of 5 feet (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from an ESS.
   1.2. Minimum 36 inches (914 mm) in height by 3 inches (76 mm) in diameter Schedule 80 steel pipe fully welded to a steel plate not less than 8 inches (203 mm) in length by $^{1}/_{4}$ inch (6.4 mm) in thickness and bolted to a concrete floor by means of $4^{1}/_{2}$-inch (114 mm) concrete anchors imbedded not less than 3 inches (76 mm). Spacing shall be not greater than 60 inches (1524 mm), and each bollard shall be located not less than 6 inches (152 mm) from the ESS.
   1.3. Premanufactured steel pipe bollards filled with concrete and anchored in accordance with the manufacturer's installation instructions, with spacing not greater than 60 inches (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from the ESS.
2. Wheel barriers constructed in accordance with one of the following:
   2.1. Concrete or polymer 4 inches (102 mm) in height by 5 inches (127 mm) in width by 70 inches (1778 mm) in length, anchored to the concrete floor not less than every 36 inches (914 mm) and located not less than 54 inches (1372 mm) from the ESS. Concrete anchors not less than $3^{1}/_{2}$ inches (89 mm) in diameter with 3-inch (76 mm) embedment per barrier shall be used. Spacing between barriers shall be not greater than 36 inches (914 mm).
   2.2. Premanufactured wheel barriers shall be anchored in accordance with the manufacturer's installation instructions.
3. An *approved* method designed to resist an impact of 2,000 pounds per square foot (95 760 N/m^2) in the direction of travel at 24 inches (610 mm) above *grade*.

~~**R330.9**~~ <u>**R330.8**</u> **Ventilation.** Indoor installations of *ESS* that produce hydrogen or other flammable gases during charging shall be provided with mechanical *ventilation* in accordance with Section M1307.4.

~~**R330.10**~~ <u>**R330.9**</u> **Electric vehicle use.** The temporary use of an *owner* or occupant's electric-powered vehicle to power a *dwelling unit* while parked in an attached or detached garage or outdoors shall comply with the vehicle manufacturer's instructions ~~and~~ <u>,</u> NFPA 70 <u>and Section 15.11 of NFPA 855.</u>

Delete without substitution:

~~**R330.11 Documentation and labeling.** The following information shall be provided:~~

1. ~~A copy of the manufacturer's installation, operation, maintenance and decommissioning instructions shall be provided to the *owner* or placed in a conspicuous location near the *ESS* equipment.~~
2. ~~A label on the installed system containing the contact information for the qualified maintenance and service providers.~~

CHAPTER 44
REFERENCED STANDARDS

Add new standard(s) as follows:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

<u>855-2026</u> <u>Standard for the Installation of Stationary Energy Storage Systems</u>

Reason: This proposal updates the requirements for the installation of energy storage systems. A primary purpose is to eliminate some problematic language and refer directly to NFPA 855 "Standard for the Installation of Stationary Energy Storage Systems" as has been done with the International Fire Code. The edition of NFPA 855 that is being finalized at this time has been greatly improved relative to ESS installed with one- and two-family homes and townhouses.

Section R330.1 has been modified by pulling the language referring to the energy trigger into the scoping language and adding a reference to Chapter 15 of NFPA 855.

The "exceptions" were deleted and replaced with Section R330.1.1 which identifies two types of systems that are specifically provided for in NFPA 855.

R330.2 has been modified to delete the current exception and replace it with an exception for lead-acid, aqueous nickel based, and aqueous metal-air batteries with a pointer to the specific NFPA 855 language covering the carve out.

R330.3 was provided with an editorial modification clarifying it is installation instructions that are applied.

R330.3.1 and R330.4 have been modified to pull the spacing and reduction requirements into one section.

R330.5 has been modified by deleting some of the language and point directly to the section of NFPA 855 that provides for the locations of installations and improved aggregate energy ratings.

R330.6 has been deleted; these requirements are addressed by the language in NFPA 855 and Section R330.2.

R330.7 was renumbered and a new R330.6.1 has been added to address a feasibility and practicality problem with some projects, it points the user to a solution in R310.7.R330.8 thru R330.8 have simply been renumbered.R330.10 has been renumbered a a reference has been provided to a section in NFPA 855 that addresses the use of vehicle export equipment for powering the home or vehicle to grid use.

This proposal is submitted jointly by the ***ICC Building Code Action Committee (BCAC)*** and the ***ICC Fire Code Action Committee (FCAC)***.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at **BCAC webpage**.

FCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and early 2024 the FCAC has held several virtual meetings and one in-person meeting open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the **FCAC Website**

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not address the construction of the dwelling, so it does not address the construction costs. The installation of ESS must follow these provisions now, with this cycle the language was improved in NFPA 855 and this section recognizing new technologies, removing unnecessary restrictions and proving solutions for practical problems the current langauge crates.

Staff Analysis: The proposed referenced standard, NFPA 855-2026 Standard for the Installation of Stationary Energy Storage Systems, is currently referenced in the International Fire Code.

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IRC: SECTION 202 (New), R330.3.1, R330.5

Proponents: Joshua Costello, representing County of Los Angeles Fire Department (joshua.costello@fire.lacounty.gov)

2024 International Residential Code

Revise as follows:

[RB] ENERGY STORAGE ~~SYSTEMS~~ SYSTEM(ESS). One device or multiple devices, assembled together, capable of storing ~~electrical~~ energy ~~to be supplied~~ in order to supply electrical energy at a future time.

Add new text as follows:

ENERGY STORAGE SYSTEM CABINET. An enclosure containing an *energy storage system* and meeting the applicable requirements of the listing for the system. Personnel are not able to enter the enclosure other than reaching in to access components for maintenance purposes.

SECTION R330
ENERGY STORAGE SYSTEMS

Revise as follows:

R330.3.1 Spacing. Individual *ESS* units shall be separated from each other by not less than 3 feet (914 mm) except where other separation distances are specified by the *ESS* listing and the manufacturer's installation instructions that were approved by the nationally recognized testing laboratory (NRTL) granting the listing.

R330.5 Energy ratings. ~~Individual *ESS* units~~ Each individual *ESS* unit, or individual grouping of *ESS* units, shall ~~have a maximum~~ not exceed a nominal capacity rating of 20 kWh. Where one or more groupings of *ESS* units are used, each grouping shall be in accordance with the following:

1. An individual grouping of *ESS* units is the installation of two or more *ESS* units at separation distances from each other of less than the minimum separation distance specified in Section R330.3.1.
2. Grouping of ESS units shall only be permitted where expressly allowed by the manufacturer's nationally recognized testing laboratory (NRTL) approved installation instructions, per the UL-9540 listing, to be separated at the alternative distances being used.
3. Where one or more UL-9540-listed *ESS* units are installed within an *energy storage system cabinet*, the cabinet shall be purpose-manufactured, be in accordance with the manufacturer's installation instructions for the specific UL-9540-listed *ESS* units being placed within, and minimize the amount of void space within, after the installation of the *ESS* units within, in which flammable/explosive gases can accumulate during a failure event.

The aggregate nominal-capacity rating of the *ESS* installations shall not exceed:

1. 40 kWh within utility *closets*, *basements* and storage or utility spaces.
2. 80 kWh in attached or detached garages and detached *accessory structures*.
3. 80 kWh on exterior walls.
4. 80 kWh outdoors on the ground.

ESS installations exceeding the permitted individual or aggregate ratings shall be installed in accordance with Section 1207 of the *International Fire Code*.

Reason: This proposal affects the following aspects of the code:

"Nominal" Capacity Rating:

As already established via IFC Table 1207.1 (ENERGY STORAGE SYSTEM (ESS) THRESHOLD QUANTITIES) , Footnote a.:

"Energy capacity is the total energy capable of being stored (nameplate rating), not the usable energy rating."

However, "nameplate rating" is not a good term, because **often the only capacity rating listed on the nameplate is the usable portion of the capacity rather than the nominal rating**, yet it is the nominal rating that represents the actual energy amount/density in the unit that corresponds to the degree of hazard potential. It is **the actual full capacity (i.e., what has come to be known as the "*nominal*" capacity**, so as not to be confused with the "full" or "total" *usable* capacity) that can fuel the thermal-runaway and/or fire during failure; **the thermal runaway or fire does not care what percentage of that capacity is allowed by the battery management system (BMS) to be used/discharged.**

"Grouping of ESS Units":

#1.) There is still no clear definition of what constitutes an individual ESS "unit".

When these code sections were written, the term ESS “unit” identified an assembly of battery cells and other essential components for composing a single functional energy storage system (ESS), where said assembly was listed to UL 9540 as a single functional ESS “unit”. ESS "unit" remains defined *only* in UL 9540A (not even in UL 9540, nor in the I-Codes), and attempts are still being made *often* to try to make that definition clear.

#2.) Manufacturers now often create residential ESS units much smaller than 20 kWh each, with the intent of grouping them closely together, especially when connected via DC cabling.

As technology and market demand has evolved, battery manufacturers began making smaller individual ESS units, with the intent of scaling installations of units to the demand of the applicable use, and possibly to enable the replacement of *portions* of the ESS installation as necessary throughout the life of the installation to maintain efficiency, rather than necessitating the replacement of the whole ESS installation to do so. However, the Fire and Residential Codes does not allow by default for closer groupings of such smaller ESS units.

#3.) Despite the **continuing lack of a true large-scale fire test (LSFT) for ESS**, let alone for residential ESS, it is **recognized (and confirmed with original NFPA-855 TC members) that the 20-kWh maximum for residential ESS was intended to limit the amount of fire and/or hazardous-materials load amassed in any singular spot** (i.e., grouping).

Thus, after extensive research, and extensive experience with reviewing and inspecting residential BESS within their very large jurisdiction, in March of 2024, the Los Angeles County Fire Department (LACoFD, a fire protection district consisting of **60 of the cities in Los Angeles County, as well as all the unincorporated areas**) issued an "interim interpretation" of the term ESS “unit” as it pertains specifically to the sections being amended by this proposal (and their counterparts in the IFC). As explained, the interpretation is consistent with the *intent* of the codified requirements in both the I-Codes and NFPA 855, despite their language.

This interpretation has been met with great appreciation from the ESS industry, installers, *and* other AHJ's. In fact, other agencies (or at least the city of San Jose, CA) have followed suit (https://www.sanjoseca.gov/home/showpublisheddocument/113109/638562093507530000). This policy has been tried and proven effective since March of 2024, in multiple jurisdictions.

Definition of ENERGY STORAGE SYSTEM~~S~~ (ESS):

The changes being made to this existing definition in the IRC are basically editorial and are to align it with that of the definition of the exact same term in the IFC. The term is being made singular, as it is in the IFC, because when plural it further muddies the concept of what is an individual unit.

Definition of ENERGY STORAGE SYSTEM CABINET:

This change is merely to **bring this exact *existing* definition from the IFC into the IRC**, because there are many ESS manufacturers who wish to offer residential ESS for installation within a cabinet, and, especially while introducing a prescriptive path to allowing ESS groupings, it is necessary to provide parameters by which these groupings can be safely accomplished using

a cabinet. Regarding the requirement for minimizing the void space within the cabinet, this is in essence a reference to a requirement in UL 9540 that is not very clearly stated. Nonetheless, efforts need to be made to minimize this void space within the populated cabinet into which
flammable/explosive gases can accumulate during an ESS battery-failure event, as explosion hazards are real. Some installers might conceivably achieve a listing that specifies that cabinets can be built to spec on site.

NRTL-approved manufacturer's installatiuon instructions:

It has been the **experience of many AHJ's and responsible installers** that **ESS manufacturers, especially those of residential ESS, will revise and promulgate their manufacturer installation instructions *very* often, usually issuing them online.**

Also,**manufacturers' installation instructions in this industry vary extremely widely in terms of their quality, on many factors thereof.** While attempts in the UL-9540 technical committee are ongoing, even by the installers and reputable manufacturers, to standardize portions of installation-instructions format, **there remains a real need to inform the code user of the need to use the official manufacturer's installation instructions that were actually approved by the NRTL, especially when dealing with such a critical aspect as hazard separation distances that are specifically supposed to be designed to prevent a failure inside the battery or cabinet from burning down the entire structure.**

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This code change will decrease the cost of installation of ESS at IRC-regulated properties.

There is a very large variety of sizes and capacities of Residential ESS on the market today (imagination is their designers' limit). Currently, as the default code requirements are written:
Regardless of the nominal capacity of each ESS unit, each ESS unit would need to be spaced out by 3 feet from the next ESS unit.

If this proposal is approved:
Up to 20 kWh of nominal capacity of ESS units, regardless of the number of units comprising that capacity, could, by default (i.e., without need for evaluation of the UL-9540A test results), be located with less than 3 feet separation distance between those units if their manufacturer's installation instructions allow for that. This proposal reduces the necessary footprint of the installation, reduces the need to purchase more kWh capacity than necessary (i.e., increases scalability options, thereby reducing cost), and may reduce the cost to repair an ESS installation by allowing for repair of smaller portions of the installation.

Thus, if a project has limited space, or limited funds, for installing an ESS, then, to reach the same aggregate kWh storage capacity:

1. Multiple smaller-capacity ESS units can be tightly grouped in the same location rather than:

a. Having to purchase 1 larger-capacity ESS unit (assuming the added capacity that larger-capacity unit offers is unnecessary).

b. Having to spend/devote more project-site space on/for the permanent designation of working space around these units.

2. For unit designs that require interconnection using DC wiring, installation is made much easier (i.e., less costly in parts and labor) because the wiring linking each unit to the next in groups of more than 2 needs to be exactly the same length.

Estimated Immediate Cost Impact Justification (methodology and variables):

#1.) This proposal will decrease cost because it **introduces a previously non-existent codified path by which ESS models of smaller individual capacities can be spaced much more closely together**.

#2.) Besides the change discussed in #1, above, this proposal merely adds details that are already in place by law, into the text in order **to clarify ambiguity**. This added clarification **will facilitate compliant installations, which are so very critical to AHJs and residents alike when dealing with** a technology that can have a very detrimental effect if installed incorrectly or haphazardly, and also since so **many jurisdictions now offer automated permitting via an affidavit-type application; it's not until the inspection that the AHJ really gets to review the installation, and by then correcting installation mistakes are costly**.

Because the ICC requires actual cost estimates in dollar amounts, the following examples are being provided:EXAMPLE RESIDENTIAL ESS UNITS SHOWING:
COST PER ESS UNIT, &

MAXIMUM NUMBER OF SCALABLE ESS UNITS THAT CAN FIT INTO ONE 20-kWh GROUPING

EXAMPLE RESIDENTIAL ESS UNITS SHOWING:
COST PER ESS UNIT, &
MAXIMUM NUMBER OF SCALABLE ESS UNITS THAT CAN FIT INTO ONE 20-kWh GROUPING

Example* Residential ESS Unit	kWh** Capacity per ESS Unit	# of Units that can fit in one 20-kWh Grouping	Cost per ESS Unit	Information Sources*** (accessed 01-2025)
Tesla Powerwall 3 Battery	13.5 kWh	1	$9,999	https://cleanpowerstore.com/products/tesla-powerwall-3?variant=42137724256345&country=US&currency=USD&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic&srsltid=AfmBOooeJ9lA57qlo4k5u8FJGJFlDKIOjHdWLN2Uu1VAqKn_XWOv55fdr4w https://energylibrary.tesla.com/docs/Public/EnergyStorage/Powerwall/3/Datasheet/en-us/Powerwall-3-Datasheet.pdf
SolarEdge Home Battery 400V	9.7 kWh	2	$6,285	https://ressupply.com/batteries-and-enclosures/solaredge-bat-10k1ps0b-02-energy-bank-battery?srsltid=AfmBOoqdcFWJb20tp98bfK3D1NJeUHh3OjUFfoeGiYWKGmmXY8T3C734D_Y&gQT=2 https://knowledge-center.solaredge.com/sites/kc/files/se-solaredge-home-battery-datasheet-nam.pdf
FortressPower eFlex MAX 5.4 kWh	5.4 kWh	3	$2,036	https://ussolarsupplier.com/products/fortress-eflex-max-5-4kwh-51-2v-battery?variant=49571488563498&country=US&currency=USD&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic&gad_source=4&gclid=Cj0KCQiA4-y8BhC3ARIsAHmjC_G3ZrEblqqIkTYlnuVDuMkHLfzhm9Q7HRlw3PgTzK0NMjX1Hxevl2YaAv37EALw_wcB https://www.fortresspower.com/wp-content/uploads/2024/05/eFlex-MAX-Datasheet-V7.pdf
Enphase IQ Battery 5P	5.0 kWh	4	$3,216	https://solartekcorp.com/products/enphase-iq-5p-battery-w-cover-kit?currency=USD&variant=49902471479611&utm_source=google&utm_medium=cpc&utm_campaign=Google+Shopping&stkn=b25ed62d5566&srsltid=AfmBOoppMtkerQRizZwup_Bl5QVikqqgUJ4sY98wY9cqUoal2vYKjkJmGek&com_cvv=8fb3d522dc163aeadb66e08cd7450cbbdddc64c6cf2e8891f6d48747c6d56d2c https://enphase.com/download/iq-battery-5p-data-sheet
Enphase IQ Battery 3T	3.5 kWh	5	$2,576	https://www.portlandiaelectric.supply/enphase-en-b03-t01-us00-1-3/?srsltid=AfmBOoPz9a3TIYZ-yg8OqGhYlvS-IOQKP8A02G6QAKGieEuYQqqPlgCGjc https://enphase.com/download/iq-battery-3t-data-sheet

*Example products and services were not chosen with, nor are being presented in order to imply ,any preference for nor against them.

**kWh capacities are according to the product-specification sources cited.

***This table is not meant to validate the claims made by these sources, including regarding whether or not these are actual nominal capacities, or merely usable portions thereof, nor is it meant to endorse the products, services, nor sources.

Estimated Life Cycle Cost Impact:

Better allowing the installation of ESS models that use smaller individual units will facilitate replacing more affordable smaller portions of an installation, rather than the entire installation, in order to maintain system efficiency throughout the system life.

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IRC: R330.8, R330.8.1, R330.8.1.1 (New), FIGURE R330.8.1.1, R330.8.2, FIGURE R330.8.2 (New), R330.8.3 (New), R330.8.3

Proponents: Joshua Costello, representing County of Los Angeles Fire Department (joshua.costello@fire.lacounty.gov)

2024 International Residential Code

SECTION R330 ENERGY STORAGE SYSTEMS

Revise as follows:

R330.8 Protection from impact. ~~ESS installed in a location subject to vehicle damage shall be protected in accordance with Section R330.8.1 or R330.8.2.~~The need for impact protection for *ESS*units shall be deterimined in accordance with Sections R330.8.1 through R330.8.3. Where impact protection is determined to be necessary, it shall be designed in accordance with Section R330.8.4.

Delete and substitute as follows:

~~**R330.8.1 Garages.** Where an ESS is installed in the normal driving path of vehicle travel within a garage, impact protection complying with Section R330.8.3 shall be provided. The normal driving path is a space between the garage vehicle opening and the interior face of the back wall to a height of 48 inches (1219 mm) above the finished floor. The width of the normal driving path shall be equal to the width of the garage door opening. Impact protection shall also be provided for an ESS installed at either of the following locations (see Figure R330.8.1):~~

1. ~~On the interior face of the back wall and located within 36 inches (914 mm) to the left or to the right of the normal driving path.~~
2. ~~On the interior face of a side wall and located within 24 inches (610 mm) from the back wall and 36 inches (914 mm) of the normal driving path.~~

~~**Exception:** Where the clear height of the vehicle garage opening is 7 feet 6 inches (2286 mm) or less, ESS installed not less than 36 inches (914 mm) above finished floor are not subject to vehicle impact protection requirements.~~

R330.8.1 Garage-interior installed ESS. Impact protection shall be provided for an ESS unit installed inside a garage or similar structure.

Exceptions:

1. Where an ESS unit is protected by the return wall in accordance with Section R330.8.1.1, no other impact protection is required for that ESS unit.
2. Where the code official approves that an ESS unit is sufficiently protected by other permanent structural elements of the garage, no other impact protection shall be required for that ESS unit.
3. Where no portion of an ESS unit is less than 36 inches (914 mm) above the adjacent finished driving surface, impact protection is not required for that ESS unit.

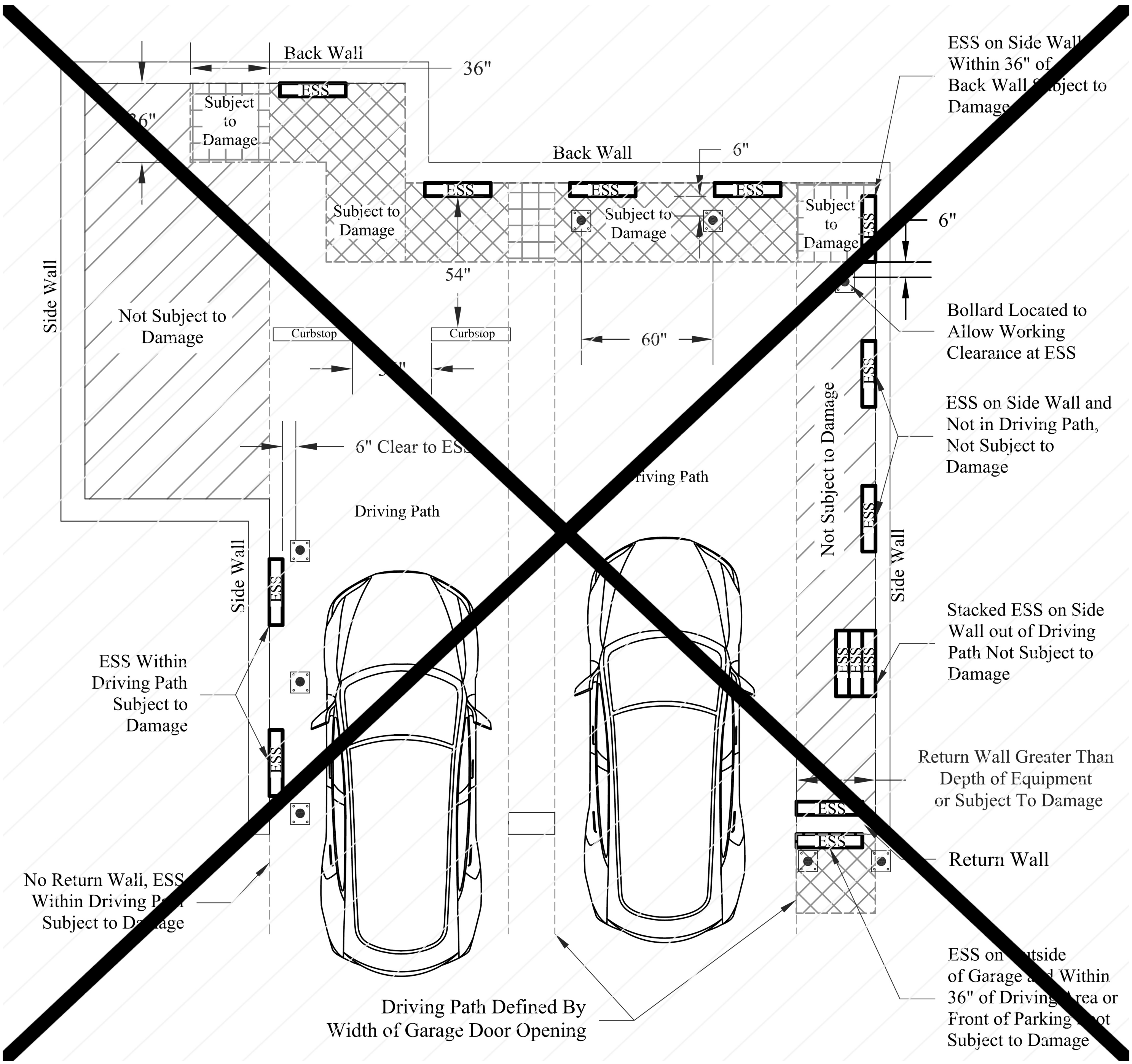
Add new text as follows:

R330.8.1.1 Return-wall protection. Where no portion of an ESS unit is installed outside of a triangle created by connecting a point measured along the side wall that is two times the return-wall measurement (2L) to a second point where the return wall terminates at the vehicle-entrance opening, in accordance with Figure R330.8.1.1, the return wall shall be considered to serve as the required impact protection for that ESS unit.where:L = The length of the vehicle-entrance return wall, measured from the inside corner where the return wall meets the adjacent side wall that runs roughly parallel to the driving path, in accordance with Figure R330.8.1.1.

Exceptions:

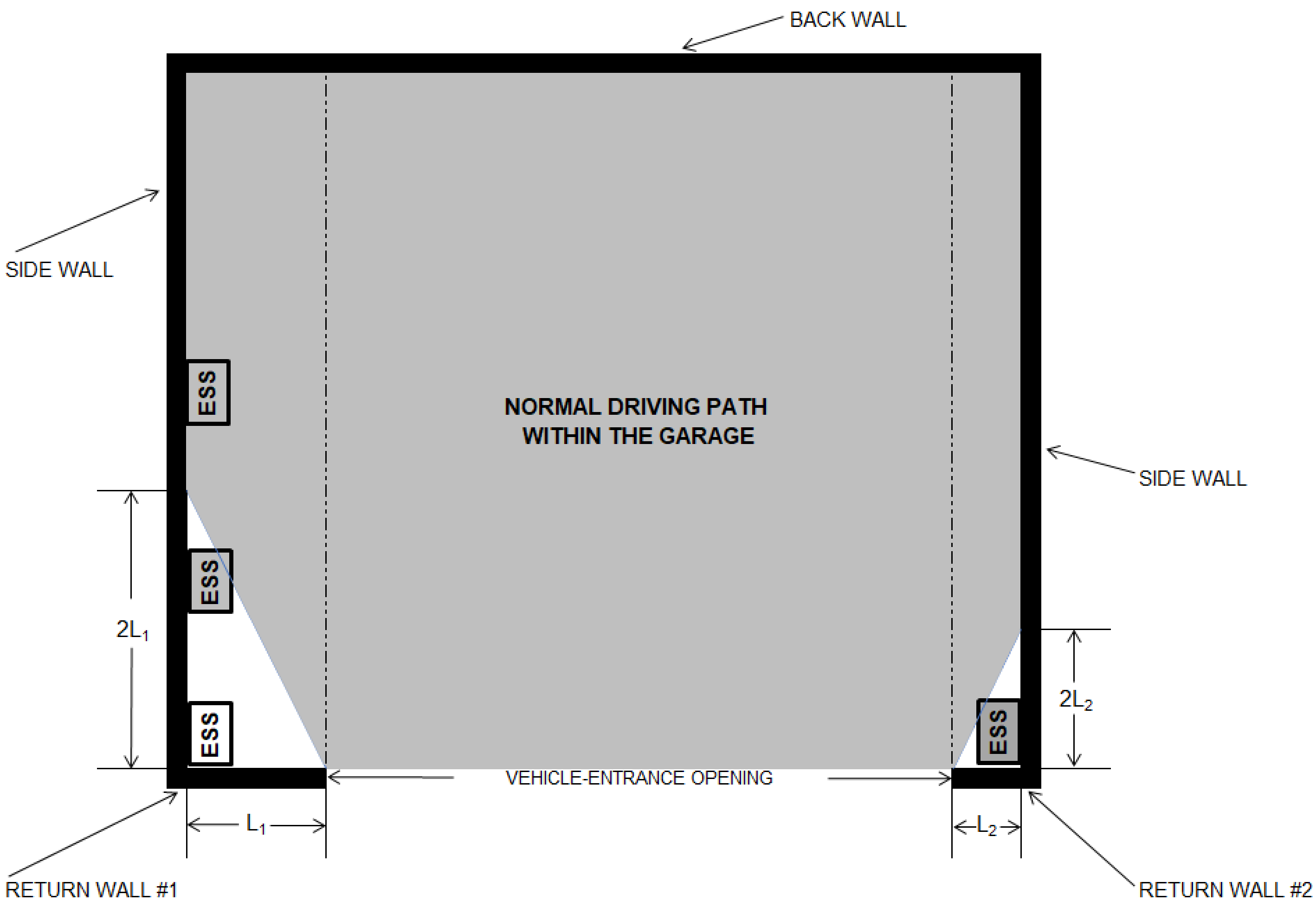
1. Where the interior length of the vehicle-entrance return wall (L) is greater than 6 feet (1829 mm), an ESS unit located entirely within the triangle formed using that return wall shall be subject to case-by-case review by the code official for the need for additional impact protection.
2. Where the driving path within the garage is deeper than 25 feet (7620 mm), an ESS unit located entirely within the triangles formed using either return wall shall be subject to case-by-case review by the code official for the need for additional impact protection.

Delete and substitute as follows:



~~For SI: 1 inch = 25.4 mm.~~

~~**FIGURE R330.8.1 ESS VEHICLE IMPACT PROTECTION**~~



L = Interior length of the vehicle-entrance return wall.

ESS = ESS unit NOT protected by the return wall from impact.

ESS = ESS unit protected by the return wall from impact[a,b].

= Area NOT protected by the return wall from impact [a,b].

a. Where the interior length of the vehicle-entrance return wall (L) is greater than 6 feet (1829 mm), an ESS unit located entirely within the triangle formed using that return wall shall be subject to case-by-case review by the code official for the need for additional impact protection.

b. Where the driving path within the garage is deeper than 25 feet (7620 mm), an ESS unit located entirely within the triangles formed using either return wall shall be subject to case-by-case review by the code official for the need for additional impact protection.

FIGURE R330.8.1.1 GARAGE RETURN-WALL PROTECTION[a,b]

~~**R330.8.2 Other locations subject to vehicle impact.** Where an ESS is installed in a location other than as defined in Section~~

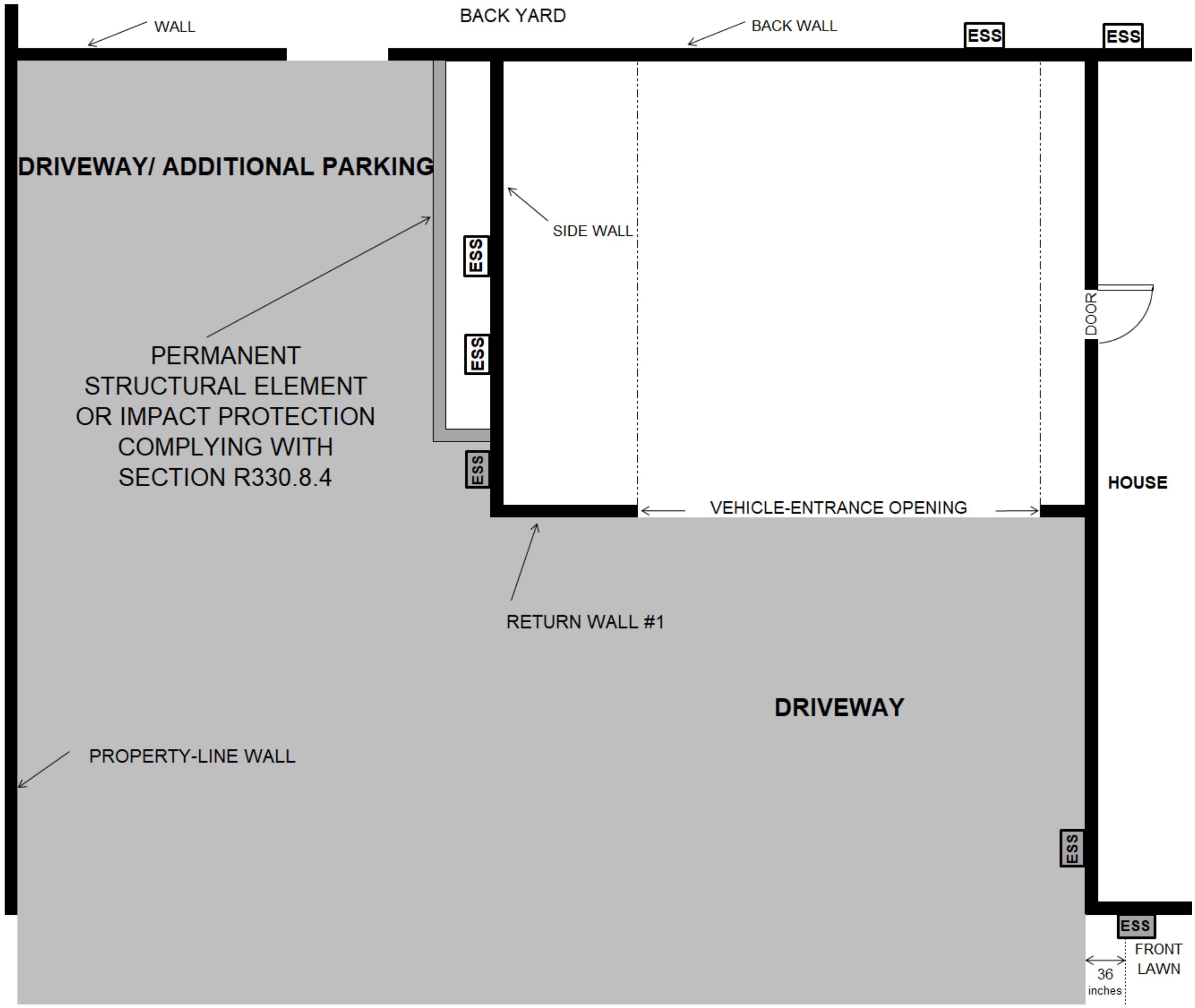
~~R330.8.1 and is subject to vehicle damage, impact protection shall be provided in accordance with Section R330.8.3.~~

R330.8.2 Exterior-installed ESS. Where an ESS unit is installed outdoors and is within 36 inches (914 mm) of a vehicular path of travel, vehicular impact protection shall be provided in accordance with Section R330.8.4. See Figure R330.8.2.

Exceptions:

1. Where the code official approves that an ESS unit is sufficiently protected by permanent structural elements on the site, no other impact protection shall be required for that ESS unit.
2. Where no portion of an ESS unit is less than 36 inches (914 mm) above the adjacent finished driving surface, no impact protection is required for that ESS unit.

Add new text as follows:



= Exterior driving surface and vehicular path of travel.

ESS = ESS unit requiring impact protection.

ESS = ESS unit *NOT* requiring impact protection, or already protected.

FIGURE R330.8.2 EXTERIOR-INSTALLED ESS

R330.8.3 Special circumstances. The need for impact protection for any ESS unit installation scenario not specifically addressed in Sections R330.8.1 and R330.8.2 and associated figures, shall require approval by the code official.

Revise as follows:

~~R330.8.3~~ R330.8.4 ~~Impact protection options~~ Acceptable means of impact protection. ~~ESS~~ Impact protection for ESS shall ~~comply~~ be designed in accordance with one of the following:

1. Bollards constructed in accordance with one of the following:
   1.1. Minimum 48 inches (1219 mm) in length by 3 inches (76 mm) in diameter Schedule 80 steel pipe embedded in a concrete pier not less than 12 inches (305 mm) deep and 6 inches (152 mm) in diameter, with not less than 36 inches (914 mm) of pipe exposed, filled with concrete and spaced at a maximum interval of 5 feet (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from an ESS.

   1.2. Minimum 36 inches (914 mm) in height by 3 inches (76 mm) in diameter Schedule 80 steel pipe fully welded to a steel plate not less than 8 inches (203 mm) in length by $^{1}/_{4}$ inch (6.4 mm) in thickness and bolted to a concrete floor by means of $4^{1}/_{2}$-inch (114 mm) concrete anchors imbedded not less than 3 inches (76 mm). Spacing shall be not greater than 60 inches (1524 mm), and each bollard shall be located not less than 6 inches (152 mm) from the ESS.

   1.3. Premanufactured steel pipe bollards filled with concrete and anchored in accordance with the manufacturer's installation instructions, with spacing not greater than 60 inches (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from the ESS.

2. Wheel barriers constructed in accordance with one of the following:
   2.1. Concrete or polymer 4 inches (102 mm) in height by 5 inches (127 mm) in width by 70 inches (1778 mm) in length, anchored to the concrete floor not less than every 36 inches (914 mm) and located not less than 54 inches (1372 mm) from the ESS. Concrete anchors not less than $3^{1}/_{2}$ inches (89 mm) in diameter with 3-inch (76 mm) embedment per barrier shall be used. Spacing between barriers shall be not greater than 36 inches (914 mm).

   2.2. Premanufactured wheel barriers shall be anchored in accordance with the manufacturer's installation instructions.

3. An *approved* method designed to resist an impact of 2,000 pounds per square foot (95 760 N/m^2) in the direction of travel at 24 inches (610 mm) above *grade*.

Reason: Re. Determinations of When Impact Protection is Necessary for ESS:

- These basic figures and language have been successfully in use in the very large Los Angeles County Fire Department (LACoFD) jurisdiction since the end of 2021 for ESS, and are codified. LACoFD is a fire protection district consisting of 60 of the cities in Los Angeles County, as well as all the unincorporated areas and has continued to successfully provide non-stop permitting of residential ESS throughout the numerous fire prevention offices of the jurisdiction.
  - The LACoFD figures pre-date the codification of the industry-led SEAC-devised figure.
  - Some installers have been vocal about preferring the simple, unambiguous nature of the LACoFD triggers for impact protection.
  - LACoFD includes/retains the exception for ESS units mounted entirely above 36" above finished grade.
- The let-it-burn approach that is well established for li-ion ESS does not work for ESS at IRC properties. It may not work for other hazardous chemistries that may come to this market either.
  - When these ESS are impacted, they can easily enter thermal runaway at any time, **immediately or up to days (or longer) later**.

    Once impacted, all the cells within an ESS must be considered compromised at that point and can't be trusted to be as safe as they had been before impact; damage to the cells or circuitry may not be readily apparent.

    Once compromised, ESS cells of lithium-ion chemistries (e.g., lithium-iron-phosphate [LFP or LiFePO4], nickel-manganese-cobalt [NMC], or others) contain all the ingredients within each affected battery cell for ignition of the large amounts of flammable and explosive gases they generate: fuel, oxidizer, and potential ignition sources (e.g., heat generated by the thermal-runaway chemical reaction that is also producing the gases, and arcs and sparks from the degrading battery cell[s] themselves, not to mention other ignition sources that may be present in the vicinity).
  - **Work to create an actual large-scale fire test (LSFT) for ESS, even for residential ESS, is still ongoing** in NFPA 855, UL, and other technical working groups. Despite intended purpose, **it has become well recognized that UL 9540A has not turned out to be a LSFT by which to evaluate the ability of a fire originating in an ESS battery pack to spread to combustible construction, let alone combustibles in the vicinity of the ESS unit in question**. ESS permitted to date were

  held to UL 9540A because no LSFT standard is yet available.
  - ESS can't simply be towed out like an EV because they are bolted in place (usually to a bearing wall) and full of stranded energy (an electrocution hazard).
  - Even fully disconnecting the ESS electrical, does not stop thermal runaway nor even the threat of thermal runaway and fire.
  - The ensuing thermal runaway can't be extinguished; at best it can be actively cooled to slow the reaction and protect exposures until the fuel in the affected cells is entirely consumed, which can take a very long time, especially when the reaction is slowed by water application.
  - Fire departments can't afford to babysit the ESS for the long periods for which reignition remains a real concern, but can't remove it from the structure either for the reasons stated above.
- Restricting the trigger for impact protection to the so-called "normal driving path" may be sufficient for other hazards like plumbed natural-gas appliances, but it is extremely insufficient for this permanently-mounted ESS hazard that can't simply be rendered safe by turning it off:
  - If ESS are impacted, something has already gone wrong and the vehicle has already left the "normal driving" path.
  - ESS are **not rated for impact**, and thermal runaway should be expected thereafter; if it doesn't occur, it may at any time because the **damage to the cells or circuitry may not be readily apparent**. At the very least, compromise should be assumed until proven otherwise, a proof that is easier said than done.
  - Impact protection for **the impact-susceptible hazard of BESS necessitates an added level of consideration:**

    Places oxidizers, ignition sources, fuel, and high-density electrical energy all inside individual battery cells that are then closely packed together inside a BESS unit, the combination of which **predicably, quickly, and uncontrollably generates large amounts of explosive gases without warning;** with

    No ducted venting;

    No valid large-scale fire test (LSFT) evaluation yet in place; and

    Location at a **residential-associated occupancy classification** that will be the **least regulated, least maintained, and least monitored occupancy after issuance of the certificate of occupancy**.
  - Many people park at an angle in their garages, and many other driveways have a strange approach angle. These are not the "normal driving path" defined in the currently adopted verbiage and the figure.

    Regarding the **scenario of the deep return wall (i.e., L > 6')**:

      LACoFD is aware of occupants who turn tightly into garages of this design such that they nearly park perpendicular to the "normal driving path". Given the unique hazards inherent in BESS, that is the reason why LACoFD makes that a trigger for case-by-case evaluation.

    Regarding the **scenario of the deep garage driving path**:

      LACoFD-owned Toyota Priuses are 14.5 feet long, with most consumer vehicles at less than 20 feet in length. Research indicates that the average garage depth is between 18 and 24 feet. Based on this, 25 feet excludes the majority of garages but still builds into the requirement a consideration for those that are of greater lengths, as:

      a. Most accidents occur during backing, and
      b. During backing, the return wall provides no protection whatsoever.
  - Site-specific anomalies and unforeseen scenarios, especially in existing structures that may have been built long ago to little or no standards, are the reasons why case-by-case evaluation is necessary for certain scenarios; and Section R330.8.3 is included. Afterall, until this SEAC-generated figure recently came about, the final determination on both the need and ultimate means of impact protection was totally at the discretion of the code official, and that worked forever. Even current Section 312 and its commentary recognize this need for the use of common-sense case-by-case discretion by the code official. Likewise, Exception #2 of R330.8.1 and Exception #1 of R330.8.2 are included because things like irregular garage/exterior walls that create cubbies/alcoves, or the like, might make impact with a BESS unit placed within them virtually impossible, but it might be unreasonable to require those structural elements to be held to the nominal performance criteria of Item 3 of R330.8.4.
  - If there is an impact, there may also be a victim experiencing a medical emergency, who is unable to get out before an ensuing fire, and potential rescuers can't simply turn off gas service or even electrical circuits to mitigate the fire or flammable and potentially toxic gases.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal **may increase, decrease, or have no effect on the cost** of installation of an ESS unit, in accordance with the following:

There are **very many variables that may determine how many bollards or wheel barriers may be necessary in each installation scenario**, including but not limited to <u>what location option(s) is chosen for the ESS installation</u>, <u>width and number of ESS units being installed</u>, <u>height of ESS unit above adjacent driving surface</u>, <u>whether existing structural elements on site can provide full or partial impact protection</u>, and <u>direction(s) of possible impact</u>.

1. a. **<u>Parts</u>**:

i. **<u>Wheel Barrier</u>**:

1. a. i. 1. Concrete type: **$60** (https://scaffoldingrentalandsales.com/concrete-wheel-stops-parking-blocks/?srsltid=AfmBOoqF1F0O1cpa-BtqXnodIzemSAqeFlLIoDXZ6_tGRZXcqmVxuW0k)

2. Polymer type: **$75** (https://www.amazon.com/dp/B0D4YQGD56/ref=sspa_dk_detail_0?pd_rd_i=B0D4YQGD56&pd_rd_w=FB5cg&content-id=amzn1.sym.7446a9d1-25fe-4460-b135-a60336bad2c9&pf_rd_p=7446a9d1-25fe-4460-b135-a60336bad2c9&pf_rd_r=XP03P3A1PPE6ZCNYD911&pd_rd_wg=q4lDo&pd_rd_r=7c6c444b-cbda-4bc7-b6cd-46a216b1875f&s=kitchen&sp_csd=d2lkZ2V0TmFtZT1zcF9kZXRhaWw&th=1)

ii. **<u>Bollards</u>:**

1. a. ii. 1. **36”** Bollard to be **Bolted in Place**: **$125 – $225 each**.

(https://www.mcmaster.com/57895T46/ and

https://www.postguard.com/bollards/bolt-down-bollards?product_id=530, respectively)

1. a. ii. 2. **48”** Bollard to be **Cemented in Place**: **$75 – $165 each**.

(https://www.amazon.com/dp/B0DSG7B7SV?ref=cm_sw_r_apan_dp_WZMP47X43KME183TSC0Y&ref_=cm_sw_r_apan_dp_WZMP47X43KME183TSC0Y&social_share
and

https://www.trafficsafetystore.com/shop/yellow-steel-bollard-powder-coated-with-round-base-48-inches/BOLPC48RND, and

https://www.uline.com/Product/Detail/H-7686/Safety-Guards-Barriers/Pour-In-Place-Safety-Bollard-55-x-42, respectively)

iii. **Concrete (for <u>Footing</u> & <u>Fill of Bollards</u>):**

1. a. iii. 1. **Cost per Bag (yields 0.375* cu ft.):** $12.99

(https://www.acehardware.com/departments/building-supplies/concrete-cement-and-masonry/ready-mix-concrete/52376?store=03615&gad_source=1&gclid=CjwKCAiAneK8BhAVEiwAoy2HYft42_wqz27Xlg7c6pyRzx7tCDJJWQKtU8mwMhOCFjA

* https://www.quikrete.com/pdfs/data_sheet-fast%20setting%20concrete%20mix%201004-50.pdf

1. a. iii. 2. For 1 Bollard Cemented-in-Place:

0.6 cu ft. (i.e., 2 bags) = $30

1. a. iii. 3. **For 2 Bollards Cemented-in-Place:**

1.2 cu ft. (i.e., 4 bags) = **$60**

1. a. iii. 4. For 1 Bollard Bolted-in-Place:

0.3 cu ft. (i.e., 1 bag) = $15

1. a. iii. 5. **For 2 Bollards Bolted-in-Place:**

0.6 cu ft. (i.e., 2 bags) = **$30**

iv. **Fasteners:**

1. a. iv. 1. Anchors (each): $2.25 (https://www.mcmaster.com/91578A117/)

a. 3 for **Wheel Barrier**: **$6.75**

b. 4 for **Bolt-in-Place Bollard**: **$9**

2. **Washers**: **$15** for 25 (https://www.mcmaster.com/98023A118/)

3. **Nuts**: **$35** for 100 (https://www.mcmaster.com/products/nuts/hex-nuts-2~/hex-nuts-1~~/?s=1%2F2+-13+nuts)

1. b. **<u>Labor Cost</u>** this task *adds* to an ESS Project:

i. **Hourly Rate:** $50 per hour

ii. For **1 Wheel Stop**: 1 hour = **$50**

iii. For 1 Bolt-in-Place Bollard: 2 hours = $100

iv. For **2 Bolt-in-Place Bollards**: 3 hours = **$150**

v. For 1 Cemented-In Bollard: 1.5 hours = $75

vi. For **2 Cemented-In Bollards**: 2 hours = **$100**

1. c. **Estimated <u>Total Cost*</u> to <u>Install Each</u> of the following <u>Means of Impact Protection</u>:**

i. **1 Wheel Barrier, Concrete**: **$166.75**

($60 + $6.75 + $15 + $35 + $50)

ii. **1 Wheel Barrier, Polymer**: **$181.75**

($75 + $6.75 + $15 + $35 + $50)

iii. **1 Bollard, Bolt-in-Place**: **$299 to $399**

[(**$125** to **$225**) + $15 + $9 + $15 + $35 + $100)]

iv. **2 Bollards, Bolt-in-Place**: **$489 to $689**

[(**$250** to **$450**) + $30 + $9 + $15 + $35 + $150)]

v. **1 Bollard, Concrete-in-Place**: **$180 to $270**

[(**$75** to **$165**) + $30 + $75)]

vi. **2 Bollards, Concrete-in-Place**: **$310 to $490**

[(**$150** to **$330**) + $60 + $100)]

1. d. **Average <u>TOTAL Costs* of Residential ESS Installation</u>**(Per Chat GPT):

***On most sites, not all installation-location options will require impact protection to be added.** It is unclear if this total cost typically includes impact protection.

"The typical installation cost of an Energy Storage System (ESS) unit for a home can vary widely depending on several factors, such as the brand of the system, battery capacity, location, and the complexity of the installation. However, here's a general breakdown:

1. **Equipment Costs**:
   - The battery system itself (e.g., Tesla Powerwall, Enphase, LG Chem) can range from $7,000 to $15,000 for the unit, depending on capacity and brand.
2. **Installation Costs**:
   - Installation costs usually range between $2,000 and $5,000, though they can go higher depending on the complexity of the job (e.g., if you need electrical upgrades or significant changes to your home's power infrastructure).
3. **Total System Cost**:
   - A full ESS system, including both equipment and installation, can typically cost anywhere from $10,000 to $20,000 or more.

Some factors that can influence the cost include whether the installation is part of a solar panel system, any local incentives or rebates available, and the specifics of your home's electrical system.

It's always a good idea to get quotes from a few installers to get an accurate estimate for your specific situation."

Estimated Immediate Cost Impact Justification (methodology and variables):

For ESS installed **in Certain Locations Inside Garages or similar structures:**

This proposal will **increase** the cost of new installation of ESS, but **only for ESS that are installed in *certain* locations *inside* garages**or similar structures because it triggers the addition of impact protection where in some cases it is not currently prescriptively required.

For ESS installed **Outdoors:**

This proposal will either have **no effect on cost, or will decrease cost**, for the outdoor location option subject to impact protection because it simply provides direction where no direction is currently provided for this existing requirement.

Estimated Life Cycle Cost Impact:

Impact protection is required to be permanent in nature and should not require any maintenance for the life of the ESS unit.

RB146-25

RB147-25

IRC: R330.8.3

Proponents: Joshua Costello, representing County of Los Angeles Fire Department (joshua.costello@fire.lacounty.gov)

2024 International Residential Code

SECTION R330
ENERGY STORAGE SYSTEMS

Revise as follows:

R330.8.3 Impact protection options. ESS protection shall comply with one of the following:

1. Bollards constructed in accordance with one of the following:
   1.1. Minimum 48 inches (1219 mm) in length by 3 inches (76 mm) in diameter Schedule 80 steel pipe embedded in a concrete pier not less than 12 inches (305 mm) deep and 6 inches (152 mm) in diameter, with not less than 36 inches (914 mm) of pipe exposed, filled with concrete and spaced at a maximum interval of 5 feet (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from an ESS.

   1.2. Minimum 36 inches (914 mm) in height by 3 inches (76 mm) in diameter Schedule 80 steel pipe fully welded to a steel plate not less than 8 inches (203 mm) in length by $^1/_4$ inch (6.4 mm) in thickness and bolted to a concrete floor by means of $4^1/_2$-inch (114 mm) concrete anchors imbedded not less than 3 inches (76 mm). Spacing shall be not greater than 60 inches (1524 mm), and each bollard shall be located not less than 6 inches (152 mm) from the ESS.

   1.3. Premanufactured steel pipe bollards filled with concrete and anchored in accordance with the manufacturer’s installation instructions, with spacing not greater than 60 inches (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from the ESS.

~~2.~~ ~~Wheel barriers constructed in accordance with one of the following:~~

~~2.1.~~ ~~Concrete or polymer 4 inches (102 mm) in height by 5 inches (127 mm) in width by 70 inches (1778 mm) in length, anchored to the concrete floor not less than every 36 inches (914 mm) and located not less than 54 inches (1372 mm) from the ESS. Concrete anchors not less than~~ $\cancel{3^1/_2}$ ~~inches (89 mm) in diameter with 3-inch (76 mm) embedment per barrier shall be used. Spacing between barriers shall be not greater than 36 inches (914 mm).~~

~~2.2.~~ ~~Premanufactured wheel barriers shall be anchored in accordance with the manufacturer’s installation instructions.~~

~~3.~~ <u>2.</u> An *approved* method designed to resist an impact of 2,000 pounds per square foot (95 760 N/m^2) in the direction of travel at 24 inches (610 mm) above *grade*.

Reason: **<u>Removal of wheel barriers</u> as an option at an IRC property:**

- o Wheel stops/wheel barriers (like those found in parking lots) represent **<u>an unacceptable trip hazard in a residential garage</u>**, especially as occupants age, or when they are new to a property, or visiting, or fail to turn on the light; there is not visual nor physical barrier at height by which to warn them of the trip hazard.
- o **<u>Bollards also better preserve the required</u>:**
  - § **Working clearances in front of the ESS installation**, per the Electrical Code (and Fire Code Chapter 6).
  - § **Separation distances to combustibles.** Work to create an *actual* large-scale fire test (LSFT) for ESS, even for residential ESS, is *still ongoing* in NFPA 855, UL, and other technical working groups. Despite intended purpose, it has become well recognized that UL 9540A has *not* turned out to be a LSFT by which to evaluate the ability of a fire originating in an ESS battery pack to spread to combustible construction, let alone combustibles in the vicinity of the ESS unit in question. ESS permitted to date were held to UL 9540A because **<u>no LSFT standard is yet available</u>**.

- o Incalculable **medical bills will far outweigh any savings** of a wheel barrier/stop over a bollard or other approved barrier.
- o Los Angeles County Fire Department (a fire protection district consisting of **60 of the cities in Los Angeles County, as well as all the unincorporated areas) has *not* allowed wheel barriers for this purpose since the end of 2021**, while still successfully providing for non-stop permitting of residential ESS throughout the numerous fire prevention offices of the jurisdiction.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposal will increase the cost of construction by eliminating one option for means of impact protection for ESS.

There are **very many variables that may determine how many bollards or wheel barriers may be necessary in each installation scenario**, including but not limited to what location option(s) is chosen for the ESS installation, width and number of ESS units being installed, height of ESS unit above adjacent driving surface, whether existing structural elements on site can provide full or partial impact protection, and direction(s) of possible impact.

1. a. **Parts**:

i. **Wheel Barrier**:

1. a. i. 1. Concrete type: **$60** (https://scaffoldingrentalandsales.com/concrete-wheel-stops-parking-blocks/?srsltid=AfmBOoqF1F0O1cpa-BtqXnodIzemSAqeFILIoDXZ6_tGRZXcqmVxuW0k)

2. Polymer type: **$75** (https://www.amazon.com/dp/B0D4YQGD56/ref=sspa_dk_detail_0?pd_rd_i=B0D4YQGD56&pd_rd_w=FB5cg&content-id=amzn1.sym.7446a9d1-25fe-4460-b135-a60336bad2c9&pf_rd_p=7446a9d1-25fe-4460-b135-a60336bad2c9&pf_rd_r=XP03P3A1PPE6ZCNYD911&pd_rd_wg=q4IDo&pd_rd_r=7c6c444b-cbda-4bc7-b6cd-46a216b1875f&s=kitchen&sp_csd=d2lkZ2V0TmFtZT1zcF9kZXRhaWw&th=1)

ii. **Bollards:**

1. a. ii. 1. **36"** Bollard to be **Bolted in Place**: **$125 – $225 each**.

(https://www.mcmaster.com/57895T46/ and

https://www.postguard.com/bollards/bolt-down-bollards?product_id=530, respectively)

1. a. ii. 2. **48"** Bollard to be **Cemented in Place**: **$75 – $165 each**.

(https://www.amazon.com/dp/B0DSG7B7SV?ref=cm_sw_r_apan_dp_WZMP47X43KME183TSC0Y&ref_=cm_sw_r_apan_dp_WZMP47X43KME183TSC0Y&social_share
and

https://www.trafficsafetystore.com/shop/yellow-steel-bollard-powder-coated-with-round-base-48-inches/BOLPC48RND,
and

https://www.uline.com/Product/Detail/H-7686/Safety-Guards-Barriers/Pour-In-Place-Safety-Bollard-55-x-42, respectively)

iii. **Concrete (for Footing & Fill of Bollards):**

1. a. iii. 1. **Cost per Bag (yields 0.375* cu ft.):** $12.99

(https://www.acehardware.com/departments/building-supplies/concrete-cement-and-masonry/ready-mix-concrete/52376?store=03615&gad_source=1&gclid=CjwKCAiAneK8BhAVEiwAoy2HYft42_wqz27Xlg7c6pyRzx7tCDJJWQKtU8mwMhOCFjA

* https://www.quikrete.com/pdfs/data_sheet-fast%20setting%20concrete%20mix%201004-50.pdf

1. a. iii. 2. For 1 Bollard Cemented-in-Place:

0.6 cu ft. (i.e., 2 bags) = $30

1. a. iii. 3. **For 2 Bollards Cemented-in-Place:**

1.2 cu ft. (i.e., 4 bags) = **$60**

1. a. iii. 4. For 1 Bollard Bolted-in-Place:

0.3 cu ft. (i.e., 1 bag) = $15

1. a. iii. 5. **For 2 Bollards Bolted-in-Place:**

0.6 cu ft. (i.e., 2 bags) = **$30**

iv. **Fasteners:**

1. a. iv. 1. Anchors (each): $2.25 (https://www.mcmaster.com/91578A117/)

a. 3 for **Wheel Barrier**: **$6.75**

b. 4 for **Bolt-in-Place Bollard**: **$9**

2. **Washers**: **$15** for 25 (https://www.mcmaster.com/98023A118/)

3. **Nuts**: **$35** for 100 (https://www.mcmaster.com/products/nuts/hex-nuts-2~/hex-nuts-1~~/?s=1%2F2+-13+nuts)

1. b. **Labor Cost** this task *adds* to an ESS Project:

i. **Hourly Rate:** $50 per hour

ii. For **1 Wheel Stop**: 1 hour = **$50**

iii. For 1 Bolt-in-Place Bollard: 2 hours = $100

iv. For **2 Bolt-in-Place Bollards**: 3 hours = **$150**

v. For 1 Cemented-In Bollard: 1.5 hours = $75

vi. For **2 Cemented-In Bollards**: 2 hours = **$100**

1. c. **Estimated Total Cost* to Install Each of the following Means of Impact Protection:**

i. **1 Wheel Barrier, Concrete**: **$166.75**

($60 + $6.75 + $15 + $35 + $50)

ii. **1 Wheel Barrier, Polymer**: **$181.75**

($75 + $6.75 + $15 + $35 + $50)

iii. **1 Bollard, Bolt-in-Place**: **$299 to $399**

[(**$125** to **$225**) + $15 + $9 + $15 + $35 + $100)]

iv. **2 Bollards, Bolt-in-Place**: **$489 to $689**

[(**$250** to **$450**) + $30 + $9 + $15 + $35 + $150)]

v. **1 Bollard, Concrete-in-Place**: **$180 to $270**

[(**$75** to **$165**) + $30 + $75)]

vi. **2 Bollards, Concrete-in-Place**: **$310 to $490**

[(**$150** to **$330**) + $60 + $100)]

1. d. **Average** **<u>TOTAL Costs* of Residential ESS Installation</u>**(Per Chat GPT):

***On most sites, not all installation-location options will require impact protection to be added.** It is unclear if this total cost typically includes impact protection.

"The typical installation cost of an Energy Storage System (ESS) unit for a home can vary widely depending on several factors, such as the brand of the system, battery capacity, location, and the complexity of the installation. However, here's a general breakdown:

1. **Equipment Costs**:
   - The battery system itself (e.g., Tesla Powerwall, Enphase, LG Chem) can range from $7,000 to $15,000 for the unit, depending on capacity and brand.
2. **Installation Costs**:
   - Installation costs usually range between $2,000 and $5,000, though they can go higher depending on the complexity of the job (e.g., if you need electrical upgrades or significant changes to your home's power infrastructure).
3. **Total System Cost**:
   - A full ESS system, including both equipment and installation, can typically cost anywhere from $10,000 to $20,000 or more.

Some factors that can influence the cost include whether the installation is part of a solar panel system, any local incentives or rebates available, and the specifics of your home's electrical system.

It's always a good idea to get quotes from a few installers to get an accurate estimate for your specific situation."

Estimated Immediate Cost Impact Justification (methodology and variables):

<u>Cost of Impact Protection for ESS</u>:

This proposal will increase the cost of impact protection <u>by not allowing wheel barriers that may be less expensive than</u> **<u>the other options</u>**.

<u>Cost of Medical Bills and associated Lost Productivity</u>:

This proposal **<u>will potentially reduce the number of trip-and-fall injuries (and the associated costs)</u>** incurred by residents and visitors to these garages had they been installed with wheel barriers instead of the other options, as well as those costs to employers of those injured.

Estimated Life Cycle Cost Impact:

Impact protection is required to be permanent in nature and should not require any maintenance for the life of the ESS unit.

RB147-25

RB148-25

IRC: R401.4.1

Proponents: John-Jozef Proczka, representing City of Phoenix Planning and Development Department (john-jozef.proczka@phoenix.gov)

2024 International Residential Code

Revise as follows:

R401.4.1 Geotechnical evaluation. In lieu of a complete geotechnical evaluation, the load-bearing values in Table R401.4.1(1) ~~and the soil classifications in Table R401.4.1(2)~~ shall be assumed.

Reason: This proposal removes the ability/mandate to assume the soil classification. This soil assumption was brought in proposal RB165-22 where the reason statement indicated that Table R401.4.1(2) could be used as a guide to assign a soil classification. The reason statement to RB165-22 and the code text it brought in result in different things. Assuming a soil classification versus using a method to classify the soil that is based on the soil particle size descriptions is an important difference. Assuming a higher quality soil than is actually present can lead to foundation or structural failure.

Indicating that Table R401.4.1(2) can be used as a guide for classifying a soil seems like a prudent step. Assuming a soil classification and then presuming a load-bearing capacity is not a prudent step. Some knowledge of what soil is present at a site is necessary to be able to estimate its properties. Soil can be classified without conducting a full/entire geotechnical investigation.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Soil testing for particle size distribution alone in order to classify the soil is quite cheap when you bring a small soil sample into a laboratory, at approximately $30, however many soil testing companies that aren't just laboratories will attempt to sell the customer an entire geotechnical investigation, and that is much more expensive.

Estimated Immediate Cost Impact Justification (methodology and variables):

I obtained a soil particle size distribution test for $30 from a Phoenix local testing laboratory.

RB148-25

RB149-25

IRC: TABLE R401.4.1(2), ASTM Chapter 44 (New)

Proponents: Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Bryant Arms, representing NYS DOS (bryant.arms@dos.ny.gov); Bryan Toepfer, representing NY DOS (bryan.toepfer@dos.ny.gov)

2024 International Residential Code

Revise as follows:

TABLE R401.4.1(2) PROPERTIES OF SOILS CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL GROUP	UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOL[d]	SOIL DESCRIPTION	USDA TEXTURAL SOIL CLASSIFICATION	DRAINAGE CHARACTERISTICS[a]	FROST HEAVE POTENTIAL	VOLUME CHANGE POTENTIAL EXPANSION[b]
Group I	GW	Well-graded gravels, gravel sand mixtures, little or no fines	N/A	Good	Low	Low
	GP	Poorly graded gravels or gravel sand mixtures, little or no fines	N/A	Good	Low	Low
	SW	Well-graded sands, gravelly sands, little or no fines	N/A	Good	Low	Low
	SP	Poorly graded sands or gravelly sands, little or no fines	Sand	Good	Low	Low
	GM	Silty gravels, gravel-sand-silt mixtures	N/A	Good	Medium	Low
	SM	Silty sand, sand-silt mixtures	Loamy sand, sandy loam	Good	Medium	Low
Group II	GC	Clayey gravels, gravel-sand-clay mixtures	N/A	Medium	Medium	Low
	SC	Clayey sands, sand-clay mixture	Sandy clay loam, sandy clay	Medium	Medium	Low
	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	Silt, silt loam	Medium	High	Low
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	Loam, clay loam, silty clay loam	Medium	Medium	Medium to Low
Group III	CH	Inorganic clays of high plasticity, fat clays	Clay, silty clay	Poor [c]	Medium	High
	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	N/A	Poor [c]	High	High
Group IV	OL	Organic silts and organic silty clays of low plasticity	N/A	Poor [c]	Medium	Medium
	OH	Organic clays of medium to high plasticity, organic silts	N/A	Unsatisfactory [c]	Medium	High
	Pt	Peat and other highly organic soils	N/A	Unsatisfactory [c]	Medium	High

For SI: 1 inch = 25.4 mm.

N/A = Not Applicable.

a. The percolation rate for good drainage is over 4 inches per hour, medium drainage is 2 inches to 4 inches per hour, and poor is less than 2 inches per hour.

b. Soils with a low potential expansion typically have a plasticity index (PI) of 0 to 15, soils with a medium potential expansion have a PI of 10 to 35 and soils with a high potential expansion have a PI greater than 20.

c. Unsuitable as backfill material.

d. Soil classifications are in accordance with ASTM D2487 and ASTM D2488.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

D2487-17e1	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
D2488-17e1	Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)

Reason: The addition of this footnote clearly identifies what method and procedures are used to determine the soil classifications.

Although the table heading currently generically identifies the Unified Soil Classification System it does not identify the reference standard number and version nor does it give the appropriate credit to the standard development group.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change is just formally incorporating the reference standards into the code which is already identified in the table. Therefore there is no cost impact.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTMD2487-17e1 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTMD2488-17e1 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)

RB149-25

RB150-25

IRC: R403.1.2, TABLE R403.1.2

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

Revise as follows:

R403.1.2 Continuous footing in Seismic Design Categories D_0, D_1 and D_2. Exterior walls and ~~required~~ interior *braced wall panels* of *buildings* located in *Seismic Design Categories* D_0, D_1 and D_2 shall be supported by continuous ~~solid or fully grouted masonry or concrete~~ footings in accordance with Table R403.1.2. These footings shall be concrete or masonry that is solid or fully grouted in accordance with Section R403.1.3. Where concrete or masonry continuous footings intersect with perpendicular footings, the horizontal reinforcing shall lap between the elements to resist tension in accordance with Section R608.5.4.3. ~~Other footing~~ Footings made from other materials or systems shall be designed in accordance with accepted engineering practice.

TABLE R403.1.2 CONTINUOUS FOOTING REQUIREMENTS IN SEISMIC DESIGN CATEGORIES D_0, D_1 AND D_2a

BUILDING PLAN DIMENSIONS	1-STORY						2-STORY						3-STORY	
	50 feet or less			> 50 feet			50 feet or less			> 50 feet			Any	
SDC	D_0	D_1	D_2	D_0	D_1	D_2	D_0	D_1	D_2	D_0	D_1	D_2	D_0	D_1
~~Continuous f~~ Footings supporting exterior walls	R													
~~Continuous f~~ Footings supporting ~~required~~ interior braced wall panels		NR			R~~a~~		NR		R~~a~~		R~~a~~		R	

For SI: 1 foot = 304.8 mm.

R = Continuous ~~solid or fully grouted masonry or concrete~~footings ~~in accordance with Section R403.1.3.4~~ required.

NR = Continuous footings not required.

a. ~~B~~ One- and two-story buildings shall be permitted to have interior braced wall panels supported on continuous ~~foundations~~ footings at intervals not exceeding 50 feet, provided that the following conditions are all met:

1. The height of cripple walls does not exceed 4 feet.
2. First-floor braced wall panels are supported on doubled floor joists, continuous blocking or floor beams.
3. The distance between bracing lines does not exceed twice the building width measured parallel to the braced wall line.

Reason: Table R403.1.2 was developed by APA in the last cycle as RB169 and was intended to be a code simplification by tabulating complex and possibly confusing requirements for continuous footings at interior braced wall panels that were written in the text of the IRC. While we've provided input during the prior code hearings, we believe additional changes are needed to help clarify and potentially correct the current provisions. The proposed changes provide the following clarifications and corrections:

Editorial changes to Section 403.1.2 and Table 403.1.2 are proposed that will improve readability for users by rewording existing language that may be confusing, merging cells with duplicative information, and deleting redundant words.

The referenced code section in footnote "R" has been relocated to the main text to prevent it from being overlooked by users. The original code reference to Section R403.1.3.4 is only applicable to footings supporting interior walls and we have changed the reference to R403.1.3, which includes provisions for footings supporting exterior and interior walls.

The changes provided clarify that the exception to Table R403.1.2 only applies to one- and two-story buildings and does not apply to three-story buildings.

We are also proposing a needed technical change to the provisions with the addition of reinforcement detailing requirements at footing intersections. During development of FEMA P-232, *Homebuilder's Guide to Earthquake-Resistant Design and Construction,* it was identified that current code provisions overlook detailing of reinforcing at intersecting footings. FEMA P-232 recommended developing horizontal footing reinforcing at intersecting footings based on reinforcing detailing requirements in Section R608.5.4 and those recommendations are included in this proposal.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This change proposal primarily provides editorial clarification of existing provisions for required footing locations, resulting in no cost change. It does also include, however, a specific requirement for lapping of reinforcing at intersecting continuous foundations. While it is hoped that this is already occurring in residential construction, we have estimated a cost of approximately $81 for addition of lapping bars at intersecting footings based on a representative single-family dwelling. This is approximately 0.02% of the median new home price of $425,000 reported by NAHB in March 2023. While the specific dollar amount might be argued, we believe that the cost can definitively be categorized as negligible, and can be compared to the benefit of improved footing performance.

Estimated Immediate Cost Impact Justification (methodology and variables):

The estimated cost is based on two No. 4 bars in each continuous footing based on Figure R403.1.3, Detail 1. Based on the house plan shown in Figure R602.10.1.1, intersections between footings occur at nine locations. At each of these locations it was assumed that each of the two lapped bars at the intersections would have a length of four feet. From this the total added weight of rebar is 54 lb. Based on an RS Means cost per ton of $2725 for footing reinforcing (with materials, labor, overhead and profit included) this gives a cost of $74. With 10% added for Division 1/insurance/bonds, this gives at total cost of $81 for the example dwelling. No location adjustment has been made.

RB150-25

RB151-25

IRC: R403.1.4.1

Proponents: Richard Justin Koscher, representing Polyisocyanurate Insulation Manufacturers Association (jkoscher@pima.org); Marcin Pazera, representing Polyisocyanurate Insulation Manufacturers Association (mpazera@pima.org)

2024 International Residential Code

Revise as follows:

R403.1.4.1 Frost protection. Except where otherwise protected from frost, foundation walls, piers and other permanent supports of *buildings* and structures shall be protected from frost by one or more of the following methods:

1. Extended below the frost line specified in Table R301.2.
2. Constructed in accordance with Section R403.3.
3. ~~Constructed in accordance with ASCE 32.~~

~~4~~. 3. Erected on solid rock.

Footings shall not bear on frozen soil unless the frozen condition is permanent.

Exceptions:

1. Protection of free-standing *accessory structures* with an area of 600 square feet (56 m^2) or less, of *light-frame construction*, with an eave height of 10 feet (3048 mm) or less shall not be required.
2. Protection of free-standing *accessory structures* with an area of 400 square feet (37 m^2) or less, of other than *light-frame construction*, with an eave height of 10 feet (3048 mm) or less shall not be required.

Reason: The ASCE 32 standard prescriptively limits the use of insulation materials to two types: extruded polystyrene (XPS) and expanded polystyrene (EPS). Including the standard as a compliance option for Section R403.1.4.1 creates the impression for code users that only XPS and EPS insulation are suitable for frost protection. This violates Council Policy #28 Section 4.6.2.5, which states that standards "shall not have the effect of requiring proprietary materials." In practice, the current code language unfairly restricts the use of other insulation materials that are capable of meeting the performance requirements for frost protection. For example, other insulation products like polyisocyanurate and spray foam can deliver the performance required for protecting foundations from frost damage. These products share key physical properties to XPS insulation such as being closed-cell (i.e., resistant to moisture intrusion) and like polystyrene insulation products can be manufactured in sufficient compressive strengths to resist soil pressures.

Furthermore, ASCE 32 has not been substantively reviewed or republished in more than two decades. In recent years, attempts to engage with the ASCE 32 development committee have been rebuffed and proposals that would amend the standard by adopting performance-based requirements applicable to all insulation materials have been set aside by the XPS and EPS interests that run the ASCE 32 committee. The ASCE 32 committee has not provided a technical justification to support its refusal to address the comments and proposals submitted by PIMA and others. Rather, the committee cites the amount of work required to review and amend the ASCE 32 as the rationale for maintaining the standard's prescriptive material limitations.

For these reasons, we believe that ASCE 32 should be stricken from the IRC as a compliance option for Section R403.1.4.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

However, this code change proposal is expected to decrease the cost of construction or have no impact on the cost of construction. This code change proposal eliminates a method of compliance that has been interpreted as restricting the types of insulation products allowed for use in the construction of frost protected shallow foundations. The proposal preserves other existing compliance paths so there is no negative impact on the cost of compliance. Typically, when the code permits the use of additional or alternative material types, this optionality can decrease the cost of construction.

RB152-25

IRC: R403.1.5.1 (New)

Proponents: Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Residential Code

Add new text as follows:

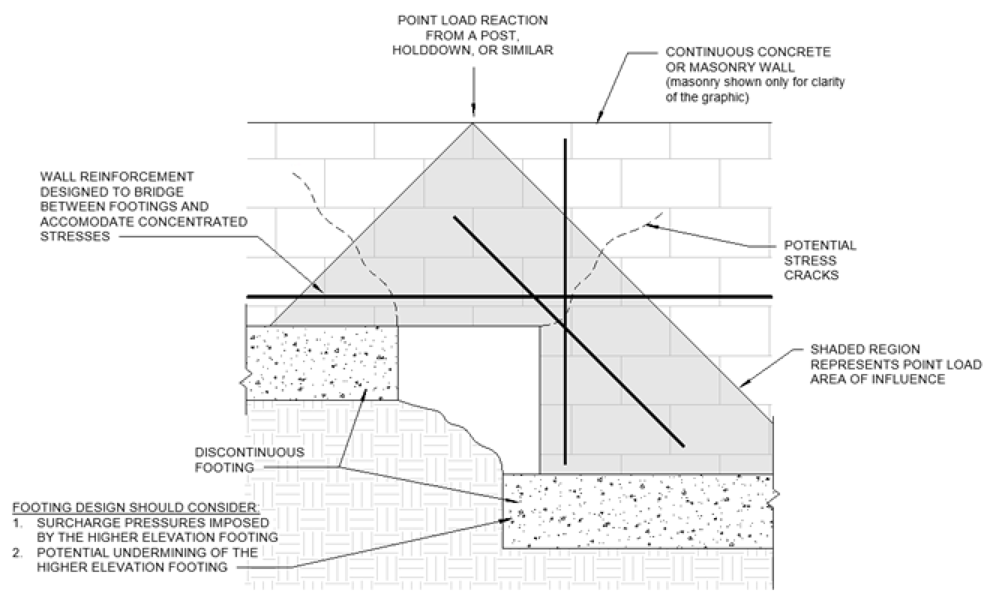
<u>**R403.1.5.1** **Discontinuous footings.** Where a continuous concrete or masonry wall is supported on discontinuous footings, the wall shall be designed and reinforced to span between footing segments, and the footings shall be designed and reinforced to support the wall in accordance with Section R301.1.3.</u>

Reason: This proposal clarifies that IRC prescriptive provisions for continuous concrete or masonry walls are not intended for use with discontinuous footings (also called “jump footings”). The proposed language does not prohibit these footings but does recognize that the interaction between a continuous wall and supporting footing segments requires special consideration in the design and detailing to avoid damage caused by concentrated stress points in the geometry.

IRC prescriptive provisions for continuous concrete or masonry walls account for the following three conditions:

1. Bearing: vertical loads applied to the top of the wall
2. Retaining: out-of-plane loads applied to the side of the wall
3. Shear: in-plane loads applied along the length of the wall

Discontinuous footings are used to accommodate multiple conditions in the site, structure, or to facilitate construction logistics. A continuous wall supported on a discontinuous foundation effectively becomes a concrete or masonry beam that carries the structure load from above. IRC prescriptive provisions do not account for the bridging loads that occur in the wall when constructed with this geometry. As shown in the commentary figure, concentrated areas of stress are created in the wall as it attempts to flex between the footing segments, significantly increasing the potential for stress cracks to form in the wall. Given a large enough gap between footing segments and a high enough load on the wall, the stress cracks could easily increase resulting in structural failure of the wall itself.



Commentary Figure R403.1.5
Continuous Wall Supported on Discontinuous Footing

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial. Discontinuous footings are currently outside the scope of the IRC prescriptive provisions. The proposal provides clarification of the intended use of the IRC.

RB152-25

RB153-25

IRC: R403.3, TABLE R403.3(1)

Proponents: Richard Justin Koscher, representing Polyisocyanurate Insulation Manufacturers Association (jkoscher@pima.org); Marcin Pazera, representing Polyisocyanurate Insulation Manufacturers Association (mpazera@pima.org)

2024 International Residential Code

Revise as follows:

R403.3 Frost-protected shallow foundations. For *buildings* where the monthly mean temperature of the *building* is maintained at not less than 64°F (18°C), footings are not required to extend below the frost line where protected from frost by insulation in accordance with Figure R403.3(1) and Table R403.3(1). Foundations protected from frost in accordance with Figure R403.3(1) and Table R403.3(1) shall not be used for unheated spaces such as porches, utility rooms, garages and carports, and shall not be attached to *basements* or *crawl spaces* that are not maintained at a minimum monthly mean temperature of 64°F (18°C).

Foam plastic insulation materials and *foam plastic insulation* components ~~Materials~~ used below *grade* for the purpose of insulating footings against frost shall be *labeled* ~~as complying with ASTM C578~~ in accordance with Section R303.2.

TABLE R403.3(1) MINIMUM FOOTING DEPTH AND INSULATION REQUIREMENTS FOR FROST-PROTECTED FOOTINGS IN HEATED BUILDINGS[a]

AIR-FREEZING INDEX (°F days)[b]	MINIMUM FOOTING DEPTH, *D* (inches)	VERTICAL INSULATION *R*-VALUE~~[c, d]~~	HORIZONTAL INSULATION *R*-VALUE~~[c, e]~~		HORIZONTAL INSULATION DIMENSIONS PER FIGURE R403.3(1) (inches)		
			Along walls	At corners	A	B	C
1,500 or less	12	4.5	Not required	Not required	Not required	Not required	Not required
2,000	14	5.6	Not required	Not required	Not required	Not required	Not required
2,500	16	6.7	1.7	4.9	12	24	40
3,000	16	7.8	6.5	8.6	12	24	40
3,500	16	9.0	8.0	11.2	24	30	60
4,000	16	10.1	10.5	13.1	24	36	60

For SI: 1 inch = 25.4 mm, °C = [(°F) – 32]/1.8.

a. Insulation requirements are for protection against frost damage in heated buildings. Greater values could be required to meet energy conservation standards.

b. See Figure R403.3(2) or Table R403.3(2) for Air-Freezing Index values.

c. Manufacturers of insulation materials used below *grade*~~Insulation materials~~ shall provide ~~the stated~~ minimum *R*-values that reflect a risk reduction factor to account for ~~under~~ long-term exposure to moist, below-ground conditions in freezing climates. Insulation materials used below *grade* shall provide the necessary compressive strengths to resist the pressures in below-ground or below-slab conditions. ~~The following *R*-values shall be used to determine insulation thicknesses required for this application: Type II expanded polystyrene (EPS) 3.2 R per inch for vertical insulation and 2.6 R per inch for horizontal insulation; Type IX expanded polystyrene (EPS) 3.4 R per inch for vertical insulation and 2.8 R per inch for horizontal insulation; Types IV, V, VI, VII, and X extruded polystyrene (XPS) 4.5 R per inch for vertical insulation and 4.0 R per inch for horizontal insulation.~~

~~d. Vertical insulation shall be expanded polystyrene insulation or extruded polystyrene insulation.~~

~~e. Horizontal insulation shall be expanded polystyrene insulation or extruded polystyrene insulation.~~

Reason: Section R403.3 unreasonably limits the use of insulation used for insulating footings and foundations against frost to only two product types: extruded polystrene (XPS) and expanded polystrene (EPS). Other insulation products like polyisocyanurate and spray foam can deliver the performance required for protecting foundations from frost damage. These products share key physical properties to XPS insulation such as being closed-cell (i.e., resistant to moisture intrusion) and like polystyrene insulation products can be manufactured in sufficient compressive strengths to resist soil pressures. The current material restrictions in Section R403.3 are not technically justified. Furthermore, these material restrictions in the absence of performance-based requirements is contrary to the ICC's material-neutral, performance-based principles for code development.

This code change proposal removes the language that suggests or explicitly requires the use of only XPS and EPS insulation. It should be noted that the current code language does not contain any performance-based requirements for insulation used below grade for frost protection. This proposal adds useful guidance and requirements on what information should be provided to the code user related to insulation used below grade for frost protection. All foam plastic insulation materials are tested for R-value, water or moisture absorption, and compressive strength. These materials can be manufactured with the performance specifications required for below grade applications. This proposal improves the existing language by requiring manufactures to provide code users with the necessary information to determine or demonstrate that a particular product is suitable for below grade applications.

In summary, this proposal removes problematic material restrictions and improves the current code language with application-specific reporting and performance requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is expected to decrease the cost of construction or have no impact on the cost of construction.

This code change proposal eliminates existing restrictions on the use of alternative materials that are fit for purpose for protecting foundations from frost damage. Typically, when the code permits the use of additional or alternative material types, this optionality can decrease the cost of construction through improved competition.

RB153-25

RB154-25

IRC: R403.1.5.1 (New), R403.1.5.2 (New), FIGURE R403.1.5(1) (New), FIGURE R403.1.5(2) (New)

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

Add new text as follows:

R403.1.5.1 Stepped Footings. The step height in stepped footings shall be 2 feet (610 mm) or less. The distance between footing steps, along the length of the footing, shall be at least two times the step height. The footing thickness shall comply with R403.1.1 and shall be maintained through the step as shown in Figure R403.1.5(1).

R403.1.5.2 Stepped footings in Seismic Design Categories D_0, D_1 and D_2. Stepped concrete footings in *Seismic Design Categories* D_0, D_1 and D_2 shall have minimum continuity reinforcement as shown in Figure R403.1.5(2).

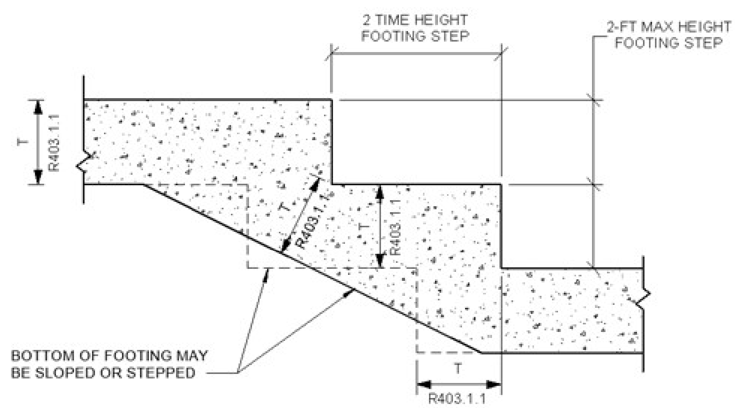


Figure R403.1.5(1)
Stepped Concrete Footings
All Wind and Seismic Design Categories

FIGURE R403.1.5(1) STEPPED CONCRETE FOOTINGS, ALL WIND AND SEISMIC DESIGN CATEGORIES

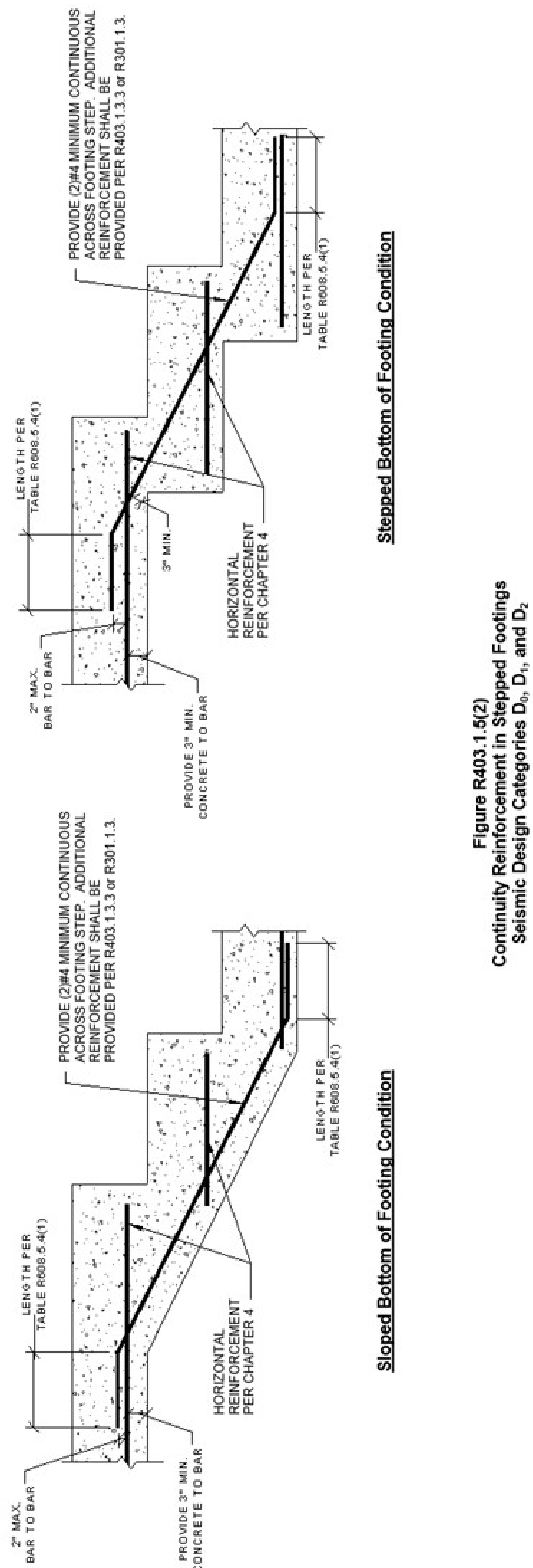


FIGURE R403.1.5(2) CONTINUITY REINFORCEMENT IN STEPPED FOOTINGS, SEISMIC DESIGN CATEGORIES D_0, D_1 AND D_2

Reason: IRC Section R403.1.5 has always noted that footings shall be stepped if the bottom surface of the footing exceeds 1 unit vertical in 10 units horizontal (10-percent slope), but it has never provided the parameters for stepped footings. This code change proposal lists the dimensional requirements for stepped footings and clarifies reinforcing requirements at these steps for projects located in Seismic Design Categories D_0, D_1 and D_2.

The dimensional requirements and reinforcing shown in proposed Figures R403.1.5(1) and R403.1.5(2) follow common engineered practice. The dimensions match what is shown in Figure 4-10 of the September 2024 version of FEMA P-232, *Homebuilders' Guide to Earthquake-Resistant Design and Construction*, and are similar to those enforced in residential construction by the City of Santa Clarita, CA, the Town of Amherst, NY and what is specified in Section 1809.3 of the California Building Code. These dimensions are appropriate for any loading that puts structural demands on the foundations, including moderate to high wind and seismic loads, loads due to differential soil movement, etc.

This proposal provides a limitation to footing steps, as is typical with prescriptive designs. While not prohibiting footings that exceed those limitations, such footings would be considered outside the prescriptive scope of the provisions and require conformance with R301.1.3.

These stepped footing provisions are specifically identified as applicable to footings and not intended to be used for stem walls. Figure R403.1.3 and Sections R403.1.3.1 and R403.1.3.2 provide clear differentiation of footings and stem walls.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The IRC already requires stepped footings when the slope of the bottom surface of the footings exceeds one unit vertical to 10 units horizontal. This proposal simply provides clarity on the minimum requirements for stepped footing and is in line with common practice.

RB154-25

RB155-25

IRC: R301.2.2.5, R404.1.3, R404.1.3.2.1, R404.1.3.2.2, R404.1.3.4, R404.1.4.2, R608.1, R608.2, R608.5.1, R608.9.2, R608.9.3, NRMCA (New), 44 PCA, PCA Chapter 44

Proponents: Dr. Julian Mills-Beale, representing National Ready Mixed Concrete Association (jmills-beale@nrmca.org); Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); Darryl Dixon, representing National Ready Mixed Concrete Association (ddixon@nrmca.org); Robert Sculthorpe, representing Insulating Concrete Manufacturers' Association

2024 International Residential Code

Revise as follows:

R301.2.2.5 Concrete construction. *Buildings* with exterior above-*grade* concrete walls shall comply with ~~PCA~~ NRMCA 100 or shall be designed in accordance with ACI 318.

Exception: Detached one- and two-family *dwellings* in *Seismic Design Category* C with exterior above-*grade* concrete walls are allowed to comply with the requirements of Section R608.

R404.1.3 Concrete foundation walls. Concrete foundation walls that support light-frame walls shall be designed and constructed in accordance with the provisions of this section, ACI 318, ACI 332 or ~~PCA~~ NRMCA 100. Concrete foundation walls that support above-grade concrete walls that are within the applicability limits of Section R608.2 shall be designed and constructed in accordance with the provisions of this section, ACI 318, ACI 332 or ~~PCA~~ NRMCA 100. Concrete foundation walls that support above-grade concrete walls that are not within the applicability limits of Section R608.2 shall be designed and constructed in accordance with the provisions of ACI 318, ACI 332 or ~~PCA~~ NRMCA 100. Where ACI 318, ACI 332, ~~PCA~~ NRMCA 100 or the provisions of this section are used to design concrete foundation walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the *jurisdiction* having authority.

R404.1.3.2.1 Concrete foundation stem walls supporting above-grade concrete walls. Foundation stem walls that support above-grade concrete walls shall be designed and constructed in accordance with this section.

1. Stem walls not laterally supported at top. Concrete stem walls that are not monolithic with slabs-on-ground or are not otherwise laterally supported by slabs-on-ground shall comply with this section. Where unbalanced backfill retained by the stem wall is less than or equal to 18 inches (457 mm), the stem wall and above-grade wall it supports shall be provided with vertical reinforcement in accordance with Section R608.6 and Table R608.6(1), R608.6(2) or R608.6(3) for above-grade walls. Where unbalanced backfill retained by the stem wall is greater than 18 inches (457 mm), the stem wall and above-grade wall it supports shall be provided with vertical reinforcement in accordance with Section R608.6 and Table R608.6(1).
2. Stem walls laterally supported at top. Concrete stem walls that are monolithic with slabs-on-ground or are otherwise laterally supported by slabs-on-ground shall be vertically reinforced in accordance with Section R608.6 and Table R608.6(1), R608.6(2) or R608.6(3) for above-grade walls. Where the unbalanced backfill retained by the stem wall is greater than 18 inches (457 mm), the connection between the stem wall and the slab-on-ground, and the portion of the slab-on-ground providing lateral support for the wall shall be designed in accordance with ~~PCA~~ NRMCA 100 or with accepted engineering practice. Where the unbalanced backfill retained by the stem wall is greater than 18 inches (457 mm), the minimum nominal thickness of the wall shall be 6 inches (152 mm).

R404.1.3.2.2 Concrete foundation stem walls supporting light-frame above-grade walls. Concrete foundation stem walls that support light-frame above-grade walls shall be designed and constructed in accordance with this section.

1. Stem walls not laterally supported at top. Concrete stem walls that are not monolithic with slabs-on-ground or are not otherwise laterally supported by slabs-on-ground and retain 48 inches (1219 mm) or less of unbalanced fill, measured from the top of the wall, shall be constructed in accordance with Section R404.1.3. Foundation stem walls that retain more than 48 inches (1219 mm) of unbalanced fill, measured from the top of the wall, shall be designed in accordance with Sections R404.1.1 and R404.4.

2. Stem walls laterally supported at top. Concrete stem walls that are monolithic with slabs-on-ground or are otherwise laterally supported by slabs-on-ground shall be constructed in accordance with Section R404.1.3. Where the unbalanced backfill retained by the stem wall is greater than 48 inches (1219 mm), the connection between the stem wall and the slab-on-ground, and the portion of the slab-on-ground providing lateral support for the wall, shall be designed in accordance with ~~PCA~~ NRMCA 100 or in accordance with accepted engineering practice.

R404.1.3.4 Requirements for Seismic Design Category C. Concrete foundation walls supporting above-grade concrete walls in *townhouses* assigned to *Seismic Design Category* C shall comply with ACI 318, ACI 332 or ~~PCA~~ NRMCA 100 (see Section R404.1.3).

R404.1.4.2 Concrete foundation walls. In *buildings* assigned to *Seismic Design Category* D_0, D_1 or D_2, as established in Table R301.2, concrete foundation walls that support light-frame walls shall comply with this section, and concrete foundation walls that support above-grade concrete walls shall comply with ACI 318, ACI 332 or ~~PCA~~ NRMCA 100 (see Section R404.1.3). In addition to the horizontal reinforcement required by Table R404.1.3.2(1), plain concrete walls supporting light-frame walls shall comply with the following:

1. Wall height shall not exceed 8 feet (2438 mm).
2. Unbalanced backfill height shall not exceed 4 feet (1219 mm).
3. Minimum thickness for plain concrete foundation walls shall be 7.5 inches (191 mm) except that 6 inches (152 mm) is permitted where the maximum wall height is 4 feet 6 inches (1372 mm).

Foundation walls less than 7.5 inches (191 mm) in thickness, supporting more than 4 feet (1219 mm) of unbalanced backfill or exceeding 8 feet (2438 mm) in height shall be provided with horizontal reinforcement in accordance with Table R404.1.3.2(1), and vertical reinforcement in accordance with Table R404.1.3.2(2), R404.1.3.2(3), R404.1.3.2(4), R404.1.3.2(5), R404.1.3.2(6), R404.1.3.2(7) or R404.1.3.2(8). Where Tables R404.1.3.2(2) through R404.1.3.2(8) permit plain concrete walls, not less than No. 4 (No. 13) vertical bars at a spacing not exceeding 48 inches (1219 mm) shall be provided.

R608.1 General. Exterior concrete walls shall be designed and constructed in accordance with the provisions of this section or in accordance with the provisions of ~~PCA~~ NRMCA 100, ACI 318 or ACI 332. Where ~~PCA~~ NRMCA 100, ACI 318, ACI 332 or the provisions of this section are used to design concrete walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the *jurisdiction* having authority.

R608.2 Applicability limits. The provisions of this section shall apply to the construction of exterior concrete walls for *buildings* not greater than 60 feet (18 288 mm) in plan dimensions, floors with clear spans not greater than 32 feet (9754 mm) and roofs with clear spans not greater than 40 feet (12 192 mm). *Buildings* shall not exceed 35 feet (10 668 mm) in *mean roof height* or two *stories* in height above grade. Floor/ceiling *dead loads* shall not exceed 10 pounds per square foot (479 Pa), roof/ceiling *dead loads* shall not exceed 15 pounds per square foot (718 Pa) and attic *live loads* shall not exceed 20 pounds per square foot (958 Pa). Roof overhangs shall not exceed 2 feet (610 mm) of horizontal projection beyond the exterior wall and the *dead load* of the overhangs shall not exceed 8 pounds per square foot (383 Pa).

Walls constructed in accordance with the provisions of this section shall be limited to *buildings* subjected to a maximum design wind speed of 160 mph (72 m/s) Exposure B, 136 mph (61 m/s) Exposure C and 125 mph (56 m/s) Exposure D. Walls constructed in accordance with the provisions of this section shall be limited to detached one- and two-family *dwellings* and *townhouses* assigned to *Seismic Design Category* A or B, and detached one- and two-family *dwellings* assigned to *Seismic Design Category* C.

Buildings that are not within the scope of this section shall be designed in accordance with ~~PCA~~ NRMCA 100 or ACI 318.

R608.5.1 Concrete and materials for concrete. Materials used in concrete, and the concrete itself, shall conform to requirements of this section, ~~PCA~~ NRMCA 100, ACI 318 or ACI 332.

R608.9.2 Connections between concrete walls and light-frame floor systems. Connections between concrete walls and light-frame floor systems shall be in accordance with one of the following:

1. For floor systems of wood-framed construction, the provisions of Section R608.9.1 and the prescriptive details of Figures R608.9(1) through R608.9(4), where permitted by the tables accompanying those figures. Portions of connections of wood-framed floor systems not noted in the figures shall be in accordance with Section R502, or AWC WFCM, if applicable. Wood framing members shall be of a species having a specific gravity equal to or greater than 0.42.
2. For floor systems of cold-formed steel construction, the provisions of Section R608.9.1 and the prescriptive details of Figures R608.9(5) through R608.9(8), where permitted by the tables accompanying those figures. Portions of connections of cold-formed steel-framed floor systems not noted in the figures shall be in accordance with Section R505, or AISI S230, if applicable.
3. Proprietary connectors selected to resist loads and load combinations in accordance with Appendix A (ASD) or Appendix B (LRFD) of ~~PCA~~ NRMCA 100.
4. An engineered design using loads and load combinations in accordance with Appendix A (ASD) or Appendix B (LRFD) of ~~PCA~~ NRMCA 100.
5. An engineered design using loads and material design provisions in accordance with this code, or in accordance with ASCE 7, ACI 318, and AWC NDS for wood-framed construction or AISI S100 for cold-formed steel frame construction.

R608.9.3 Connections between concrete walls and light-frame ceiling and roof systems. Connections between concrete walls and light-frame ceiling and roof systems shall be in accordance with one of the following:

1. For ceiling and roof systems of wood-framed construction, the provisions of Section R608.9.1 and the prescriptive details of Figures R608.9(9) and R608.9(10), where permitted by the tables accompanying those figures. Portions of connections of wood-framed ceiling and roof systems not noted in the figures shall be in accordance with Section R802, or AWC WFCM, if applicable. Wood framing members shall be of a species having a specific gravity equal to or greater than 0.42.
2. For ceiling and roof systems of cold-formed steel construction, the provisions of Section R608.9.1 and the prescriptive details of Figures R608.9(11) and R608.9(12), where permitted by the tables accompanying those figures. Portions of connections of cold-formed steel-framed ceiling and roof systems not noted in the figures shall be in accordance with Section R804, or AISI S230, if applicable.
3. Proprietary connectors selected to resist loads and load combinations in accordance with Appendix A (ASD) or Appendix B (LRFD) of ~~PCA~~ NRMCA 100.
4. An engineered design using loads and load combinations in accordance with Appendix A (ASD) or Appendix B (LRFD) of ~~PCA~~ NRMCA 100.
5. An engineered design using loads and material design provisions in accordance with this code, or in accordance with ASCE 7, ACI 318, and AWC NDS for wood-framed construction or AISI S100 for cold-formed steel-framed construction.

Add new standard(s) as follows:

NRMCA

National Ready Mixed Concrete Association
66 Canal Center Plaza, Suite 250
Alexandria, VA 2314

100-2023 Prescriptive Design of Exterior Concrete Walls for One and Two-Family Dwellings

Delete without substitution:

~~PCA~~

~~Portland Cement Association~~
~~5420 Old Orchard Road~~
~~Skokie, IL 60077~~

~~100—17~~ ~~Prescriptive Design of Exterior Concrete Walls for One- and Two-family Dwellings (Pub. No. PCA 100.3)~~

Reason: This proposal updates the reference for PCA 100 to NRMCA 100.

In 2022, the National Ready Mixed Concrete Association (NRMCA) assumed responsibility for the PCA 100, *Prescriptive Design of Exterior Concrete Walls for One- and Two-Family Dwellings* standard previously maintained by the Portland Cement Association (PCA). On January 4, 2024, ANSI approved NRMCA 100-2023, *Prescriptive Design of Exterior Concrete Walls for One- and Two-Family Dwellings* as a new standard. This can be referenced on page 20 of the “ANSI Standards Action” newsletter dated January 12, 2024: *https://share.ansi.org/Shared%20Documents/Standards%20Action/2024-PDFs/SAV5502.pdf*.

It should be noted that NRMCA 100-2023 is an editorial update to PCA 100 with no change in the document’s scope and minor updates to the standard to align with the design criteria of ASCE/SEI 7 *Minimum Design Loads for Buildings and Other Structures* and ACI 318 *Building Code Requirements for Structural Concrete.*

Bibliography: NRMCA 100-2023 Prescriptive Design for Exterior Concrete Walls for One- and Two-Family Dwellings. View this document online: https://my.nrmca.org/ItemDetail?iProductCode=2PP100&Category=STAN&WebsiteKey=042c1042-fb9e-4355-b1e6-e5876cb04424

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

NRMCA 100 simply replaces PCA 100 and does not effect any changes resulting in increased cost of construction.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
NRMCA100-2023   Prescriptive Design of Exterior Concrete Walls for One and Two-Family Dwellings

RB155-25

RB156-25

IRC: R404.1.3.3.6, R404.1.3.3.6.1

Proponents: Gary Ehrlich, representing NAHB (gehrlich@nahb.org)

2024 International Residential Code

R402.2 Concrete. Concrete shall have a minimum specified compressive strength of f'_c, as shown in Table R402.2. Concrete subject to moderate or severe weathering as indicated in Table R301.2 shall be air entrained as specified in Table R402.2. The maximum weight of fly ash, other pozzolans, silica fume, slag or blended cements that is included in concrete mixtures for garage floor slabs and for exterior porches, carport slabs and steps that will be exposed to deicing chemicals shall not exceed the percentages of the total weight of cementitious materials specified in Section 19.3.3.4 of ACI 318. Materials used to produce concrete and testing thereof shall comply with the applicable standards listed in Chapters 19 and 20 of ACI 318 or ACI 332.

R402.2.1 Materials for concrete. Materials for concrete shall comply with the requirements of Section R608.5.1.

Revise as follows:

<u>R402.2.2</u> ~~**R404.1.3.3.6**~~ **Form materials and form ties.** Forms shall be made of wood, steel, aluminum, plastic, a composite of cement and foam insulation, a composite of cement and wood chips, or other *approved* material suitable for supporting and containing concrete. Forms shall be accurately positioned and secured before placing concrete and shall provide sufficient strength to contain concrete during the concrete placement operation.

Form ties shall be steel, solid plastic, foam plastic, a composite of cement and wood chips, a composite of cement and foam plastic, or other suitable material capable of resisting the forces created by fluid pressure of fresh concrete.

<u>R402.2.2.1</u> ~~**R404.1.3.3.6.1**~~ **Stay-in-place forms.** Stay-in-place concrete forms shall comply with this section.

1. Surface burning characteristics. The flame-spread index and *smoke-developed index* of forming material, other than foam plastic, left exposed on the interior shall comply with Section R302. The surface burning characteristics of foam plastic used in *insulating concrete forms* shall comply with Section R303.3.
2. Interior covering. Stay-in-place forms constructed of rigid foam plastic shall be protected on the interior of the *building* as required by Section R303. Where *gypsum board* is used to protect the foam plastic, it shall be installed with a mechanical fastening system. Use of adhesives in addition to mechanical fasteners is permitted.
3. *Exterior wall covering*. Stay-in-place forms constructed of rigid foam plastics shall be protected from sunlight and physical damage by the application of an *approved exterior wall covering* complying with this code. Exterior surfaces of other stay-in-place forming systems shall be protected in accordance with this code.
4. Termite protection. In areas where the probability of termite infestation is “very heavy” as indicated by Table R301.2 or Figure R301.2.1, *foam plastic insulation* shall be permitted below grade on foundation walls in accordance with Section R305.4.
5. Flat *ICF* wall system forms shall conform to ASTM E2634.

Reason: In the 2009 IRC, Section R404 on Foundation and Retaining Walls was significantly expanded and reorganized to combine the requirements for cast-in-place concrete foundation walls and insulated concrete form walls and incorporate material from the PCA 100 *Prescriptive Design of Exterior Concrete Walls for One- and Two-Family Dwellings*. While there was value in the reorganization and added material, it has created a situation where some information is duplicated, some information is difficult to relocate, and some key concrete material and reinforcing details are even in Chapter 6 provisions for above-grade concrete walls even though the bulk of concrete construction in houses are footings, below-grade stem walls and basement foundation walls. It is clear further work is needed to improve the usability of Chapter 4. The ICC BCAC started the process last cycle by relocating masonry foundation tables to be under the masonry foundation wall section and concrete foundation walls tables under the concrete foundation wall section. A series of code changes is proposed to continue what the BCAC started.

This change relocates materials on form materials and form ties from Section R404 to Section R402. It makes sense to have one comprehensive section on materials applicable to all the footing and foundation types covered in Chapter 4 rather than have requirements scattered throughout R403 and R404.

An attached file shows (in outline-strikeout format) how Sections R402, R403 and R404 would be collectively revised if NAHB's three Chapter 4 proposals and an additional BCAC proposal are all approved.

- **IRC Chapter 4 concrete and masonry foundation wall reorganization.pdf**
  https://www.cdpaccess.com/proposal/11571/35467/documentation/183504/attachments/download/9290/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change is purely editorial, reorganizing and consolidating sections with no intended technical changes.

RB156-25

RB157-25

IRC: R404.1.3.3.7.1, R402.2.2.1 (New), R403.1.3.5.1, R404.1.3.3.7, R404.1.3.3.7.2, R404.1.3.3.7.3, R404.1.3.3.7.4, R404.1.3.3.7.5, R404.1.3.3.7.6, R404.1.3.3.7.7, R404.1.3.3.7.8

Proponents: Gary Ehrlich, representing NAHB (gehrlich@nahb.org)

2024 International Residential Code

R402.2 Concrete. Concrete shall have a minimum specified compressive strength of f'_c, as shown in Table R402.2. Concrete subject to moderate or severe weathering as indicated in Table R301.2 shall be air entrained as specified in Table R402.2. The maximum weight of fly ash, other pozzolans, silica fume, slag or blended cements that is included in concrete mixtures for garage floor slabs and for exterior porches, carport slabs and steps that will be exposed to deicing chemicals shall not exceed the percentages of the total weight of cementitious materials specified in Section 19.3.3.4 of ACI 318. Materials used to produce concrete and testing thereof shall comply with the applicable standards listed in Chapters 19 and 20 of ACI 318 or ACI 332.

R402.2.1 Materials for concrete. Materials for concrete shall comply with the requirements of Section R608.5.1.

Revise as follows:

R402.2.2 ~~R404.1.3.3.7.1~~ Steel reinforcement. Steel reinforcement shall comply with the requirements of ASTM A615, A706 or A996. ASTM A996 bars produced from rail steel shall be Type R. The ~~In buildings assigned to *Seismic Design Category* A, B or C,~~ the minimum yield strength of reinforcing steel shall be 40,000 psi (Grade 40) (276 MPa). ~~In *buildings* assigned to *Seismic Design Category* D_0, D_1 or D_2, the minimum yield strength shall be 60,000 psi (Grade 60) (414 MPa).~~

Add new text as follows:

R402.2.2.1 Steel reinforcement for foundation walls in Seismic Design Category D0, D1 or D2.. In buildings assigned to Seismic Design Category D0, D1 or D2, the minimum yield strength of reinforcing steel for concrete foundation walls constructed in accordance with Section R404 shall be 60,000 psi (Grade 60) (414 MPa).

Revise as follows:

R403.1.3.5.1 Steel reinforcement. Steel reinforcement shall comply with the material and minimum yield strength requirements of Section R402.2.2 ~~ASTM A615, A706M or A996M. ASTM A996M bars produced from rail steel shall be Type R. The minimum yield strength of reinforcing steel shall be 40,000 psi (Grade 40) (276 MPa)~~.

R404.1.3.3.1 ~~R404.1.3.3.7~~ Reinforcement. Reinforcement for concrete foundation walls shall comply with the requirements of Section R402.2 and this section.

R404.1.3.3.1.1 ~~R404.1.3.3.7.2~~ Location of reinforcement in wall. The center of vertical reinforcement in *basement* walls determined from Tables R404.1.3.2(2) through R404.1.3.2(7) shall be located at the centerline of the wall. Vertical reinforcement in *basement* walls determined from Table R404.1.3.2(8) shall be located to provide a maximum cover of $1^1/_4$ inches (32 mm) measured from the inside face of the wall. Regardless of the table used to determine vertical wall reinforcement, the center of the steel shall not vary from the specified location by more than the greater of 10 percent of the wall thickness and $^3/_8$ inch (10 mm). Horizontal and vertical reinforcement shall be located in foundation walls to provide the minimum cover required by Section R404.1.3.3.7.4.

R404.1.3.3.1.2 ~~R404.1.3.3.7.3~~ Wall openings. Vertical wall reinforcement required by Section R404.1.3.2 that is interrupted by wall openings shall have additional vertical reinforcement of the same size placed within 12 inches (305 mm) of each side of the opening.

R404.1.3.3.1.3 ~~R404.1.3.3.7.4~~ Support and cover. Reinforcement shall be secured in the proper location in the forms with tie wire or other bar support system to prevent displacement during the concrete placement operation. Steel reinforcement in concrete cast against the earth shall have a minimum cover of 3 inches (75 mm). Minimum cover for reinforcement in concrete cast in removable forms that will be exposed to the earth or weather shall be $1^1/_2$ inches (38 mm) for No. 5 bars and smaller, and 2 inches (50 mm) for No. 6 bars and larger. For concrete cast in removable forms that will not be exposed to the earth or weather, and for concrete cast in stay-in-place forms, minimum cover shall be $^3/_4$ inch (19 mm). The minus tolerance for cover shall not exceed the smaller of one-third the required cover or $^3/_8$ inch (10 mm).

<u>R404.1.3.3.1.4</u> ~~R404.1.3.3.7.5~~ Lap splices. Vertical and horizontal wall reinforcement shall be the longest lengths practical. Where splices are necessary in reinforcement, the length of lap splice shall be in accordance with Table R608.5.4(1) and Figure R608.5.4(1). The maximum gap between noncontact parallel bars at a lap splice shall not exceed the smaller of one-fifth the required lap length and 6 inches (152 mm) [see Figure R608.5.4(1)].

<u>R404.1.3.3.1.5</u> ~~R404.1.3.3.7.6~~ Alternate grade of reinforcement and spacing. Where tables in Section R404.1.3.2 specify vertical wall reinforcement based on minimum bar size and maximum spacing, which are based on Grade 60 (414 MPa) steel reinforcement, different size bars or bars made from a different grade of steel are permitted provided that an equivalent area of steel per linear foot of wall is provided. Use of Table R404.1.3.2(9) is permitted to determine the maximum bar spacing for different bar sizes than specified in the tables or bars made from a different grade of steel. Bars shall not be spaced less than one-half the wall thickness, or more than 48 inches (1219 mm) on center.

<u>R404.1.3.3.1.6</u> ~~R404.1.3.3.7.7~~ Standard hooks. Where reinforcement is required by this code to terminate with a standard hook, the hook shall comply with Section R608.5.4.5 and Figure R608.5.4(3).

<u>R404.1.3.3.1.7</u> ~~R404.1.3.3.7.8~~ Construction joint reinforcement. Construction joints in foundation walls shall be made and located to not impair the strength of the wall. Construction joints in plain concrete walls, including walls required to have not less than No. 4 bars at 48 inches (1219 mm) on center by Sections R404.1.3.2 and R404.1.4.2, shall be located at points of lateral support, and not fewer than one No. 4 bar shall extend across the construction joint at a spacing not to exceed 24 inches (610 mm) on center. Construction joint reinforcement shall have not less than 12 inches (305 mm) embedment on both sides of the joint. Construction joints in reinforced concrete walls shall be located in the middle third of the span between lateral supports, or located and constructed as required for joints in plain concrete walls.

> **Exception:** Use of vertical wall reinforcement required by this code is permitted in lieu of construction joint reinforcement provided that the spacing does not exceed 24 inches (610 mm), or the combination of wall reinforcement and No. 4 bars described in this section does not exceed 24 inches (610 mm).

Reason: In the 2009 IRC, Section R404 on Foundation and Retaining Walls was significantly expanded and reorganized to combine the requirements for cast-in-place concrete foundation walls and insulated concrete form walls and incorporate material from the PCA 100 *Prescriptive Design of Exterior Concrete Walls for One- and Two-Family Dwellings*. While there was value in the reorganization and added material, it has created a situation where some information is duplicated, some information is difficult to relocate, and some key concrete material and reinforcing details are even in Chapter 6 provisions for above-grade concrete walls even though the bulk of concrete construction in houses are footings, below-grade stem walls and basement foundation walls. It is clear further work is needed to improve the usability of Chapter 4. The ICC BCAC started the process last cycle by relocating masonry foundation tables to be under the masonry foundation wall section and concrete foundation walls tables under the concrete foundation wall section. A series of code changes is proposed to continue what the BCAC started.

This proposal relocates duplicative sections on reinforcing to a new subsection of R402.2. There is no reason references to the same basic set of ASTM material standards must be repeated in multiple locations within Chapter 4. Construction requirements such as bar location, cover, and splices are left in the specific requirements for footings and foundation walls.

An attached file shows (in outline-strikeout format) how Sections R402, R403 and R404 would be collectively revised if NAHB's three Chapter 4 proposals and an additional BCAC proposal are all approved.

- **IRC Chapter 4 concrete and masonry foundation wall reorganization.pdf**
  https://www.cdpaccess.com/proposal/11570/35485/documentation/183632/attachments/download/9297/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change is purely editorial, reorganizing and consolidating sections with no intended technical changes.

RB157-25

RB158-25

IRC: R402.2.1, R608.5.1, R608.5.1.1, R608.5.1.2, R608.5.1.3, R608.5.1.4, R608.5.1.5, R608.5.1.6, R404.1.3.3, R404.1.3.3.1, R404.1.3.3.2, R404.1.3.3.3, R404.1.3.3.4, R404.1.3.3.5

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

R402.2.1 Concrete and materials ~~Materials~~ for concrete. Concrete and materials ~~Materials~~ for concrete shall comply with the requirements of this Section ~~R608.5.1~~.

~~R608.5.1~~ R402.2.1.1 Concrete and materials for concrete. Materials used in concrete, and the concrete itself, shall conform to requirements of this section, PCA 100, ACI 318 or ACI 332.

~~R608.5.1.1~~ R402.2.1.2 Cements. The following standards as referenced in Chapter 44 shall be permitted to be used:

1. ASTM C150.
2. ASTM C595.
3. ASTM C1157.

~~R608.5.1.2~~ R402.2.1.3 Concrete mixing and delivery. Mixing and delivery of concrete shall comply with ASTM C94 or ASTM C685.

~~R608.5.1.3~~ R402.2.1.4 Maximum aggregate size. The nominal maximum size of coarse aggregate shall not exceed one-fifth the narrowest distance between sides of forms, or three-fourths the clear spacing between reinforcing bars or between a bar and the side of the form.

Exception: When *approved*, these limitations shall not apply where removable forms are used and workability and methods of consolidation permit concrete to be placed without honeycombs or voids.

~~R608.5.1.4~~R402.2.1.5 Proportioning and slump of concrete. Proportions of materials for concrete shall be established to provide workability and consistency to permit concrete to be worked readily into forms and around reinforcement under conditions of placement to be employed, without segregation or excessive bleeding. Slump of concrete placed in removable forms shall not exceed 6 inches (152 mm).

Exception: When *approved*, the slump is permitted to exceed 6 inches (152 mm) for concrete mixtures that are resistant to segregation, and are in accordance with the form manufacturer's recommendations.

Slump of concrete placed in stay-in-place forms shall exceed 6 inches (152 mm). Slump of concrete shall be determined in accordance with ASTM C143.

~~R608.5.1.5~~ R402.2.1.6 Compressive strength. The minimum specified compressive strength of concrete, f'_C, shall comply with Section R402.2 and shall be not less than 2,500 pounds per square inch (17.2 MPa) at 28 days. For concrete foundation walls in buildings assigned to Seismic Design Category D0, D1 or D2 the minimum specified compressive strength of concrete shall not be less than 3,000 psi(21 MPa) .

~~R608.5.1.6~~ R402.2.1.7 Consolidation of concrete. Concrete shall be consolidated by suitable means during placement and shall be worked around embedded items and reinforcement and into corners of forms. Where stay-in-place forms are used, concrete shall be consolidated by internal vibration.

Exception: When *approved*, self-consolidating concrete mixtures with slumps equal to or greater than 8 inches (203 mm) that are specifically designed for placement without internal vibration need not be internally vibrated.

R404.1.3.3 Concrete, materials for concrete, and forms. Materials used in concrete foundation walls, ~~the concrete itself and forms~~

shall conform to requirements of Section R402.2.1. ~~this section or ACI 318.~~

Delete without substitution:

~~**R404.1.3.3.1 Compressive strength.** The minimum specified compressive strength of concrete, *f′c*, shall comply with Section R402.2 and shall be not less than 2,500 psi (17.2 MPa) at 28 days in *buildings* assigned to *Seismic Design Category* A, B or C and 3,000 psi (20.5 MPa) in *buildings* assigned to *Seismic Design Category* D_0, D_1 or D_2.~~

~~**R404.1.3.3.2 Concrete mixing and delivery.** Mixing and delivery of concrete shall comply with ASTM C94 or ASTM C685.~~

~~**R404.1.3.3.3 Maximum aggregate size.** The nominal maximum size of coarse aggregate shall not exceed one-fifth the narrowest distance between sides of forms, or three-fourths the clear spacing between reinforcing bars or between a bar and the side of the form.~~

~~**Exception:** Where *approved*, these limitations shall not apply where removable forms are used and workability and methods of consolidation permit concrete to be placed without honeycombs or voids.~~

~~**R404.1.3.3.4 Proportioning and slump of concrete.** Proportions of materials for concrete shall be established to provide workability and consistency to permit concrete to be worked readily into forms and around reinforcement under conditions of placement to be employed, without segregation or excessive bleeding. Slump of concrete placed in removable forms shall not exceed 6 inches (152 mm).~~

~~**Exception:** Where *approved*, the slump is permitted to exceed 6 inches (152 mm) for concrete mixtures that are resistant to segregation, and are in accordance with the form manufacturer's recommendations.~~

~~Slump of concrete placed in stay-in-place forms shall exceed 6 inches (152 mm). Slump of concrete shall be determined in accordance with ASTM C143.~~

~~**R404.1.3.3.5 Consolidation of concrete.** Concrete shall be consolidated by suitable means during placement and shall be worked around embedded items and reinforcement and into corners of forms. Where stay-in-place forms are used, concrete shall be consolidated by internal vibration.~~

~~**Exception:** Where *approved* for concrete to be placed in stay-in-place forms, self-consolidating concrete mixtures with slumps equal to or greater than 8 inches (203 mm) that are specifically designed for placement without internal vibration need not be internally vibrated.~~

Reason: This proposal is editorial in nature and relocates the sections on concrete materials from R608 to R402. A small number of all residential structures use above grade concrete walls while a high number of them have concrete foundations. This relocation puts the requirements for concrete materials into the section where it is most frequently used. A pointer is added to R608 pointing back to R402 forconcrete and materials used for concrete in above grade concrete walls.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a relocation of code sections therefore there is no increase or decrease in the cost of construction.

RB158-25

RB159-25

IRC: R404.1, R404.1.1 (New), R404.1.1, R404.1.6, R404.1.7, R404.1.2, R404.1.2.1, R404.1.5.1, R404.1.4.1, R404.1.5.3, FIGURE R404.1.5.3, R404.1.8, R404.1.9, R404.1.9.1, R404.1.9.2, R404.1.9.3, R404.1.9.4, R404.1.9.5, R404.1.3, R404.1.3.1 (New), R404.1.5.2, R404.1.3.1, R404.1.3.2, R404.1.3.2.2, R404.1.3.2.1, R404.1.3.3.8, R404.1.3.4, R404.1.4, R404.1.4.2, R404.1.5

Proponents: Gary Ehrlich, representing NAHB (gehrlich@nahb.org)

2024 International Residential Code

Revise as follows:

R404.1 Concrete and masonry foundation walls. Foundation ~~Concrete foundation~~ walls shall be ~~selected and~~ constructed in accordance with the provisions of Sections R404.1.1 and R404.1.3 for concrete foundation walls, and~~. Masonry foundation walls shall be selected and constructed in accordance with the provisions of~~ Sections R404.1.1 and R404.1.2 for masonry foundation walls.

Add new text as follows:

R404.1.1 General requirements. Concrete and masonry foundation walls shall comply with this section.

Revise as follows:

R404.1.1.1 Design required. Concrete or masonry foundation walls shall be designed in accordance with accepted engineering practice where either of the following conditions exists:

1. Walls are subject to hydrostatic pressure from ground water.
2. Walls supporting more than 48 inches (1219 mm) of unbalanced backfill that do not have permanent lateral support at the top or bottom.

R404.1.1.2~~R404.1.6~~ Height above finished grade. Concrete and masonry foundation walls shall extend above the finished *grade* adjacent to the foundation at all points not less than 4 inches (102 mm) where *masonry veneer* is used and not less than 6 inches (152 mm) elsewhere.

R404.1.1.3~~R404.1.7~~ Backfill placement. Backfill shall not be placed against the wall until the wall has sufficient strength and has been anchored to the floor above, or has been sufficiently braced to prevent damage by the backfill.

Exception: Bracing is not required for walls supporting less than 4 feet (1219 mm) of unbalanced backfill.

R404.1.2 Masonry ~~Design of masonry~~ foundation walls. Masonry foundation walls shall be designed and constructed in accordance with the provisions of this section or in accordance with the provisions of TMS 402. Where TMS 402 or the provisions of this section are used to design masonry foundation walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the *jurisdiction* having authority.

R404.1.2.1 Plain masonry and reinforced masonry~~Masonry foundation walls~~. *Concrete masonry* and *clay masonry* foundation walls shall be constructed as set forth in Table R404.1.2.1(1), R404.1.2.1(2), R404.1.2.1(3) or R404.1.2.1(4) and shall comply with applicable provisions of Section R606. In *buildings* assigned to *Seismic Design Categories* D_0, D_1 and D_2, *concrete masonry* and *clay masonry* foundation walls shall also comply with Section R404.1.2.2~~R404.1.4.1~~. Rubble stone masonry foundation walls shall be constructed in accordance with Sections R404.1.2.5~~R404.1.8~~ and R606.4.2. Rubble stone masonry walls shall not be used in *Seismic Design Categories* D_0, D_1 and D_2, or in *townhouses* in *Seismic Design Category* C.

R404.1.2.2~~R404.1.5.1~~ Masonry wall thickness. Masonry foundation walls shall be not less than the thickness of the wall supported, except that masonry foundation walls of not less than 8-inch (203 mm) nominal thickness shall be permitted under brick veneered frame walls and under 10-inch-wide (254 mm) cavity walls where the total height of the wall supported, including gables, is not more than 20 feet (6096 mm), provided that the requirements of Section R404.1.1 are met.

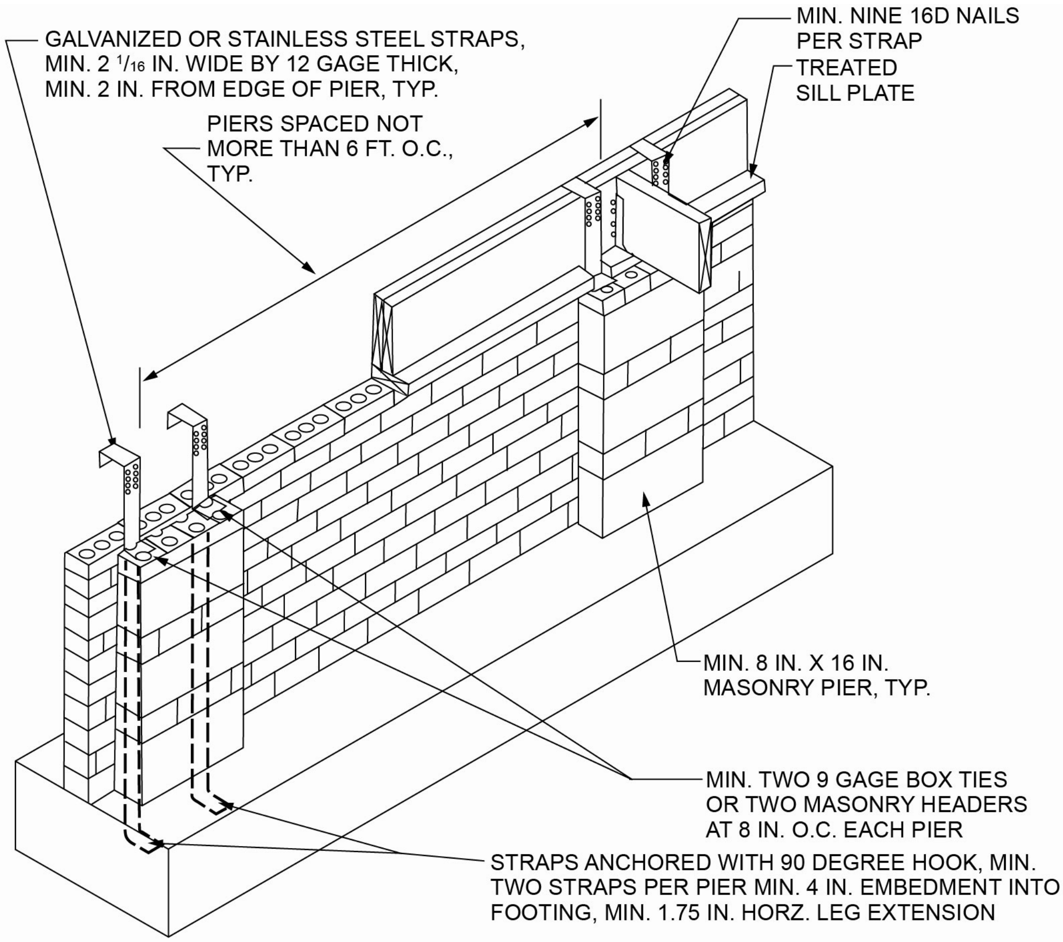
R404.1.2.3~~R404.1.4.1~~ Masonry foundation walls in Seismic Design Category D_0, D_1 or D_2. In *buildings* assigned to *Seismic Design Category* D_0, D_1 or D_2, as established in Table R301.2, masonry foundation walls shall comply with this section. In addition to the requirements of Table R404.1.2.1(1), plain masonry foundation walls shall comply with the following:

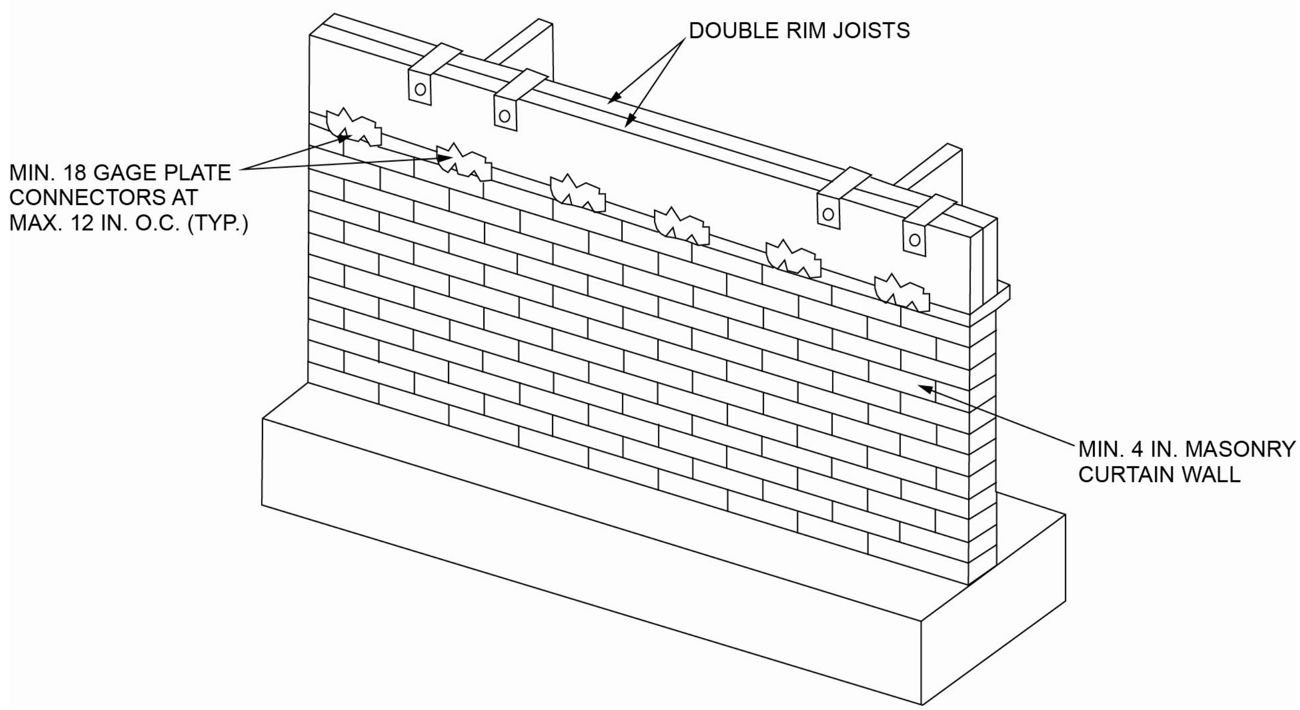
1. Wall height shall not exceed 8 feet (2438 mm).
2. Unbalanced backfill height shall not exceed 4 feet (1219 mm).
3. Minimum nominal thickness for plain masonry foundation walls shall be 8 inches (203 mm).
4. Masonry stem walls shall have a minimum vertical reinforcement of one No. 4 (No. 13) bar located not greater than 4 feet (1219 mm) on center in grouted cells. Vertical reinforcement shall be tied to the horizontal reinforcement in the footings.

Foundation walls, supporting more than 4 feet (1219 mm) of unbalanced backfill or exceeding 8 feet (2438 mm) in height shall be constructed in accordance with Table R404.1.2.1(2), R404.1.2.1(3) or R404.1.2.1(4). Masonry foundation walls shall have two No. 4 (No. 13) horizontal bars located in the upper 12 inches (305 mm) of the wall.

R404.1.2.4~~R404.1.5.3~~ Pier and curtain wall foundations. Use of pier and curtain wall foundations shall be permitted to support *light-frame construction* not more than two *stories* in height, provided that the following requirements are met:

1. All *load-bearing walls* shall be placed on continuous concrete footings placed integrally with the exterior wall footings.
2. The minimum actual thickness of a load-bearing masonry wall shall be not less than 4 inches (102 mm) nominal or $3^3/_8$ inches (92 mm) actual thickness, and shall be bonded integrally with piers spaced in accordance with Section R606.6.4.
3. Piers shall be constructed in accordance with Sections R606.7 and R606.7.1, and shall be bonded into the load-bearing masonry wall in accordance with Section R606.13.1 or R606.13.1.1.
4. The maximum height of a 4-inch (102 mm) load-bearing masonry foundation wall supporting wood-frame walls and floors shall be not more than 4 feet (1219 mm).
5. Anchorage shall be in accordance with Section R403.1.6, Figure R404.1.2.4 ~~R404.1.5.3~~, or as specified by engineered design accepted by the *building official*.
6. The unbalanced fill for 4-inch (102 mm) foundation walls shall not exceed 24 inches (610 mm) for *solid masonry* or 12 inches (305 mm) for *hollow masonry*.
7. In *Seismic Design Categories* D_0, D_1 and D_2, prescriptive reinforcement shall be provided in the horizontal and vertical direction. Provide minimum horizontal joint reinforcement of two No. 9 gage wires spaced not less than 6 inches (152 mm) or one $^1/_4$-inch-diameter (6.4 mm) wire at 10 inches (254 mm) on center vertically. Provide minimum vertical reinforcement of one No. 4 bar at 48 inches (1220 mm) on center horizontally grouted in place.





For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.0175 rad.

FIGURE R404.1.2.4~~R404.1.5.3~~ FOUNDATION WALL CLAY MASONRY CURTAIN WALL WITH CONCRETE MASONRY PIERS

R404.1.2.5~~R404.1.8~~ **Rubble stone masonry.** Rubble stone masonry foundation walls shall have a minimum thickness of 16 inches (406 mm), shall not support an unbalanced backfill exceeding 8 feet (2438 mm) in height, shall not support a soil pressure greater than 30 pounds per square foot per foot (4.71 kPa/m), and shall not be constructed in *Seismic Design Categories* D_0, D_1, D_2 or *townhouses* in *Seismic Design Category* C, as established in Figure R301.2(2).

R404.1.2.6~~R404.1.9~~ **Isolated masonry piers.** Isolated masonry piers shall be constructed in accordance with this section and the general masonry construction requirements of Section R606. *Hollow masonry* piers shall have a minimum nominal thickness of 8 inches (203 mm), with a nominal height not exceeding four times the nominal thickness and a nominal length not exceeding three times the nominal thickness. Where *hollow masonry units* are solidly filled with concrete or grout, piers shall be permitted to have a nominal height not exceeding ten times the nominal thickness. Footings for isolated masonry piers shall be sized in accordance with Section R403.1.1.

R404.1.2.6.1~~R404.1.9.1~~ **Pier cap.** *Hollow masonry* piers shall be capped with 4 inches (102 mm) of *solid masonry* or concrete, a masonry cap block, or shall have cavities of the top course filled with concrete or grout. Where required, termite protection for the pier cap shall be provided in accordance with Section R305.

R404.1.2.6.2~~R404.1.9.2~~ **Masonry piers supporting floor girders.** Masonry piers supporting wood girders sized in accordance with Tables R602.7(1) and R602.7(2) shall be permitted in accordance with this section. Piers supporting girders for interior bearing walls shall have a minimum nominal dimension of 12 inches (305 mm) and a maximum height of 10 feet (3048 mm) from top of footing to bottom of sill plate or girder. Piers supporting girders for exterior bearing walls shall have a minimum nominal dimension of 12 inches (305 mm) and a maximum height of 4 feet (1220 mm) from top of footing to bottom of sill plate or girder. Girders and sill plates shall be anchored to the pier or footing in accordance with Section R403.1.6 or Figure R404.1.2.4~~R404.1.5.3~~. Floor girder bearing shall be in accordance with Section R502.6.

R404.1.2.6.3~~R404.1.9.3~~ **Masonry piers supporting braced wall panels.** Masonry piers supporting *braced wall panels* shall be designed in accordance with accepted engineering practice.

R404.1.2.6.4~~R404.1.9.4~~ **Seismic design of masonry piers.** Masonry piers in *dwellings* located in *Seismic Design Category* D_0, D_1 or D_2, and *townhouses* in *Seismic Design Category* C, shall be designed in accordance with accepted engineering practice.

R404.1.2.6.5~~R404.1.9.5~~ **Masonry piers in flood hazard areas.** Masonry piers for *dwellings* in flood hazard areas shall be designed in accordance with Section R306.

R404.1.3 Concrete foundation walls. Concrete foundation walls that support light-frame walls shall be designed and constructed in accordance with one of the following:

1. Concrete foundation walls supporting light-frame walls shall be designed and constructed in accordance with this section.
2. Concrete foundation walls supporting above-grade concrete walls and meeting the applicability limits of Section R608.2 shall be designed and constructed in accordance with this section.
3. Concrete foundation walls shall be designed and constructed in accordance with ACI 318, ACI 332 or PCA 100.

~~the provisions of this section, ACI 318, ACI 332 or PCA 100. Concrete foundation walls that support above-grade concrete walls that are within the applicability limits of Section R608.2 shall be designed and constructed in accordance with the provisions of this section, ACI 318, ACI 332 or PCA 100. Concrete foundation walls that support above-grade concrete walls that are not within the applicability limits of Section R608.2 shall be designed and constructed in accordance with the provisions of ACI 318, ACI 332 or PCA 100.~~ Where this section, ACI 318, ACI 332, or PCA 100 ~~or the provisions of this section~~ are used to design concrete foundation walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the *jurisdiction* having authority.

Add new text as follows:

R404.1.3.1 Minimum dimensions for concrete foundation walls. The minimum thickness and cross-section of concrete foundation walls shall be in accordance with this section.

Revise as follows:

<u>**R404.1.3.1.1**</u>~~**R404.1.5.2**~~ **Concrete wall thickness.** The thickness of concrete foundation walls shall be equal to or greater than the thickness of the wall in the *story* above. Concrete foundation walls with corbels, brackets or other projections built into the wall for support of *masonry veneer* or other purposes are not within the scope of the tables in this section.

Where a concrete foundation wall is reduced in thickness to provide a shelf for the support of *masonry veneer*, the reduced thickness shall be equal to or greater than the thickness of the wall in the *story* above. Vertical reinforcement for the foundation wall shall be based on Table R404.1.3.2(8) and located in the wall as required by Section R404.1.3.3.7.2 where that table is used. Vertical reinforcement shall be based on the thickness of the thinner portion of the wall.

Exception: Where the height of the reduced thickness portion measured to the underside of the floor assembly or sill plate above is less than or equal to 24 inches (610 mm) and the reduction in thickness does not exceed 4 inches (102 mm), the vertical reinforcement is permitted to be based on the thicker portion of the wall.

<u>**R404.1.3.1.2**</u>~~**R404.1.3.1**~~ **Concrete cross section.** Concrete walls ~~constructed in accordance with this code~~ shall comply with the shapes and minimum concrete cross-sectional dimensions required by Table R608.3. Other types of forming systems resulting in concrete walls not in compliance with this section and Table R608.3 shall be designed in accordance with ACI 318.

R404.1.3.2 Reinforcement for foundation walls. Concrete foundation walls shall be laterally supported at the top and bottom. Horizontal reinforcement shall be provided in accordance with Table R404.1.3.2(1). Vertical reinforcement shall be provided in accordance with Table R404.1.3.2(2), R404.1.3.2(3), R404.1.3.2(4), R404.1.3.2(5), R404.1.3.2(6), R404.1.3.2(7) or R404.1.3.2(8). Vertical reinforcement for flat basement walls retaining 4 feet (1219 mm) or more of unbalanced backfill is permitted to be determined in accordance with Table R404.1.3.2(9). For *basement* walls supporting above-grade concrete walls, vertical reinforcement shall be the greater of that required by Tables R404.1.3.2(2) through R404.1.3.2(8) or by Section R608.6 for the above-grade wall. In *buildings* assigned to *Seismic Design Category* D_0, D_1 or D_2, concrete foundation walls shall also comply with Section R404.1.4.2.

<u>**R404.1.3.2.1**</u>~~**R404.1.3.2.2**~~ **Concrete foundation stem walls supporting light-frame above-grade walls.** Concrete foundation stem walls that support light-frame above-grade walls shall be designed and constructed in accordance with this section.

1. Stem walls not laterally supported at top. Concrete stem walls that are not monolithic with slabs-on-ground or are not otherwise laterally supported by slabs-on-ground and retain 48 inches (1219 mm) or less of unbalanced fill, measured from the top of the wall, shall be constructed in accordance with Section R404.1.3. Foundation stem walls that retain more than 48 inches (1219 mm) of unbalanced fill, measured from the top of the wall, shall be designed in accordance with Sections R404.1.1 and R404.4.
2. Stem walls laterally supported at top. Concrete stem walls that are monolithic with slabs-on-ground or are otherwise laterally supported by slabs-on-ground shall be constructed in accordance with Section R404.1.3. Where the unbalanced backfill retained by the stem wall is greater than 48 inches (1219 mm), the connection between the stem wall and the slab-on-ground, and the portion of the slab-on-ground providing lateral support for the wall, shall be designed in accordance with PCA 100 or in accordance with accepted engineering practice.

<u>**R404.1.3.2.2**</u>~~**R404.1.3.2.1**~~ **Concrete foundation stem walls supporting above-grade concrete walls.** Foundation stem walls that support above-grade concrete walls shall be designed and constructed in accordance with this section.

1. Stem walls not laterally supported at top. Concrete stem walls that are not monolithic with slabs-on-ground or are not otherwise laterally supported by slabs-on-ground shall comply with this section. Where unbalanced backfill retained by the stem wall is less than or equal to 18 inches (457 mm), the stem wall and above-grade wall it supports shall be provided with vertical reinforcement in accordance with Section R608.6 and Table R608.6(1), R608.6(2) or R608.6(3) for above-grade walls. Where unbalanced backfill retained by the stem wall is greater than 18 inches (457 mm), the stem wall and above-grade wall it supports shall be provided with vertical reinforcement in accordance with Section R608.6 and Table R608.6(1).

2. Stem walls laterally supported at top. Concrete stem walls that are monolithic with slabs-on-ground or are otherwise laterally supported by slabs-on-ground shall be vertically reinforced in accordance with Section R608.6 and Table R608.6(1), R608.6(2) or R608.6(3) for above-grade walls. Where the unbalanced backfill retained by the stem wall is greater than 18 inches (457 mm), the connection between the stem wall and the slab-on-ground, and the portion of the slab-on-ground providing lateral support for the wall shall be designed in accordance with PCA 100 or with accepted engineering practice. Where the unbalanced backfill retained by the stem wall is greater than 18 inches (457 mm), the minimum nominal thickness of the wall shall be 6 inches (152 mm).

R404.1.3.3.8 Exterior wall coverings. Requirements for installation of *masonry veneer*, stucco and other wall coverings on the exterior of concrete walls and other construction details not covered in this section shall comply with the requirements of this code.

R404.1.3.4 Concrete foundation walls in ~~Requirements for~~ Seismic Design Category C. Concrete foundation walls supporting above-grade concrete walls in *townhouses* assigned to *Seismic Design Category* C shall comply with ACI 318, ACI 332 or PCA 100 (see Section R404.1.3).

Delete without substitution:

~~**R404.1.4 Seismic Design Category D_0, D_1 or D_2.**~~

Revise as follows:

R404.1.3.5 ~~R404.1.4.2~~ Concrete foundation walls in *Seismic Design Category* D_0, D_1 or D_2. In *buildings* assigned to *Seismic Design Category* D_0, D_1 or D_2, as established in Table R301.2, concrete foundation walls that support light-frame walls shall comply with this section, and concrete foundation walls that support above-grade concrete walls shall comply with ACI 318, ACI 332 or PCA 100 (see Section R404.1.3). In addition to the horizontal reinforcement required by Table R404.1.3.2(1), plain concrete walls supporting light-frame walls shall comply with the following:

1. Wall height shall not exceed 8 feet (2438 mm).
2. Unbalanced backfill height shall not exceed 4 feet (1219 mm).
3. Minimum thickness for plain concrete foundation walls shall be 7.5 inches (191 mm) except that 6 inches (152 mm) is permitted where the maximum wall height is 4 feet 6 inches (1372 mm).

Foundation walls less than 7.5 inches (191 mm) in thickness, supporting more than 4 feet (1219 mm) of unbalanced backfill or exceeding 8 feet (2438 mm) in height shall be provided with horizontal reinforcement in accordance with Table R404.1.3.2(1), and vertical reinforcement in accordance with Table R404.1.3.2(2), R404.1.3.2(3), R404.1.3.2(4), R404.1.3.2(5), R404.1.3.2(6), R404.1.3.2(7) or R404.1.3.2(8). Where Tables R404.1.3.2(2) through R404.1.3.2(8) permit plain concrete walls, not less than No. 4 (No. 13) vertical bars at a spacing not exceeding 48 inches (1219 mm) shall be provided.

Delete without substitution:

~~**R404.1.5 Foundation wall thickness based on walls supported.** The thickness of masonry or concrete foundation walls shall be not less than that required by Section R404.1.5.1 or R404.1.5.2, respectively.~~

Reason: In the 2009 IRC, Section R404 on Foundation and Retaining Walls was significantly expanded and reorganized to combine the requirements for cast-in-place concrete foundation walls and insulated concrete form walls and incorporate material from the PCA 100 Prescriptive Design of Exterior Concrete Walls for One- and Two-Family Dwellings. While there was value in the reorganization and added material, it has created a situation where some information is duplicated, some information is difficult to relocate, and some key concrete material and reinforcing details are even in Chapter 6 provisions for above-grade concrete walls even though the bulk of concrete construction in houses are footings, below-grade stem walls and basement foundation walls. It is clear further work is needed to improve the usability of Chapter 4. The ICC BCAC started the process last cycle by relocating masonry foundation tables to be under the masonry foundation wall section and concrete foundation walls tables under the concrete foundation wall section. A series of code changes is proposed to continue what the BCAC started.

This proposal builds on last cycle's work by further relocating masonry-related provisions under Section R404.1.2 for masonry foundation walls and concrete-related provisions under Section R404.1.3 for concrete foundation walls. This includes splitting up the combined Section R404.1.4 containing both masonry and concrete walls requirements for Seismic Design Category D0, D1 and D2 and the combined Section R404.1.5 containing both masonry and concrete wall thickness requirements. The rubble stone masonry and isolated masonry pier provisions are also relocated under the masonry foundation wall requirements. And a general requirements section is created under R404.1 to hold not only the existing set of conditions where engineered design is required but also the requirements for minimum height above finished grade and backfill placement which are currently located at the end of all the material on masonry and concrete foundation walls but really should be at the beginning.

The intent of this proposal is not to make any technical changes or delete any requirements entirely, just editorially rearrange things so all the masonry provisions are together, and all the concrete provisions are together.

An attached file shows (in outline-strikeout format) how Sections R402, R403 and R404 would be collectively revised if NAHB's three Chapter 4 proposals and an additional BCAC proposal are all approved.

- **IRC Chapter 4 concrete and masonry foundation wall reorganization.pdf**
  https://www.cdpaccess.com/proposal/11593/35493/documentation/183689/attachments/download/9302/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change is purely editorial, reorganizing and consolidating sections with no intended technical changes.

RB159-25

RB160-25

IRC: TABLE R404.1.2.1(1), TABLE R404.1.2.1(2), TABLE R404.1.2.1(3), TABLE R404.1.2.1(4), R404.1.4, R404.1.4.1

Proponents: Nicholas Lang, representing Concrete Masonry & Hardscapes Association (nlang@masonryandhardscapes.org)

2024 International Residential Code

Revise as follows:

TABLE R404.1.2.1(1) PLAIN MASONRY FOUNDATION WALLS[f]

MAXIMUM UNSUPPORTED WALL HEIGHT (feet)	MAXIMUM UNBALANCED BACKFILL HEIGHT[c] (feet)	PLAIN MASONRY[a] MINIMUM NOMINAL WALL THICKNESS (inches) Soil classes and lateral soil load [b] (psf per foot below grade)		
		GW, GP, SW and SP soils 30	GM, GC, SM, SM-SC and ML soils 45	SC, MH, ML-CL and inorganic CL soils 60
5	4	6 solid[d] or 8	6 solid[d] or 8	6 solid[d] or 8
	5	6 solid[d] or 8	8	10
6	4	6 solid[d] or 8	6 solid[d] or 8	6 solid[d] or 8
	5	6 solid[d] or 8	8	10
	6	8	10	12
7	4	6 solid[d] or 8	8	8
	5	6 solid[d] or 8	10	10
	6	10	12	10 grout ~~solid~~[d]
	7	12	10 grout ~~solid~~[d]	12 grout ~~solid~~[d]
8	4	6 solid[d] or 8	6 solid[d] or 8	8
	5	6 solid[d] or 8	10	12
	6	10	12	12 grout ~~solid~~[d]
	7	12	12 grout ~~solid~~[d]	Note e
	8	10 grout[d]	12 grout[d]	Note e
9	4	6 grout[d] or 8 solid[d] or 12	6 grout[d] or 8 solid[d]	8 grout[d] or 10 grout ~~solid~~[d]
	5	6 grout[d] or 10 grout ~~solid~~[d]	8 grout[d] or 12 grout ~~solid~~[d]	8 grout[d]
	6	8 grout[d] or 12 grout ~~solid~~[d]	10 grout[d]	10 grout[d]
	7	10 grout[d]	10 grout[d]	12 grout
	8	10 grout[d]	12 grout	Note e
	9	12 grout	Note e	Note e

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Mortar shall be Type M or S and masonry shall be laid in running bond. Ungrouted hollow masonry units are permitted except where otherwise indicated.

b. Soil classes are in accordance with the Unified Soil Classification System. Refer to Table R401.4.1(2).

c. Unbalanced backfill height is the difference in height between the exterior finish ground level and the lower of the top of the concrete footing that supports the foundation wall or the interior finish ground level. Where an interior concrete slab-on-grade is provided and is in contact with the interior surface of the foundation wall, measurement of the unbalanced backfill height from the exterior finish ground level to the top of the interior concrete slab is permitted.

d. Solid indicates solid masonry unit; grout indicates grouted hollow units.

e. Wall construction shall be in accordance with Table R404.1.2.1(2), R404.1.2.1(3) or R404.1.2.1(4), or a design shall be provided.

f. The use of this table shall be prohibited for soil classifications not shown.

TABLE R404.1.2.1(2) 8-INCH MASONRY FOUNDATION WALLS WITH REINFORCING WHERE d ≥ 5 INCHES[a, c, f]

MAXIMUM UNSUPPORTED WALL HEIGHT	HEIGHT OF UNBALANCED BACKFILL[e]	MINIMUM VERTICAL REINFORCEMENT AND SPACING (inches)[b, c] Soil classes and lateral soil load[d] (psf per foot below grade)		
		GW, GP, SW and SP soils 30	GM, GC, SM, SM-SC and ML soils 45	SC, ML-CL and inorganic CL soils 60
	~~4 feet (or less)~~	~~#4 at 48~~	~~#4 at 48~~	~~#4 at 48~~
	5 feet (or less)	#4 at 48	#4 at 48	#4 at 48
	6 feet 8 inches	#4 at 48	#5 at 48	#6 at 48

6 feet 8 inches				
MAXIMUM UNSUPPORTED WALL HEIGHT	HEIGHT OF UNBALANCED BACKFILL	MINIMUM VERTICAL REINFORCEMENT AND SPACING (inches) Soil classes and lateral soil load (psf per foot below grade)		
		GW, GP, SW and SP soils 30	GM, GC, SM, SM-SC and ML soils 45	SC, ML-CL and inorganic CL soils 60
7 feet 4 inches	~~4 feet (or less)~~	~~#4 at 48~~	~~#4 at 48~~	~~#4 at 48~~
	5 feet (or less)	#4 at 48	#4 at 48	#4 at 48
	6 feet	#4 at 48	#5 at 48	#5 at 48
	7 feet 4 inches	#5 at 48	#6 at 48	#6 at 40
8 feet	~~4 feet (or less)~~	~~#4 at 48~~	~~#4 at 48~~	~~#4 at 48~~
	5 feet (or less)	#4 at 48	#4 at 48	#4 at 48
	6 feet	#4 at 48	#5 at 48	#5 at 48
	7 feet	#5 at 48	#6 at 48	#6 at 40
	8 feet	#5 at 48	#6 at 48	#6 at 32
8 feet 8 inches	4 feet (or less)	#4 at 48	#4 at 48	#4 at 48
	5 feet	#4 at 48	#4 at 48	#5 at 48
	6 feet	#4 at 48	#5 at 48	#6 at 48
	7 feet	#5 at 48	#6 at 48	#6 at 40
	8 feet 8 inches	#6 at 48	#6 at 32	#6 at 24
9 feet 4 inches	4 feet (or less)	#4 at 48	#4 at 48	#4 at 48
	5 feet	#4 at 48	#4 at 48	#5 at 48
	6 feet	#4 at 48	#5 at 48	#6 at 48
	7 feet	#5 at 48	#6 at 48	#6 at 40
	8 feet	#6 at 48	#6 at 40	#6 at 24
	9 feet 4 inches	#6 at 40	#6 at 24	#6 at 16
10 feet	4 feet (or less)	#4 at 48	#4 at 48	#4 at 48
	5 feet	#4 at 48	#4 at 48	#5 at 48
	6 feet	#4 at 48	#5 at 48	#6 at 48
	7 feet	#5 at 48	#6 at 48	#6 at 32
	8 feet	#6 at 48	#6 at 32	#6 at 24
	9 feet	#6 at 40	#6 at 24	#6 at 16
	10 feet	#6 at 32	#6 at 16	#6 at 16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 0.157 kPa/mm.

a. Mortar shall be Type M or S and masonry shall be laid in running bond.

b. Alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per lineal foot of wall shall be permitted provided the spacing of the reinforcement does not exceed 72 inches in Seismic Design Categories A, B and C, and 48 inches in Seismic Design Categories D_0, D_1 and D_2.

c. Vertical reinforcement shall be Grade 60 minimum. The distance, *d*, from the face of the soil side of the wall to the center of vertical reinforcement shall be not less than 5 inches.

d. Soil classes are in accordance with the Unified Soil Classification System and design lateral soil loads are for moist conditions without hydrostatic pressure. Refer to Table R401.4.1(2).

e. Unbalanced backfill height is the difference in height between the exterior finish ground level and the lower of the top of the concrete footing that supports the foundation wall or the interior finish ground level. Where an interior concrete slab-on-grade is provided and is in contact with the interior surface of the foundation wall, measurement of the unbalanced backfill height from the exterior finish ground level to the top of the interior concrete slab is permitted.

f. The use of this table shall be prohibited for soil classifications not shown.

TABLE R404.1.2.1(3) 10-INCH MASONRY FOUNDATION WALLS WITH REINFORCING WHERE d ≥ 6.75 INCHES[a, c, f]

MAXIMUM UNSUPPORTED WALL HEIGHT	HEIGHT OF UNBALANCED BACKFILL[e]	MINIMUM VERTICAL REINFORCEMENT AND SPACING (inches)[b, c] Soil classes and later soil load[d] (psf per foot below grade)		
		GW, GP, SW and SP soils 30	GM, GC, SM, SM-SC and ML soils 45	SC, ML-CL and inorganic CL soils 60
6 feet 8 inches	~~4 feet (or less)~~	~~#4 at 56~~	~~#4 at 56~~	~~#4 at 56~~
	5 feet (or less)	#4 at 56	#4 at 56	#4 at 56
	6 feet 8 inches	#4 at 56	#5 at 56	#5 at 56
7 feet 4 inches	~~4 feet (or less)~~	~~#4 at 56~~	~~#4 at 56~~	~~#4 at 56~~
	5 feet (or less)	#4 at 56	#4 at 56	#4 at 56
	6 feet	#4 at 56	#4 at 56	#5 at 56
	7 feet 4 inches	#4 at 56	#5 at 56	#6 at 56
	~~4 feet (or less)~~	~~#4 at 56~~	~~#4 at 56~~	~~#4 at 56~~
	5 feet (or less)	#4 at 56	#4 at 56	#4 at 56

MAXIMUM UNSUPPORTED WALL HEIGHT	HEIGHT OF UNBALANCED BACKFILL	MINIMUM VERTICAL REINFORCEMENT AND SPACING (inches) Soil classes and later soil load (psf per foot below grade)		
		GW, GP, SW and SP soils 30	GM, GC, SM, SM-SC and ML soils 45	SC, ML-CL and inorganic CL soils 60
8 feet	6 feet	#4 at 56	#4 at 56	#5 at 56
	7 feet	#4 at 56	#5 at 56	#6 at 56
	8 feet	#5 at 56	#6 at 56	#6 at 48
8 feet 8 inches	~~4 feet (or less)~~	~~#4 at 56~~	~~#4 at 56~~	~~#4 at 56~~
	5 feet (or less)	#4 at 56	#4 at 56	#4 at 56
	6 feet	#4 at 56	#4 at 56	#5 at 56
	7 feet	#4 at 56	#5 at 56	#6 at 56
	8 feet 8 inches	#5 at 56	#6 at 48	#6 at 32
9 feet 4 inches	~~4 feet (or less)~~	~~#4 at 56~~	~~#4 at 56~~	~~#4 at 56~~
	5 feet (or less)	#4 at 56	#4 at 56	#4 at 56
	6 feet	#4 at 56	#5 at 56	#5 at 56
	7 feet	#4 at 56	#5 at 56	#6 at 56
	8 feet	#5 at 56	#6 at 56	#6 at 40
	9 feet 4 inches	#6 at 56	#6 at 40	#6 at 24
10 feet	~~4 feet (or less)~~	~~#4 at 56~~	~~#4 at 56~~	~~#4 at 56~~
	5 feet (or less)	#4 at 56	#4 at 56	#4 at 56
	6 feet	#4 at 56	#5 at 56	#5 at 56
	7 feet	#5 at 56	#6 at 56	#6 at 48
	8 feet	#5 at 56	#6 at 48	#6 at 40
	9 feet	#6 at 56	#6 at 40	#6 at 24
	10 feet	#6 at 48	#6 at 32	#6 at 24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 0.157 kPa/mm.

a. Mortar shall be Type M or S and masonry shall be laid in running bond.

b. Alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per lineal foot of wall shall be permitted provided the spacing of the reinforcement does not exceed 72 inches in Seismic Design Categories A, B and C, and 48 inches in Seismic Design Categories D_0, D_1 and D_2.

c. Vertical reinforcement shall be Grade 60 minimum. The distance, *d*, from the face of the soil side of the wall to the center of vertical reinforcement shall be not less than 6.75 inches.

d. Soil classes are in accordance with the Unified Soil Classification System and design lateral soil loads are for moist conditions without hydrostatic pressure. Refer to Table R401.4.1(2).

e. Unbalanced backfill height is the difference in height between the exterior finish ground level and the lower of the top of the concrete footing that supports the foundation wall or the interior finish ground level. Where an interior concrete slab-on-grade is provided and is in contact with the interior surface of the foundation wall, measurement of the unbalanced backfill height from the exterior finish ground level to the top of the interior concrete slab is permitted.

f. The use of this table shall be prohibited for soil classifications not shown.

TABLE R404.1.2.1(4) 12-INCH MASONRY FOUNDATION WALLS WITH REINFORCING WHERE d ≥ 8.75 INCHES[a, c, f]

MAXIMUM UNSUPPORTED WALL HEIGHT	HEIGHT OF UNBALANCED BACKFILL[e]	MINIMUM VERTICAL REINFORCEMENT AND SPACING (inches)[b, c] Soil classes and lateral soil load[d] (psf per foot below grade)		
		GW, GP, SW and SP soils 30	GM, GC, SM, SM-SC and ML soils 45	SC, ML-CL and inorganic CL soils 60
6 feet 8 inches	~~4 feet (or less)~~	~~#4 at 72~~	~~#4 at 72~~	~~#4 at 72~~
	5 feet (or less)	#4 at 72	#4 at 72	#4 at 72
	6 feet 8 inches	#4 at 72	#4 at 72	#5 at 72
7 feet 4 inches	~~4 feet (or less)~~	~~#4 at 72~~	~~#4 at 72~~	~~#4 at 72~~
	5 feet (or less)	#4 at 72	#4 at 72	#4 at 72
	6 feet	#4 at 72	#4 at 72	#5 at 72
	7 feet 4 inches	#4 at 72	#5 at 72	#6 at 72
8 feet	~~4 feet (or less)~~	~~#4 at 72~~	~~#4 at 72~~	~~#4 at 72~~
	5 feet (or less)	#4 at 72	#4 at 72	#4 at 72
	6 feet	#4 at 72	#4 at 72	#5 at 72
	7 feet	#4 at 72	#5 at 72	#6 at 72
	8 feet	#5 at 72	#6 at 72	#6 at 64
	~~4 feet (or less)~~	~~#4 at 72~~	~~#4 at 72~~	~~#4 at 72~~
	5 feet (or less)	#4 at 72	#4 at 72	#4 at 72
	6 feet	#4 at 72	#4 at 72	#5 at 72

MAXIMUM UNSUPPORTED WALL HEIGHT	HEIGHT OF UNBALANCED BACKFILL	MINIMUM VERTICAL REINFORCEMENT AND SPACING (inches) Soil classes and lateral soil load (psf per foot below grade)		
		GW, GP, SW and SP soils 30	GM, GC, SM, SM-SC and ML soils 45	SC, ML-CL and inorganic CL soils 60
8 feet 8 inches	7 feet	#4 at 72	#5 at 72	#6 at 72
	8 feet 8 inches	#5 at 72	#7 at 72	#6 at 48
9 feet 4 inches	~~4 feet (or less)~~	~~#4 at 72~~	~~#4 at 72~~	~~#4 at 72~~
	5 feet (or less)	#4 at 72	#4 at 72	#4 at 72
	6 feet	#4 at 72	#5 at 72	#5 at 72
	7 feet	#4 at 72	#5 at 72	#6 at 72
	8 feet	#5 at 72	#6 at 72	#6 at 56
	9 feet 4 inches	#6 at 72	#6 at 48	#6 at 40
10 feet	~~4 feet (or less)~~	~~#4 at 72~~	~~#4 at 72~~	~~#4 at 72~~
	5 feet (or less)	#4 at 72	#4 at 72	#4 at 72
	6 feet	#4 at 72	#5 at 72	#5 at 72
	7 feet	#4 at 72	#6 at 72	#6 at 72
	8 feet	#5 at 72	#6 at 72	#6 at 48
	9 feet	#6 at 72	#6 at 56	#6 at 40
	10 feet	#6 at 64	#6 at 40	#6 at 32

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 0.157 kPa/mm.

a. Mortar shall be Type M or S and masonry shall be laid in running bond.

b. Alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per lineal foot of wall shall be permitted provided the spacing of the reinforcement does not exceed 72 inches in Seismic Design Categories A, B and C, and 48 inches in Seismic Design Categories D_0, D_1 and D_2.

c. Vertical reinforcement shall be Grade 60 minimum. The distance, *d*, from the face of the soil side of the wall to the center of vertical reinforcement shall be not less than 8.75 inches.

d. Soil classes are in accordance with the Unified Soil Classification System and design lateral soil loads are for moist conditions without hydrostatic pressure. Refer to Table R401.4.1(2).

e. Unbalanced backfill height is the difference in height between the exterior finish ground level and the lower of the top of the concrete footing that supports the foundation wall or the interior finish ground levels. Where an interior concrete slab-on-grade is provided and in contact with the interior surface of the foundation wall, measurement of the unbalanced backfill height is permitted to be measured from the exterior finish ground level to the top of the interior concrete slab is permitted.

f. The use of this table shall be prohibited for soil classifications not shown.

R404.1.4 Seismic Design Category D_0, D_1 or D_2.

R404.1.4.1 Masonry foundation walls. In *buildings* assigned to *Seismic Design Category* D_0, D_1 or D_2, as established in Table R301.2, masonry foundation walls shall comply with TMS 402 or the provisions of this section. In addition to the requirements of Table R404.1.2.1(1), plain masonry foundation walls shall comply with the following:

1. Wall height shall not exceed 8 feet (2438 mm).
2. Unbalanced backfill height shall not exceed 4 feet (1219 mm).
3. Minimum nominal thickness for plain masonry foundation walls shall be 8 inches (203 mm).
4. Masonry stem walls shall have a minimum vertical reinforcement of one No. 4 (No. 13) bar located not greater than 4 feet (1219 mm) on center in grouted cells. Vertical reinforcement shall be tied to the horizontal reinforcement in the footings.

Foundation walls, supporting more than 4 feet (1219 mm) of unbalanced backfill or exceeding 8 feet (2438 mm) in height shall be constructed in accordance with Table R404.1.2.1(2), R404.1.2.1(3) or R404.1.2.1(4). Masonry foundation walls shall have two No. 4 (No. 13) horizontal bars located in the upper 12 inches (305 mm) of the wall.

Reason: This proposal makes several changes to clarify and improve the requirements for masonry foundation walls.

1. Table R404.1.2.1 (1) - Solid 10 inch and 12 inch masonry units are not commonly available any longer. The proposal includes

modifying this table to replace solid 10 inch and 12 inch units in favor of grouted units of the same size. In unreinforced masonry, the strength of solid grouted masonry exceeds that of masonry constructed using solid units. As such, this change provides more useful, cost-effective solutions while concurrently increasing the strength of the assembly.

2. Tables R404.1.2.1(2), R404.1.2.1(3), and R404.1.2.1(4) - In may situations, the reinforcing schedule for walls with unbalanced backfill of 4 feet (or less) and 5 feet is the same. This change proposes to remove redundant requirements at those unbalanced backfill heights.

3. R404.1.4.1 - this section provides a prescriptive solution for masonry foundation walls in Seismic Design Category D_0, D_1, or D_2. No changes to the prescriptive solution are proposed, but an option to allow an engineered design per TMS 402 (Building Code Requirements for Masonry Structures) is proposed to be added. This is useful to provide an additional option in seismic areas that could create more economical designs, and can also be used in situations where the prescriptive solution is not feasible (such as when the wall height exceeds 8 feet).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes are clarifications to reduce redundancy of foundation tables, remove outdated unit options, and provide an alternative path for engineering design of masonry foundation walls in seismic areas.

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IRC: R404.1.3, R404.1.3.1, R404.1.3.2, R404.1.3.3.7.2 (New), R404.1.3.3.7.2, R404.1.3.3.7.4, R404.1.3.3.7.5, TABLE 404.1.3.3 (New), R404.1.3.3.7.6, TABLE R404.1.3.2(1), TABLE R404.1.3.2(10) (New), ACI Chapter 44 (New), ASTM Chapter 44 (New)

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R404.1.3 Concrete foundation walls. Concrete foundation walls that support light-frame walls shall be designed and constructed in accordance with the provisions of this section, ACI 318, ACI 332, ACI CODE 440.11 or PCA 100. Concrete foundation walls that support above-grade concrete walls that are within the applicability limits of Section R608.2 shall be designed and constructed in accordance with the provisions of this section, ACI 318, ACI 332, ACI CODE 440.11 or PCA 100. Concrete foundation walls that support above-grade concrete walls that are not within the applicability limits of Section R608.2 shall be designed and constructed in accordance with the provisions of ACI 318, ACI 332, ACI CODE 440.11 or PCA 100. Where ACI 318, ACI 332, ACI CODE 440.11, PCA 100 or the provisions of this section are used to design concrete foundation walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the *jurisdiction* having authority.

R404.1.3.1 Concrete cross section. Concrete walls constructed in accordance with this code shall comply with the shapes and minimum concrete cross-sectional dimensions required by Table R608.3. Other types of forming systems resulting in concrete walls not in compliance with this section and Table R608.3 shall be designed in accordance with ACI 318 or ACI CODE 440.11.

R404.1.3.2 Reinforcement for foundation walls. Concrete foundation walls shall be laterally supported at the top and bottom. Horizontal reinforcement shall be provided in accordance with Table R404.1.3.2(1). Vertical reinforcement shall be provided in accordance with Table R404.1.3.2(2), R404.1.3.2(3), R404.1.3.2(4), R404.1.3.2(5), R404.1.3.2(6), R404.1.3.2(7) or R404.1.3.2(8) for walls reinforced with steel reinforcement or Table R404.1.3.2(10) for walls reinforced with GFRP reinforcement. Vertical steel reinforcement for flat basement walls retaining 4 feet (1219 mm) or more of unbalanced backfill is permitted to be determined in accordance with Table R404.1.3.2(9). For *basement* walls supporting above-grade concrete walls, vertical steel reinforcement shall be the greater of that required by Tables R404.1.3.2(2) through R404.1.3.2(8) or by Section R608.6 for the above-grade wall. In *buildings* assigned to *Seismic Design Category* D_0, D_1 or D_2, concrete foundation walls shall also comply with Section R404.1.4.2.

Add new text as follows:

R404.1.3.3.7.2 Glass fiber reinforced polymer (GFRP) reinforcement. GFRP reinforcement shall comply with ASTM D7957. Concrete foundation walls reinforced with GFRP reinforcement shall only be permitted in buildings assigned to Seismic Design Category A.

R404.1.3.3.7.2 Location of reinforcement in wall. The center of vertical reinforcement in *basement* walls determined from Tables R404.1.3.2(2) through R404.1.3.2(7)for walls reinforced with steel reinforcement and Table 404.1.3.2(10) for walls with GFRP reinforcement shall be located at the centerline of the wall. Vertical reinforcement in *basement* walls determined from Table R404.1.3.2(8) shall be located to provide a maximum cover of $1^1/_4$ inches (32 mm) measured from the inside face of the wall. Regardless of the table used to determine vertical wall reinforcement placement, the center of the ~~steel~~ reinforcing bars shall not vary from the specified location by more than the greater of 10 percent of the wall thickness and $^3/_8$ inch (10 mm). Horizontal and vertical reinforcement shall be located in foundation walls to provide the minimum cover required by Section R404.1.3.3.7.4.

R404.1.3.3.7.4 Support and cover. Reinforcement shall be secured in the proper location in the forms with tie wire or other bar support system to prevent displacement during the concrete placement operation. Steel reinforcement in concrete cast against the earth shall have a minimum cover of 3 inches (75 mm). Minimum cover for steel reinforcement in concrete cast in removable forms that will be exposed to the earth or weather shall be $1^1/_2$ inches (38 mm) for No. 5 bars and smaller, and 2 inches (50 mm) for No. 6 bars and larger. For concrete cast in removable forms that will not be exposed to the earth or weather, and for concrete cast in stay-in-place forms, minimum cover for steel reinforcement shall be $^3/_4$ inch (19 mm). For concrete reinforced with GFRP reinforcement the minimum cover for any exposure shall be 3/4 inch (19 mm).The minus tolerance for cover shall not exceed the smaller of one-third the required cover or $^3/_8$ inch (10 mm).

R404.1.3.3.7.5 Lap splices. Vertical and horizontal wall reinforcement shall be the longest lengths practical. Where splices are necessary in reinforcement, the length of lap splice shall be in accordance with Table R608.5.4(1) for steel reinforcement or Table 404.1.3.3 for GFRP reinforcement and Figure R608.5.4(1). The maximum gap between noncontact parallel bars at a lap splice shall not exceed the smaller of one-fifth the required lap length and 6 inches (152 mm) [see Figure R608.5.4(1)].

TABLE 404.1.3.3 MINIMUM SPLICE LENGTH FOR HORIZONTAL GFRP REINFORCEMENT[a]

No. 4 bars	No. 5 bars	No. 6 bars
26 in.	32 in.	38 in.

a. Lap splices are not permitted for vertical GFRP reinforcement unless approved by a registered design professional.

R404.1.3.3.7.6 Alternate grade of steel reinforcement and spacing. Where tables in Section R404.1.3.2 specify vertical ~~wall~~ steel reinforcement based on minimum bar size and maximum spacing, which are based on Grade 60 (414 MPa) steel reinforcement, different size bars or bars made from a different grade of steel are permitted provided that an equivalent area of steel per linear foot of wall is provided. Use of Table R404.1.3.2(9) is permitted to determine the maximum bar spacing for different bar sizes than specified in the tables or bars made from a different grade of steel. Bars shall not be spaced less than one-half the wall thickness, or more than 48 inches (1219 mm) on center.

TABLE R404.1.3.2(1) MINIMUM HORIZONTAL REINFORCEMENT FOR CONCRETE ~~BASEMENT~~ FOUNDATION WALLS~~[a, b]~~

REINFORCEMENT TYPE	MAXIMUM UNSUPPORTED WALL HEIGHT (feet)	LOCATION OF HORIZONTAL REINFORCEMENT Steel
Steel[a, b]	≤ 8	Minimum of 3 No. 4 bars placed such that there is ~~O~~one ~~No. 4~~ bar within 12 inches of the top of the wall story and one ~~No. 4 bar~~ near mid-height of the wall story.
	> 8	Minimum of four No. 4 bars placed such that there is ~~O~~one ~~No. 4 bar~~ within 12 inches of the top of the wall story and one ~~No. 4 bar~~ near third points in the wall story.
GFRP	≤ 8	Minimum of four No. 4 bars placed such that there is one bar wihtin 24 inches of the top and bottom of the wall story and one bar near the third points in the wall story.
	> 8 and ≤ 10	Minimum of five No. 4 bars placed such that there is one bar within 12 inches of the top and bottom of the wall story and one bar near the quarter points of the wall story.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa.

a. Horizontal reinforcement requirements are for reinforcing bars with a minimum yield strength of 40,000 psi and concrete with a minimum concrete compressive strength of 2,500 psi.

b. See Section R404.1.3.2 for minimum reinforcement required for foundation walls supporting above-grade concrete walls.

TABLE R404.1.3.2(10) MINIMUM VERTICAL GFRP REINFORCEMENT FOR FLAT CONCRETE WALLS [a,b]

Maximum Unsupported Wall Height (ft)	Maximum Unbalanced Fill (ft)	Minimum Vertical Reinforcement - Bar Size No, and Spacing (in.) Maximum Design Lateral Soil Load psf/ft of depth								
		GW, GP, SW, SP 30			GM, GC, SM, SM-SC and ML 45			SC, ML-CL and Inorganic CL 60		
		Nominal Wall Thickness, in.			Nominal Wall Thickness, in			Nominal Wall Thickness, in		
		6	8	10	6	8	10	6	8	10
	4	NR	NR	NR	NR	NR	NR	NR	NR	NR
	5	NR	NR	NR	5@32	NR	NR	6@31	NR	NR

8	6	5@32	NR	NR	6@26	NR	NR	6@13	6@32	NR
	7	6@29	NR	NR	6@12	6@27	NR	DR	6@19	NR
	8	6@17	6@32	6@32	DR	6@20	6@32	DR	6@10	6@19
	4	NR	NR	NR	NR	NR	NR	NR	NR	NR
	5	NR	NR	NR	5@32	NR	NR	6@29	NR	NR
	6	5@27	NR	NR	6@23	NR	NR	6@10	6@26	NR
9	7	6@25	NR	NR	6@8	6@24	NR	DR	6@62	6@28
	8	6@12	6@27	NR	DR	6@16	NR	DR	6@7	6@17
	9	6@6	6@21	6@32	DR	6@8	6@28	DR	DR	6@11
	4	NR	NR	NR	NR	NR	6@18	NR	NR	NR
	5	NR	NR	NR	5@26	NR	NR	6@27	NR	NR
	6	6@32	NR	NR	6@20	NR	NR	6@8	6@24	NR
10	7	6@22	NR	NR	6@6	6@22	NR	DR	6@13	6@21
	8	6@9	6@25	NR	DR	6@13	6@21	DR	DR	6@15
	9	DR	6@18	6@30	DR	6@6	6@16	DR	DR	6@8
	10	DR	6@11	6@20	DR	DR	6@10	DR	DR	DR

NR = Reinforcement not required.

DR = Design required.

a. Interpolation between values in these tables is not permitted. However, smaller bar sizes are permitted provided the bar cross sectional area divided by the bar spacing is greater than the bar cross sectional area divided by the bar spacing shown in the table. Bar cross sectional areas are provided in ASTM D7957-22.

b. Minimum vertical reinforcement spacing is 6 in.

Add new standard(s) as follows:

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331

CODE 440.11	Building Code Requirements for Structural Concrete Reinforced with Glass Fiber-Reinforced Polymer (GFRP) Bars—Code and Commentary
D7957/D7957M-22	Standard Specification for Solid Round Glass Fiber Reinforced Polymer Bars for Concrete Reinforcement

Reason: This proposal adds prescriptive provisions for the construction of concrete foundation walls reinforced with glass fiber reinforced polymer (GFRP) reinforcement. The design is based on ACI CODE 440.11 Building Code Requirements for Structural Concrete Reinforced with Glass Fiber-Reinforced Polymer (GFRP) Bars and limited to GFRP complying with ASTMD7957/D7957M-22—Standard Specification for Solid Round Glass Fiber Reinforced Polymer Bars for Concrete Reinforcement. Both standards are proposed as referenced standards in this code change proposal. GFRP reinforcement can significantly improve safety and durability in corrosive environments which can be present for foundation wall systems.

This proposal does not alter current means of compliance for foundation walls, but adds minimum criteria where foundation walls are to be constructed using GFRP reinforcement.

This proposal introduces concrete foundation walls reinforced with GFRP into the IRC for building assigned to Seismic Design Category A. The 2024 International Building Code permits the use of structural concrete reinforced with GFRP reinforcement in accordance with ACI CODE 440.11 for SDC A. The criteria in ACI CODE 440.11 and the assumptions used to develop the steel reinforced foundation walls currently in the IRC were used to develop these pre-engineered criteria for the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides minimum criteria for alternative means of design and construction of concrete foundation walls. It does alter current code compliance requirements.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

ACICODE 440.11 Building Code Requirements for Structural Concrete Reinforced with Glass Fiber-Reinforced Polymer (GFRP) Bars—Code and Commentary

ASTMD7957/D7957M-22 Standard Specification for Solid Round Glass Fiber Reinforced Polymer Bars for Concrete Reinforcement

RB161-25

RB162-25

IRC: R404.1.6.1 (New)

Proponents: Scot Harris, Preston Wood & Associates, LLC. Jack Preston Wood AIBD/NCBDC, representing self (scot@jackprestonwood.com)

2024 International Residential Code

Add new text as follows:

R404.1.6.1 Crawl space grade height. Where a crawl space is open to grade, the finished grade shall not be higher than 4 inches below the top of concrete or similar perimeter beams, perimeter curbs, plinths, pier caps, or slab on grade where masonry veneer is used and not less than 6 inches elsewhere. The vapor retarder with gravel topping, where specified, shall not be part of this measurement when determining crawl space grade height.

Reason: No current definition exists that explicitly state this requirement.

Structural Engineers that provide a design where the crawl space is open to grade tend to overlook the crawl space finished grade height as part of the design. Floor drains will be required and subsequent design by a Civil Engineer will be required for the floor drain outfall. A civil designer may be a separate entity to that of a structural designer where delays in delivery of the finished product may occur.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is for clarification only to reduce the likelihood of interpretations or oversights.

RB162-25

RB163-25

IRC: R404.1.8

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

Revise as follows:

R404.1.8 Rubble stone masonry. Rubble stone masonry foundation walls shall have a minimum thickness of 16 inches (406 mm), shall not support an unbalanced backfill exceeding 8 feet (2438 mm) in height, shall not support a soil pressure greater than 30 pounds per square foot per foot (4.71 kPa/m), and shall not be constructed in *Seismic Design Categories* D_0, D_1, D_2 or *townhouses* in *Seismic Design Category* C~~, as established in Figure R301.2(2)~~.

Reason: This code change proposal is editorial in nature, deleting a pointer that is no longer accurate. Figure R301.2(2) is a map of ultimate design wind speed, not Seismic Design Category. While it is possible to have Section R404.1.8 refer to Section R301.2.2.1, other citations of Seismic Design Category do not provide a pointer. Because the use of a pointer inherently requires maintenance through periodic code changes, it is preferable to match other references to Seismic Design Category and not have a pointer, thereby eliminating the need for maintenance.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposal is entirely clarification and editorial to maintain past practice, with no substantive effect.

RB163-25

RB164-25

IRC: R408.3

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R408.3 Unvented crawl space. For unvented under-floor spaces within the *building thermal envelope*, the following items shall be provided:

1. Exposed earth shall be covered with a continuous Class I vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches (152 mm) up the perimeter walls ~~stem wall~~ and shall be attached and sealed to the perimeter walls ~~stem wall~~ or insulation.
2. One of the following shall be provided for the under-floor space:
   - 2.1. Continuously operated mechanical exhaust *ventilation* at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m^2) of *crawl space* floor area, including an air pathway to the common area (such as a duct or transfer grille), ~~and perimeter walls insulated in accordance with Section N1102.2.11.1.~~
   - 2.2. *Conditioned air* supply sized to deliver at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m^2) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), ~~and perimeter walls insulated in accordance with Section N1102.2.11.1.~~
   - 2.3. Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.
   - 2.4. Dehumidification sized in accordance with manufacturer's specifications.

Reason: Underfloor dehumidification was included in the IRC with the intent of it being in a conditioned space, within the building thermal envelope, yet the IRC does not clearly state that. For the first two options, exhaust and conditioned supply, the same statement about perimeter wall insulation is repeated. Rather than repeat this a third time under the dehumidification option, a clear qualifying statement is made in the first sentence of the section. It is assumed that an unvented crawlspace is within the building thermal envelope, but this makes it clear.

1. Eliminate repeated statements to shorten and simplify the IRC.
2. "perimeter walls" of unvented crawlspaces are not always required to be insulated. Often there will be a conditioned basement space adjacent the crawlspace. The wall between is a "perimeter wall" of the crawl space but it is between two conditioned spaces and thus does not require insulation. By referencing the crawl space must be within the building thermal envelope, mention of insulation design is not necessary. This simplifies the IRC.
3. A wall between a crawlspace and basement may be wood framed and thus not a "stem wall". Though uncommon, the IRC provides prescriptive methods for a wood foundation wall. A stem wall is typically in reference to a concrete foundation wall. Use of the term "perimeter wall" is generic and not material specific.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

I have discussed this proposal with the professionals previously involved with creating the option for dehumidification, and was informed the original intent was for the crawl space to be within the thermal envelope. Therefore this proposal does not change the intended cost of construction, but simply clarifies the original intent.

RB164-25

RB165-25

IRC: R408.3

Proponents: Tom Marks, Stego Industries, LLC, representing Stego Industries

2024 International Residential Code

Revise as follows:

R408.3 Unvented crawl space. For unvented under-floor spaces, the following items shall be provided:

1. Exposed earth shall be covered with a continuous Class I vapor retarder complying with ASTM E1745. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall or insulation.
2. One of the following shall be provided for the under-floor space:
   2.1. Continuously operated mechanical exhaust *ventilation* at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m^2) of *crawl space* floor area, including an air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.11.1.

   2.2. *Conditioned air* supply sized to deliver at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m^2) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.11.1.

   2.3. Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.

   2.4. Dehumidification sized in accordance with manufacturer's specifications.

Reason: Existing code verbiage calls for simply and explicitly a Class I vapor retarder as ground cover in unvented crawl spaces. However, Class I only correlates to water vapor permeance of materials (in this case essentially sheet vapor retarder films) and, thus, does not capture other important performance characteristics necessary for this application, such as strength/durability and longevity. Although no industry-established performance standard specifically for crawl space vapor retarders exists currently, ASTM E1745 is a useful performance specification in this application. This long-standing industry standard is written around flexible plastic films engineered to provide consistent and necessary performance for effectively isolating homes from water vapor diffusion from the ground. Although historically applied to below-slab vapor retarders, the scope of ASTM E1745 includes baseline and after conditioning (i.e., in-service conditions) water vapor permeance testing, as well as material strength benchmarks, including puncture resistance and tensile strength. These are all performance characteristics useful for a vapor retarder as ground cover in an unvented crawl space. In fact, the conditioning test methods come from ASTM E154, which covers "the determination of the properties of flexible membranes to be used as vapor retarders in contact with the earth under concrete slabs, against walls, or **as ground cover in crawl spaces**."

ASTM E1745 helps ensure the crawl space vapor retarder meets consistent levels of performance critical in an unvented crawl space and contributing to the durability, indoor air quality, and cost of ownership of the home. This may not generally be achieved in new home construction with merely the use of a Class I vapor retarder, often thin gauge standard (or commodity) polyethylene sheeting. Standard poly sheeting is generally comprised of majority reprocessed raw materials, resulting in sheet films with potentially wider variations in performance characteristics from one roll to the next, particularly for some of the critical characteristics necessary for this application, such as strength and long-term vapor permeance.

A vapor retarder more susceptible to damage or deterioration over time can be especially concerning in unvented crawl spaces. That is due to an unvented crawl space being essentially within the conditioned area of the home where natural (or mechanically driven) air movement from the crawl space makes achieving dry, healthy, and clean air in the crawl space critical. By contrast, a consistently low-permeance and durable vapor retarder, which meets ASTM E1745, will be more effective in isolating the crawl space from moisture and soil-vapor from the ground. Impeding water vapor diffusion from the ground will help prevent elevated relative humidity, the culprit in mold growth, structural and/or building material failures, energy inefficiency, and other moisture-induced issues. This level of protection can reduce the long-term operating costs for the homeowner due to material damage, repairs, and remediation. It can also offer utility in impeding soil vapor, airborne dirt/dust, or other concerns originating from the soil in a crawl space, contributing to improved indoor air quality.

This update would also be in closer harmonization with proposed changes to R506.3.3 for vapor retarders beneath concrete floor slabs. ASTM E1745 is an established, recognized, and recommended standard for vapor retarders used at the foundation of homes and even now referenced in industry guidelines and programs for the crawl space vapor retarder, such as EPA's Indoor AirPlus.

Finally, this update would represent a harmonization and benefit the proposed change to BE103.5.2 in which the soil-gas retarder in crawl spaces for Radon Control Methods references back to this section of the code. The durability and longevity of the soil-gas retarder in a radon control system is critical, but even more so when used as ground cover in a crawl space, as it serves exclusively to limit the advective (via air) movement of radon gas. Now that the Radon Control Methods section of the code references the appropriate vapor retarder code section for the soil-gas retarder beneath concrete floors (R506.3), the crawl space soil-gas retarder presumably should do the same.

Bibliography: ASTM E1745 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
ASTM E154 Standard Test Method for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposed change may represent a relatively small increase in the first cost to the homebuilder. Roughly \$0.10/ft^{2}for ASTM E1745 compliant vapor retarders compared to standard Class I polyethylene sheeting of equivalent thickness.

Estimated Immediate Cost Impact Justification (methodology and variables):

The reason for the increase in material cost is simply the higher performance of the membrane. Engineered films that meet ASTM E1745 generally utilize higher quality, strategically designed raw materials. This level of film engineering results in a vapor retarder with more consistent and higher-level performance for this application.

It is important to keep in mind that the potential reduced operational costs for the homeowner may far outweigh the relatively low first costs to the builder. A more durable and effective vapor retarder will impede more moisture vapor diffusion from the ground, helping to lower relative humidity and the potential for condensation within the crawl space. Condensation can lead to myriad destructive and costly issues, including structural concerns, building material failures, mold growth, etc.

ASTM E1745 compliant vapor retarders are commonplace in the industry currently, so there is an established competitive marketplace for these products and wide availability for homebuilders and trades from manufacturers and distributors throughout the country.

The proposed change is regarding the material performance only, no change in installation requirements or practical change in installation costs.

RB165-25

RB166-25

IRC: R501.2, R502.12.1, R801.2, R802.10.2

Proponents: Greg Greenlee, SBCA, representing SBCA, Technical Director (ggreenlee@sbcacomponents.com); Jay Jones, representing Truss Plate Institute, Executive Director (jpjones@tpinst.org)

2024 International Residential Code

Revise as follows:

R501.2 Requirements. Floor construction shall be capable of accommodating all loads in accordance with Section R301 and of transmitting the resulting loads to the supporting structural elements. Premanufactured elements used as floor framing members shall be designed in accordance with approved engineering practice and have a quality program that includes quality assurance audits performed by an *approved* third-party agency.

R502.12.1 Design. Wood trusses shall be designed in accordance with *approved* engineering practice. The design, ~~and~~ manufacture, and quality criteria of metal-plate-connected wood trusses shall comply with ANSI/TPI 1. The *truss design drawings* shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed in accordance with Section R106.1. Quality assurance audits shall be performed by an *approved* third-party agency

R801.2 Requirements. Roof and ceiling construction shall be capable of accommodating all loads imposed in accordance with Section R301 and of transmitting the resulting loads to the supporting structural elements. Premanufactured elements used as roof framing members shall be designed in accordance with approved engineering practice and have a quality program that includes quality assurance audits performed by an *approved* third-party agency.

R802.10.2 Design. Wood trusses shall be designed in accordance with accepted engineering practice. The design, ~~and~~ manufacture, and quality criteria of metal-plate-connected wood trusses shall comply with ANSI/TPI 1. The *truss design drawings* shall be prepared by a *registered design professional* where required by the statutes of the *jurisdiction* in which the project is to be constructed in accordance with Section R106.1. Quality assurance audits shall be performed by an *approved* third-party agency.

Reason: These modifications reinforce that the quality requirements included in TPI 1 are required in the IRC to align with the requirements of the IBC, and require that premanufactured floor and roof framing members have quality assurance audits performed by an approved third-party agency.

There has been much confusion in the industry about the quality control and quality assurance requirements regarding metal plate connected wood trusses. Currently the IRC indicates that the design and manufacturing requirements of metal plate connected wood trusses shall conform to TPI 1. The IRC does not specifically state that the quality criteria of TPI 1 need to be followed, so clarification is needed.

The quality criteria in TPI 1 requires truss manufacturers to have a quality control manual, perform frequent quality control inspections, and have periodic quality assurance audits. The standard states that the truss manufacturers methods shall be subject to periodic audits for compliance with the requirements of TPI 1 by an approved agency per the IRC, or the IBC, where required by local authorities having jurisdiction, or by other means.

The IBC requires the periodic audits be performed by an approved third-party auditor. Having third-party audits is an important part of a quality management system. It focuses on the documented processes and policies and provides confidence that quality requirements will be fulfilled. It helps the manufacturer form a strategy for how it will proactively approach quality. Currently the IRC does not include the same requirement.

Commonly component manufacturers fabricate metal plate connected wood trusses for both structures built under the purview of the IRC and the IBC, so this change would not impact those manufacturers. It would only impact manufacturers that fabricate metal plate connected wood trusses only for IRC projects where the quality audits are performed by a member of the quality assurance staff.

Cost Impact: Increase

Estimated Immediate Cost Impact:

When amortized across all the truss projects a component manufacturer does, the cost of quarterly third-party audits is less than $1 per house.

Estimated Immediate Cost Impact Justification (methodology and variables):

Audits performed by third-party agencies cost around $350 dollars each and are typically performed quarterly. A small to average truss plant will manufacture around 500 truss packages a year. For these plants the additional cost per house would be less than $3/house. This assumes that the truss plant isn't doing any trusses constructed in compliance with the IBC which currently requires an audit.

Where truss manufacturers manufacture trusses for projects under both the IRC and the IBC there is no additional cost to construction. SBCA estimates that approximately 50 percent of the truss manufacturing facilities currently have audits performed by an accredited third-party auditor. However, the 50 percent of the truss facilities that currently have audits represent over 75 percent of the trusses that are manufactured annually. Therefore, the average cost increase across all houses constructed is less than $1/house.

RB166-25

RB167-25

IRC: SECTION 202 (New), R502.1.1.1 (New), R602.1.1.1 (New), R602.1.1.1.1 (New), R702.3.2.1 (New), R703.5.2.3 (New), R802.1.1.1 (New), ASTM Chapter 44 (New)

Proponents: Garian Cika, City of Eugene, representing City of Eugene

2024 International Residential Code

Add new definition as follows:

SALVAGE LUMBER. Sawn lumber that has been previously used in buildings or other structures.

Add new text as follows:

R502.1.1.1 Salvage Lumber. Used or salvaged sawn lumber shall be permitted to be used in accordance with Section R602.1.1.1.

R602.1.1.1 Salvage Lumber. *Salvage lumber* shall be free of areas of decay and insect damage. *Salvage lumber* shall be permitted for use in structural applications in accordance with Section R602.1.1.1.1. *Salvage lumber* that does not meet the provisions of Section R602.1.1.1.1shall be permitted for use in non-structural applications.

R602.1.1.1.1 Salvage Lumber in Structural applications. *Salvage lumber* used in structural applications shall be free of locations where net section has been reduced. Each piece of salvage lumber to be used in structural applications shall be proof loaded in flat-wise, third-point bending in accordance with ASTM D4761 to 2.1 times the reference bending design value, adjusted by the flat use factor, assigned to the selected grade of lumber in the AWC NDS. Pieces of *salvage lumber* that do not exhibit structural failure at a load corresponding to 2.1 times the reference bending design value shall be permitted for use in structural applications.

Exception: *Salvage lumber* identified by an existing *grade mark* in accordance with Section R602.1.1 shall be permitted to use 90% of the design values assigned to that grade of sawn lumber in the AWC NDS provided the following conditions are met:

1. The *salvage lumber* is free of locations where net section has been reduced.
2. A visual inspection of the salvage lumber shows no sign of failure.
3. It is known that the *salvage lumber* has not been subjected to sustained exposure to elevated temperatures above 100°F (38°C).

R702.3.2.1 Salvage Lumber. Used or salvaged sawn lumber shall be permitted to be used in accordance with Section R602.1.1.1.

R703.5.2.3 Salvage Lumber. Used or salvaged sawn lumber shall be permitted to be used in accordance with Sections R703.5.1 and R703.5.2, in accordance with section R602.1.1.1.

R802.1.1.1 Salvage Lumber. Used or salvaged sawn lumber shall be permitted to be used in accordance with Section R602.1.1.1.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

D4761-19 Standard Test Methods for Mechanical Properties of Lumber and Wood-Based Structural Materials

Reason: Research, including studies by the Consortium for the Research on Renewable Industrial Materials (CORRIM 2010), highlights a key advantage of salvage lumber over materials reused like steel and concrete when it comes to energy use and carbon footprint (Lippke et al. 2004, Perez-Garcia et al. 2005). The timber framing industry understood this as early as the 1970s, using salvage lumber from industrial structures for new projects. Over the last 30 years, businesses selling salvage sawn lumber from deconstructed buildings have grown rapidly.

There's a significant opportunity here: since the early 1900s, more than 3 trillion board feet of lumber have been processed in the United States, much of which is still in use today (Steer 1948, Howard 2001). However, current building codes do not appear to specifically recognize the use of salvage sawn lumber, creating inconsistencies in how it's handled on job sites. Some building inspectors may allow salvage sawn lumber because it has a proven track record, while others may reject it outright due to a lack of official guidance administered by code. This uncertainty can be solved by updating codes to reflect the value of this material, permitting salvage sawn lumber to be reused safely.

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no cost impact because sawn lumber is currently allowed by code. This code proposal adds another lumber choice for builders and designers; it is not a requirement to use salvage lumber. Data showing salvage lumber is equal (or less) in cost to non-salvage lumber from Reuse Institute:

Reclaimed Lumber Prices

From: The Reuse Center, Bellingham, WA   Prices good for week of: 11/18/2024

From: 'Deconstruction Dave' Bennink, Owner   *antique wood based on rough-sawn finish, like 100 years old or older; Antique is likely Douglas Fir not Hem Fir

Warehouse phone 360-733-1363

		Reuse Center	Reuse Center	Comparison:	Comparison:	
MATERIAL TYPE	Unit Type	Standard utility grade	Antique/rustic*	Lowes Price	Lowes material	
		Price per unit	Price per unit	listed online	description	
2x4	lineal foot	$0.39	$1	$0.54	Hemfir kiln dried	Lowes
2x6	lineal foot	$0.49	$2	$0.83	Hemfir kiln dried	Lowes
2x8	lineal foot	$0.75	$2.50	$1.12	Hemfir kiln dried	Lowes
2x10	lineal foot	$1.00	$3.35	$1.49	Hemfir kiln dried	Lowes
2x12	lineal foot	$1.33	$4.00	$1.86	Premiun Grade Fir	Home Depot
4x4	lineal foot	$0.65	$2.10	1.36	Premium Grade Fir #2	Home Depot
4x6	lineal foot	$1.10	$2.50	$2.04	Premium Grade Fir #2	Home Depot
6x6 treated post	lineal foot	$2.75	$6.25 Untreated	$6.48	Pole barn treated post, rough	
6x8 treated post	lineal foot	$3.75	$9.25 Untreated	$9.18	Pole barn treated post, rough	

NOTE: Standard Utility/framing grade is lumber milled from the 1970s to present date. Antique/rustic lumber was milled 100 years ago or older. There are many boards that fall between those two date sets and their price will fall between the prices listed for reclaimed.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTM D4761-19   Standard Test Methods for Mechanical Properties of Lumber and Wood-Based Structural Materials

RB167-25

RB168-25

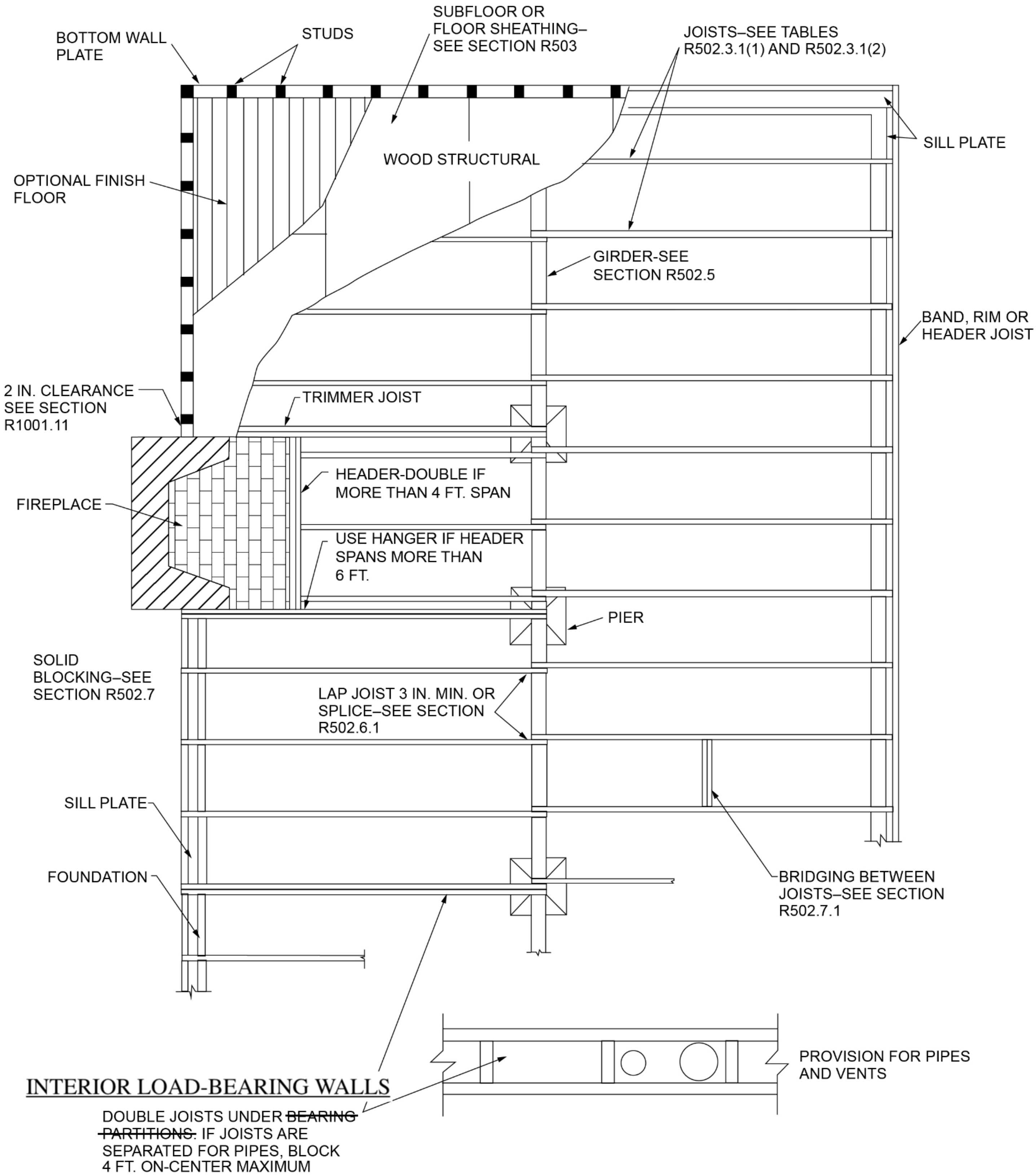
IRC: R502.2, R502.4, R602.3.2, R602.6, R802.4.5, R802.4.3, R802.5, R802.5.2.1

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R502.2 Design and construction. Floors shall be designed and constructed in accordance with the provisions of this chapter, Figure R502.2 and Sections R304 and R305 or in accordance with ANSI AWC NDS.



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE R502.2 FLOOR CONSTRUCTION

R502.4 Joists under interior load-bearing walls ~~bearing partitions~~. Joists under parallel interior *load-bearing walls* ~~bearing partitions~~

shall be of adequate size to support the load. Double joists, sized to adequately support the load, that are separated to permit the installation of piping or vents shall be full-depth solid blocked with lumber not less than 2 inches (51 mm) in nominal thickness spaced not more than 4 feet (1219 mm) on center. Interior *load-bearing walls* ~~Bearing partitions~~ perpendicular to joists shall not be offset from supporting girders~~,~~ or walls ~~or partitions~~ more than the joist depth unless such joists are of sufficient size to carry the additional load.

R602.3.2 Top plate. Wood stud walls shall be capped with a double top plate installed to provide overlapping at corners and intersections with interior *load-bearing walls* ~~bearing partitions~~. End joints in top plates shall be offset not less than 24 inches (610 mm). Joints in plates need not occur over studs. Plates shall be not less than 2-inches (51 mm) nominal thickness and have a width not less than the width of the studs.

Exception: A single top plate used as an alternative to a double top plate shall comply with the following:

1. The single top plate shall be tied at corners, intersecting walls, and at in-line splices in straight wall lines in accordance with Table R602.3.2.
2. The rafters or joists shall be centered over the studs with a tolerance of not more than 1 inch (25 mm).
3. Omission of the top plate is permitted over headers where the headers are adequately tied to adjacent wall sections in accordance with Table R602.3.2.

TABLE R602.3.2SINGLE TOP-PLATE SPLICE CONNECTION DETAILS

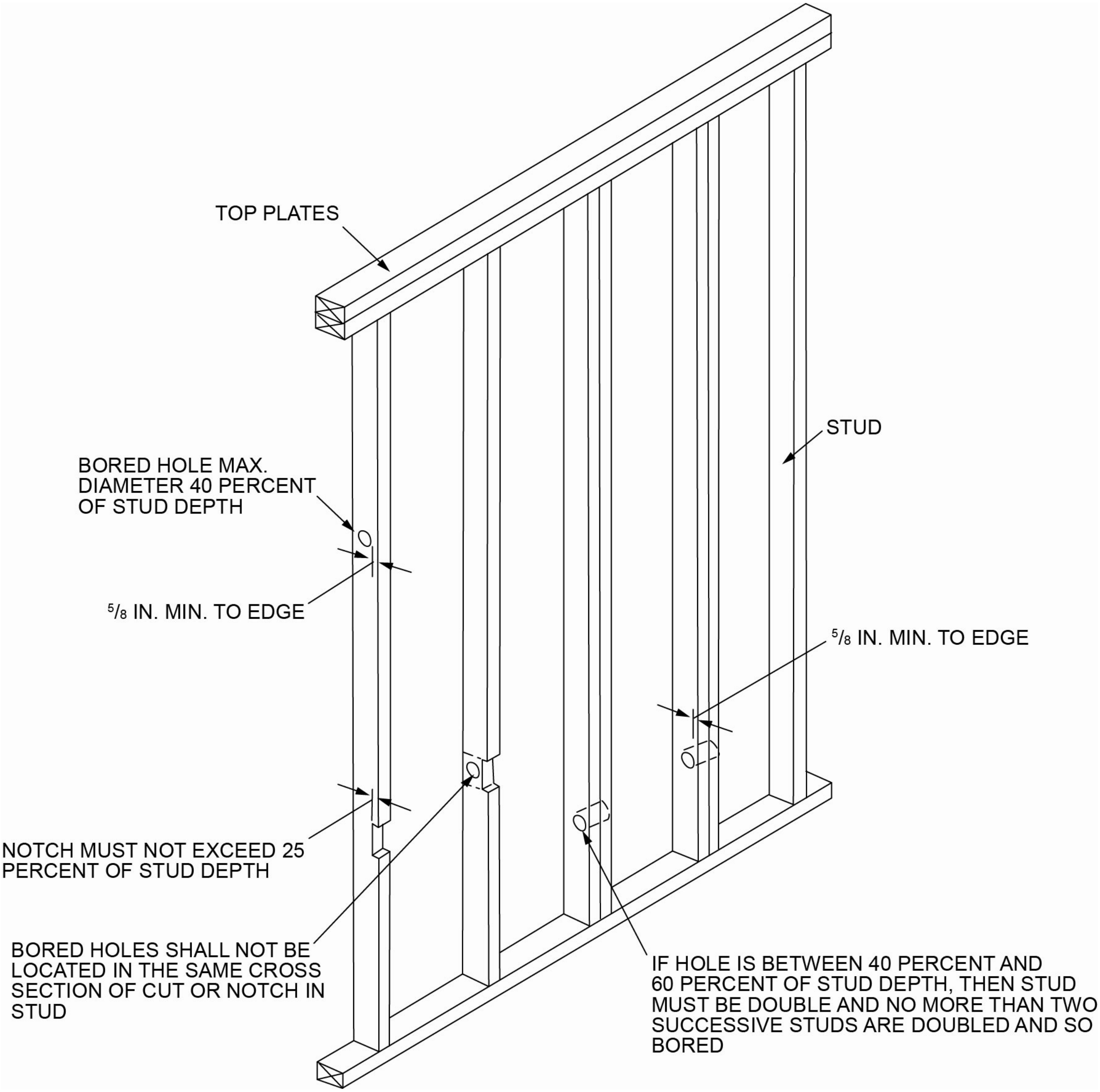
CONDITION	TOP-PLATE SPLICE LOCATION			
	Corners and intersecting walls		Butt joints in straight walls	
	Splice plate size	Minimum nails each side of joint	Splice plate size	Minimum nails each side of joint
Structures in SDC A-C; and in SDC D_0, D_1 and D_2 with braced wall line spacing less than 25 feet	3″ × 6″ × 0.036″ galvanized steel plate or equivalent	(6) 8d box ($2^1/_2$″ × 0.113″) nails	3″× 12″ × 0.036″ galvanized steel plate or equivalent	(12) 8d box ($2^1/_2$″ × 0.113″) nails
Structures in SDC D_0, D_1 and D_2, with braced wall line spacing greater than or equal to 25 feet	3″ × 8″ × 0.036″ galvanized steel plate or equivalent	(9) 8d box ($2^1/_2$″ × 0.113″) nails	3″ × 16″ × 0.036″ galvanized steel plate or equivalent	(18) 8d box ($2^1/_2$″ × 0.113″) nails

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

R602.6 Drilling and notching of studs. Drilling and notching of studs shall be in accordance with the following:

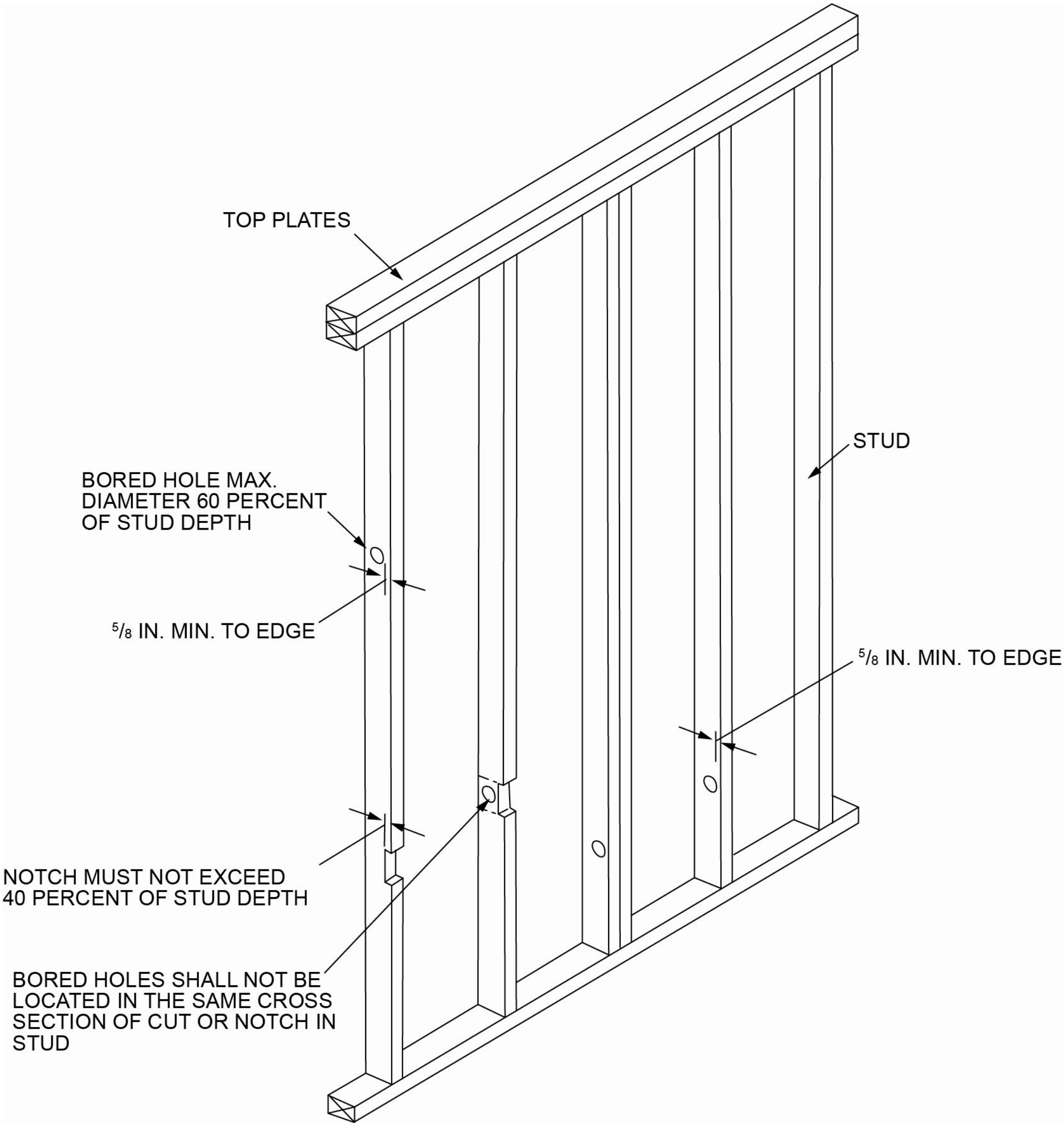
1. Notching. A stud in an exterior wall or interior *load-bearing wall* ~~bearing partition~~ shall not be cut or notched to a depth exceeding 25 percent of its depth. Studs in nonbearing interior walls ~~partitions~~ shall not be notched to a depth exceeding 40 percent of a single stud depth.
2. Boring. The diameter of bored holes in studs shall not exceed 60 percent of the stud depth, the edge of the hole shall not be less than $^5/_8$ inch (16 mm) from the edge of the stud, and the hole shall not be located in the same section as a cut or notch. Where the diameter of a bored hole in a stud located in exterior walls or interior *load-bearing walls* ~~bearing partitions~~ is over 40 percent, such stud shall be doubled and not more than two successive doubled studs shall be so bored. See Figures R602.6(1) and R602.6(2).

   Exception: Where *approved*, stud shoes are installed in accordance with the manufacturer's instructions.



For SI: 1 inch = 25.4 mm. Note: Condition for exterior and bearing walls.

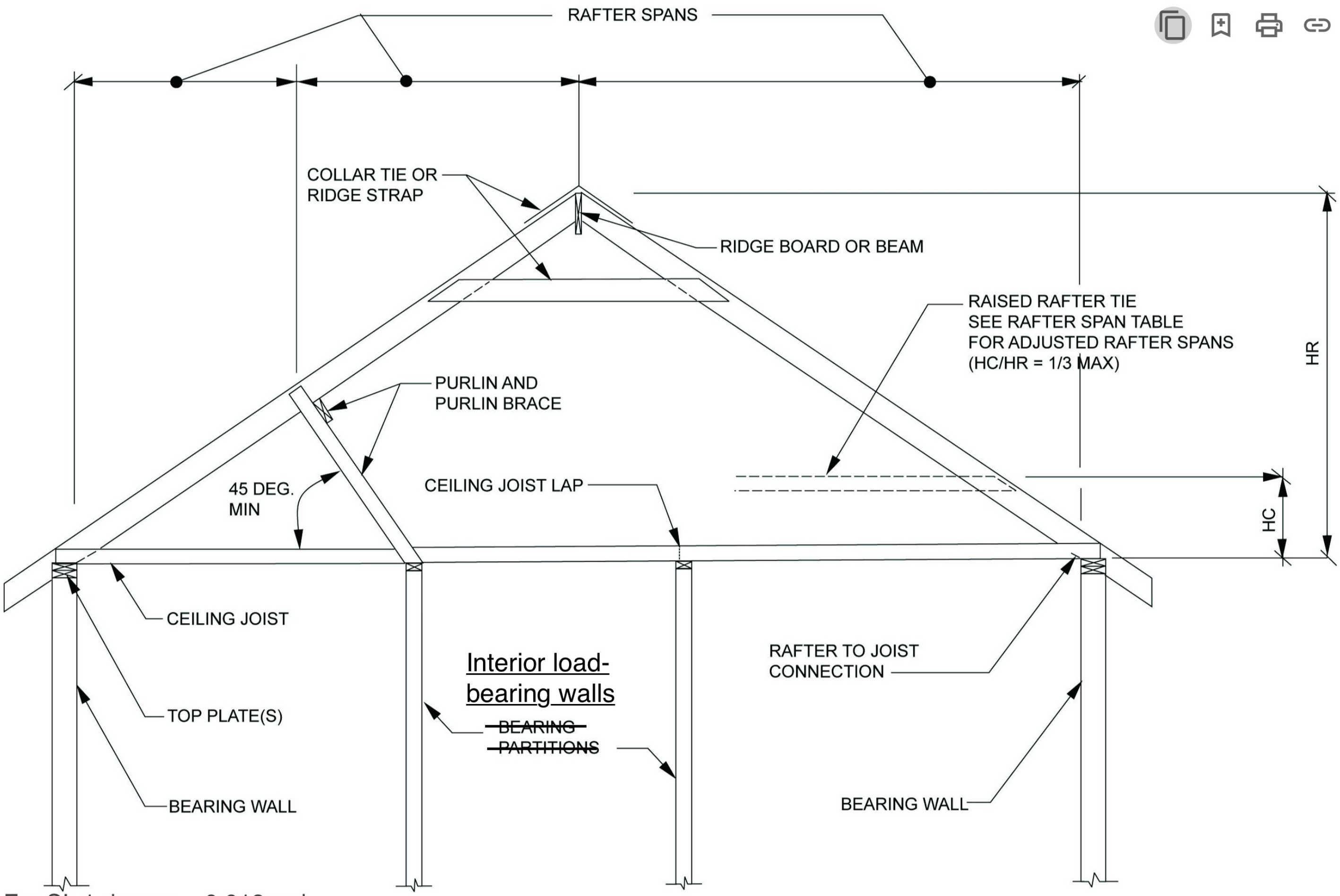
FIGURE R602.6(1) NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS



For SI: 1 inch = 25.4 mm.

FIGURE R602.6(2) NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR NONBEARING WALLS

R802.4.5 Purlins. Installation of purlins to reduce the span of rafters is permitted as shown in Figure R802.4.5. Purlins shall be sized not less than the required size of the rafters that they support. Purlins shall be continuous and shall be supported by 2-inch by 4-inch (51 mm by 102 mm) braces installed to bearing walls at a slope not less than 45 degrees (0.79 rad) from the horizontal. The braces shall be spaced not more than 4 feet (1219 mm) on center and the unbraced length of braces shall not exceed 8 feet (2438 mm).



For SI: 1 degree = 0.018 rad.
H_C = Height of ceiling joists or rafter ties measured vertically above the top of rafter support walls.
H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

FIGURE R802.4.5 BRACED RAFTER CONSTRUCTION

For SI: 1 degree = 0.018 rad.
H_C = Height of ceiling joists or rafter ties measured vertically above the top of rafter support walls. H_R = Height of roof ridge measured vertically above the top of the rafter support walls.
FIGURE R802.4.5 BRACED RAFTER CONSTRUCTION

R802.4.3 Hips and valleys. Hip and valley rafters shall be not less than 2 inches (51 mm) nominal in thickness and not less in depth than the cut end of the rafter. Hip and valley rafters shall be supported at the ridge by a brace to a *load-bearing wall* ~~bearing partition~~ or be designed to carry and distribute the specific load at that point.

R802.5 Ceiling joists. Ceiling joists shall be continuous across the structure or securely joined where they meet over interior walls ~~partitions~~ in accordance with Section R802.5.2.1. Ceiling joists shall be fastened to the top plate in accordance with Table R602.3(1).

R802.5.2.1 Ceiling joists lapped. Ends of ceiling joists shall be lapped not less than 3 inches (76 mm) or butted over *load-bearing walls* ~~bearing partitions~~ or beams and toenailed to the bearing member. Where ceiling joists are used to provide the continuous tie across the *building*, lapped joists shall be nailed together in accordance with Table R802.5.2(1) and butted joists shall be tied together with a connection of equivalent capacity. Laps in joists that do not provide the continuous tie across the *building* shall be permitted to be nailed in accordance with Table R602.3(1).

Reason: Use of the term “partition” to describe interior walls is from historical codes. The IRC more often refers to “interior walls”. Walls is a defined term, as is “load-bearing wall”, but bearing and nonbearing partition is not. For consistency in interpretation and understanding, I am proposing replacing the term “partition” in the prescriptive wood framing provisions. Elsewhere in the code partition is used and not proposed for change. Those instances are when generally referring to an interior wall but not for structural design purposes. Often the phrase “wall and partition” is used. It is not as critical to change all those instances. Note the code section for drilling studs refers to “partitions” but the figure referenced is titled “interior nonbearing wall” and the text in R602.6.1 refers to the complete defined term “load-bearing wall”.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not affect the application or intent of the IRC and is only intended to make interpretation more consistent.

RB168-25

RB169-25

IRC: TABLE R502.3.1(1), TABLE R502.3.1(2)

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

Revise as follows:

TABLE R502.3.1(1) FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES (Residential sleeping areas, live load = 30 psf, L/Δ = 360)[a]

Portions of table not shown remain unchanged.

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum floor joist spans							
			(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)
12	Southern pine	SS	12-3	16-2	20-8	25-1	12-3	16-2	20-8	25-1
	Southern pine	#1	11-10	15-7	19-10	24-2	11-10	15-7	18-7	22-0
	Southern pine	#2	11-3	14-11	18-1	21-4	10-9	13-8	16-2	19-1
	Southern pine	#3	9-2	11-6	~~14-0~~13-11	16-6	8-2	10-3	12-6	14-9
16	Southern pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern pine	#1	10-9	14-2	18-0	21-4	10-9	13-9	16-1	19-1
	Southern pine	#2	10-3	13-3	15-8	18-6	9-4	11-10	14-0	16-6
	Southern pine	#3	7-11	10-0	~~11-1~~12-1	14-4	7-1	8-11	10-10	12-10
19.2	Hem-fir	SS	10-1	13-4	17-0	20-8	10-1	13-4	17-0	20-7
	Hem-fir	#1	9-10	13-0	16-7	19-3	9-7	12-2	14-10	17-2
	Hem-fir	#2	9-5	12-5	15-6	~~17-1~~17-11	8-11	11-4	13-10	16-1
	Hem-fir	#3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D_0, D_1 and D_2 shall be determined in accordance with Section R301.2.2.2.

TABLE R502.3.1(2) FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES (Residential living areas, live load = 40 psf, L/Δ = 360)[b]

Portions of table not shown remain unchanged.

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum floor joist spans							
			(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)	(ft-in)
24	Southern pine	SS	8-10	11-8	14-11	18-1	8-10	11-8	14-11	18-0
	Southern pine	#1	8-6	11-3	13-1	15-7	8-1	10-3	12-0	14-3
	Southern pine	#2	7-7	9-8	11-5	13-6	~~7-0~~6-11	8-10	10-5	12-4
	Southern pine	#3	5-9	7-3	8-10	10-5	5-3	6-8	8-1	9-6

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. End bearing length shall be increased to 2 inches.

b. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D_0, D_1, and D_2 shall be determined in accordance with Section R301.2.2.2.

Reason: This proposal updates the span tables to be aligned with ASCE 7-22 and corrects errors in spans that could not be corrected by ICC staff using ICC's editorial process. The proposed spans align with those found in the ANSI/AWC 2024 *Wood Frame Construction*

Manual (WFCM).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal corrects errors and updates for floor joist spans to align with the WFCM.

RB169-25

RB170-25

IRC: R502.6, TABLE R602.3(1), FIGURE R602.3(1)

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org); Jason Smart, representing American Wood Council (jsmart@awc.org)

2024 International Residential Code

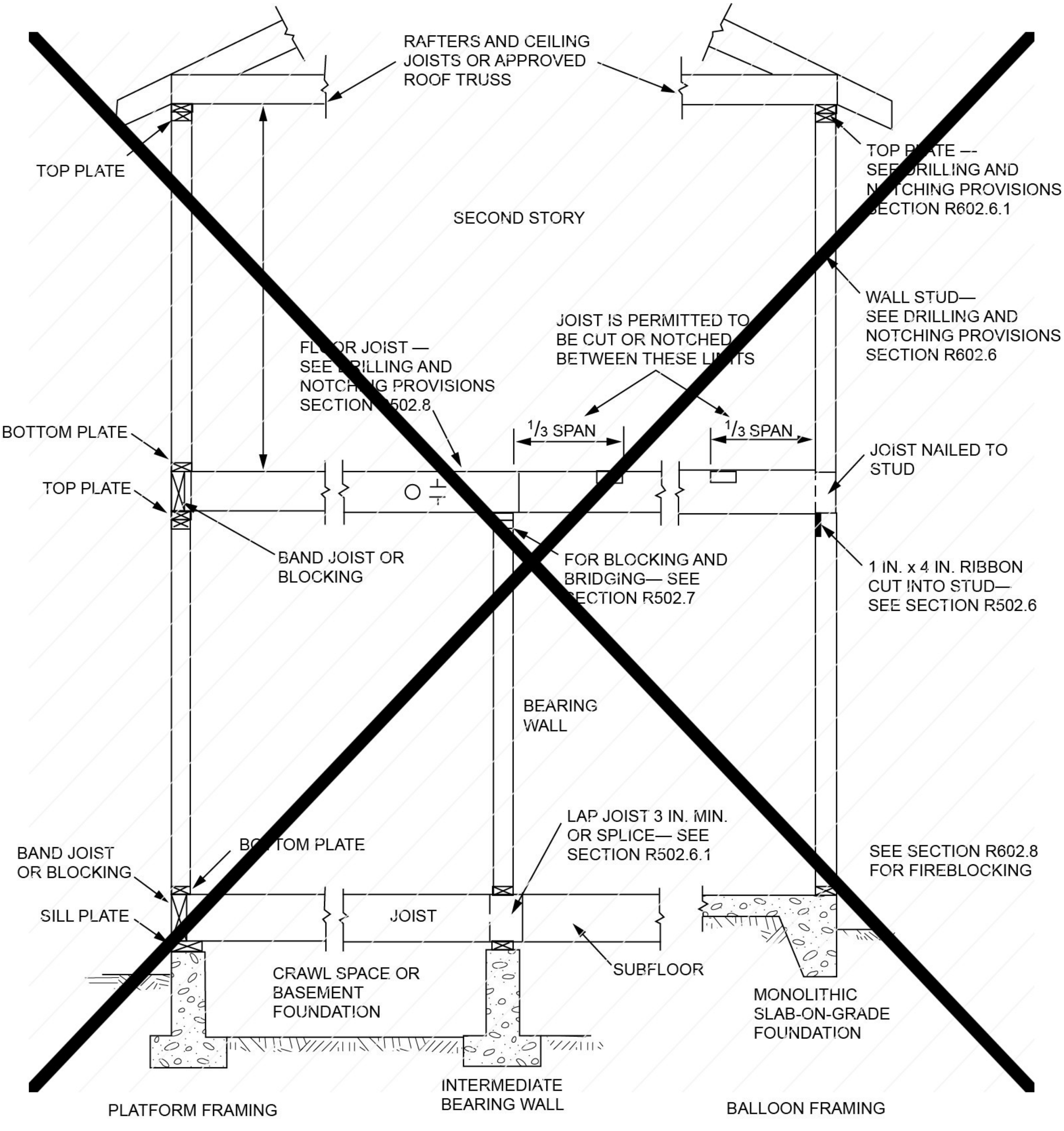
Revise as follows:

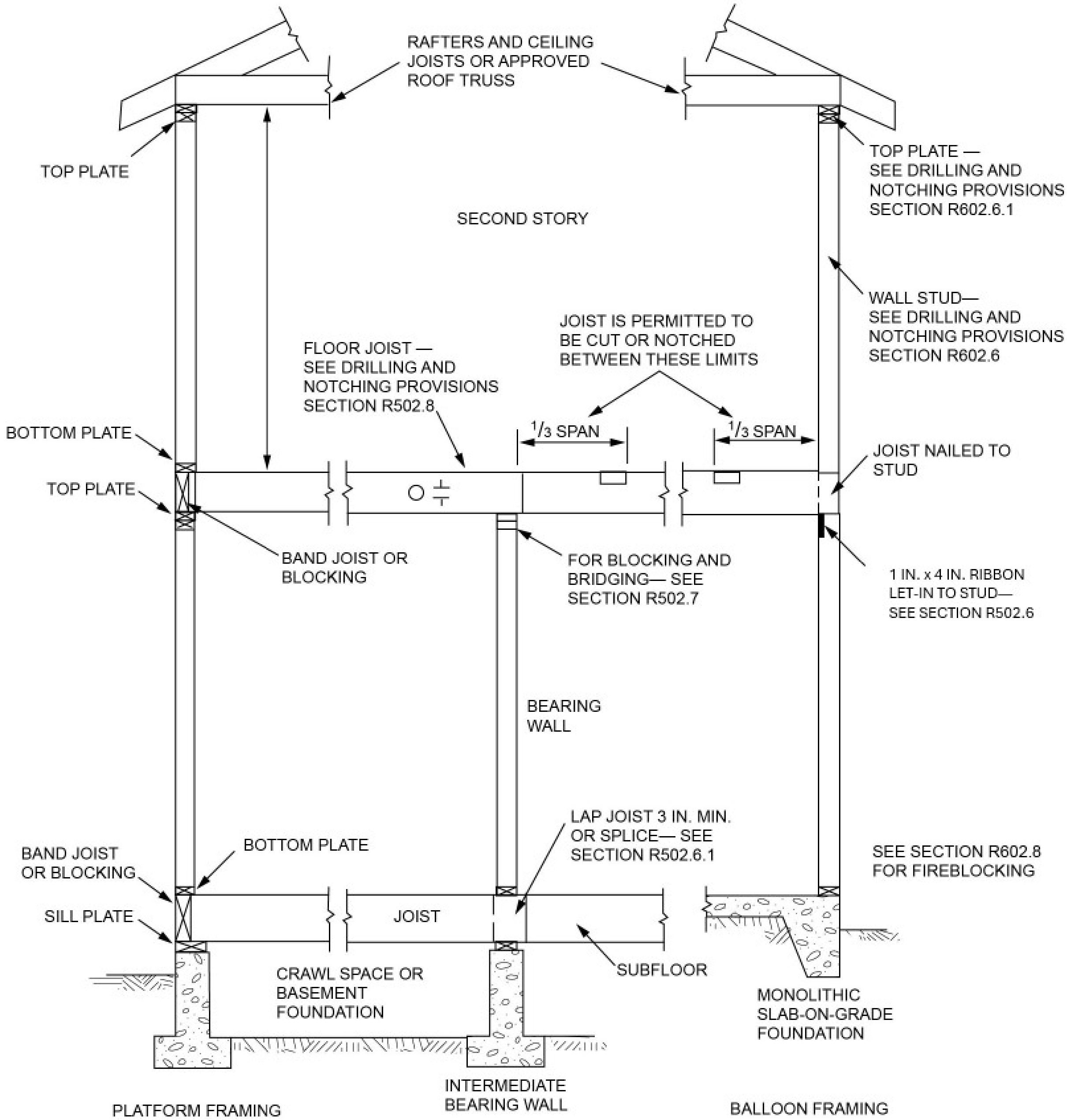
R502.6 Bearing. The ends of each joist, beam or girder shall have not less than 1$^1/_2$ inches (38 mm) of bearing on wood or metal, have not less than 3 inches of bearing (76 mm) on masonry or concrete or be supported by *approved* joist hangers. Alternatively, the ends of joists shall be supported on a 1-inch by 4-inch (25 mm by 102 mm) let-in ribbon strip and the joist and ribbon strip shall be nailed to the adjacent stud in accordance with Table R602.3(1). The bearing on masonry or concrete shall be direct, or a sill plate of 2-inch-minimum (51 mm) nominal thickness shall be provided under the joist, beam or girder. The sill plate shall provide a minimum nominal bearing area of 48 square inches (30 865 mm^2).

TABLE R602.3(1) FASTENING SCHEDULE

Portions of table not shown remain unchanged.

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING AND LOCATION
		Floor	
30	Ribbon strip to stud	3-8d box (2$^1/_2$″ × 0.113″); or 2-8d common (2$^1/_2$″ × 0.131″); or 2-10d box (3″ × 0.128″); or 2 staples, 1″ crown, 16 ga., 1$^3/_4$″ long	Face nail at each stud
31	Joist to stud where supported by ribbon strip	4-8d box (2$^1/_2$″ × 0.113″); or 3-8d common (2$^1/_2$″ × 0.131″); or 3-10d box (3″ × 0.128″); or 3-3″ × 0.131″ nails	Face nail


RAFTERS AND CEILING JOISTS OR APPROVED ROOF TRUSS
TOP PLATE
TOP PLATE — SEE DRILLING AND NOTCHING PROVISIONS SECTION R602.6.1
SECOND STORY
WALL STUD— SEE DRILLING AND NOTCHING PROVISIONS SECTION R602.6
JOIST IS PERMITTED TO BE CUT OR NOTCHED BETWEEN THESE LIMITS
FLOOR JOIST — SEE DRILLING AND NOTCHING PROVISIONS SECTION R502.8
1/3 SPAN
1/3 SPAN
BOTTOM PLATE
JOIST NAILED TO STUD
TOP PLATE
BAND JOIST OR BLOCKING
FOR BLOCKING AND BRIDGING— SEE SECTION R502.7
1 IN. x 4 IN. RIBBON CUT INTO STUD— SEE SECTION R502.6
BEARING WALL
LAP JOIST 3 IN. MIN. OR SPLICE— SEE SECTION R502.6.1
BAND JOIST OR BLOCKING
BOTTOM PLATE
SEE SECTION R602.8 FOR FIREBLOCKING
SILL PLATE
JOIST
SUBFLOOR
CRAWL SPACE OR BASEMENT FOUNDATION
MONOLITHIC SLAB-ON-GRADE FOUNDATION
INTERMEDIATE BEARING WALL
PLATFORM FRAMING
BALLOON FRAMING



For SI: 1 inch = 25.4 mm.

FIGURE R602.3(1) TYPICAL WALL, FLOOR AND ROOF FRAMING

Reason: Section R502.6 permits a ribbon strip to provide bearing for joists but does not specify how the ribbon strip is required to be let-in to the stud and fastened.

Additionally, the joists are required to be nailed to the adjacent stud, but no fasteners are specified. This code change provides provisions for proper installation of the ribbon strip and associated fastening with two new rows being added to Table R602.3(1). The nailing for "Ribbon strip to supporting joists" is based on current item #20 and the nailing for "Joist to stud where supported by ribbon strip" is based on current item #22. Additionally, the ribbon strip callout in Figure R602.3(1) has been revised from "cut-in" to "let-in" to be consistent with the common terminology used in the code.

NOTE: The existing items in Table R602.3(1) will be renumbered accordingly but are not shown for brevity.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal provides clarification for installation of ribbon strips which is already a framing option in the code.

RB171-25

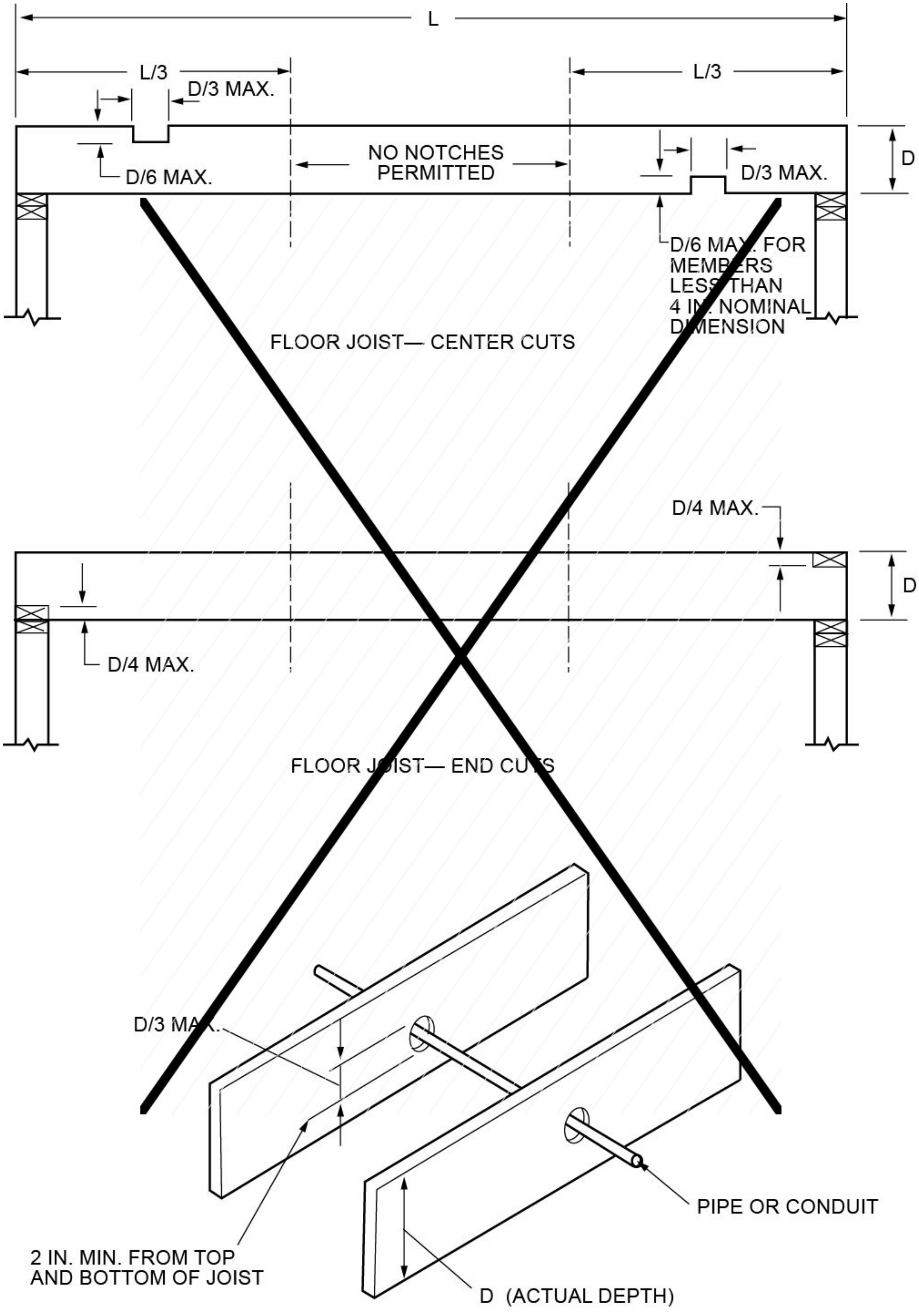
IRC: R502.8, FIGURE R502.8, R502.8.1, FIGURE R602.6(2), FIGURE R602.6(1), R602.6

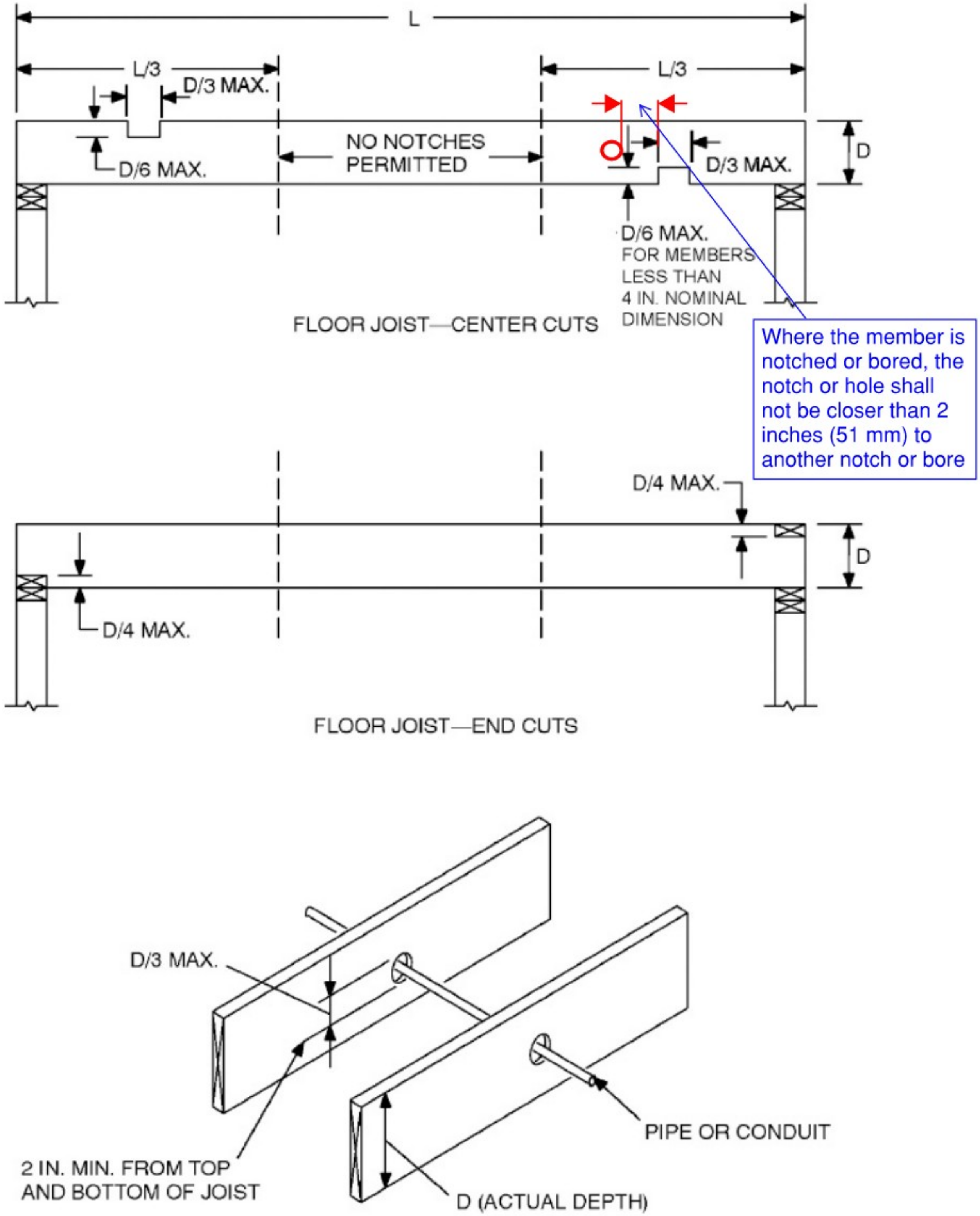
Proponents: Julius Carreon, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (jcarreon@bellevuewa.gov); Micah Chappell, Seattle Dept. of Construction and Inspections (SDCI), representing Washington Association of Building Officials Technical Code Development Committee (WABO TCD) (micah.chappell@seattle.gov)

2024 International Residential Code

R502.8 Cutting, drilling and notching. Structural floor members shall not be cut, bored or notched in excess of the limitations specified in this section. See Figure R502.8.

Revise as follows:

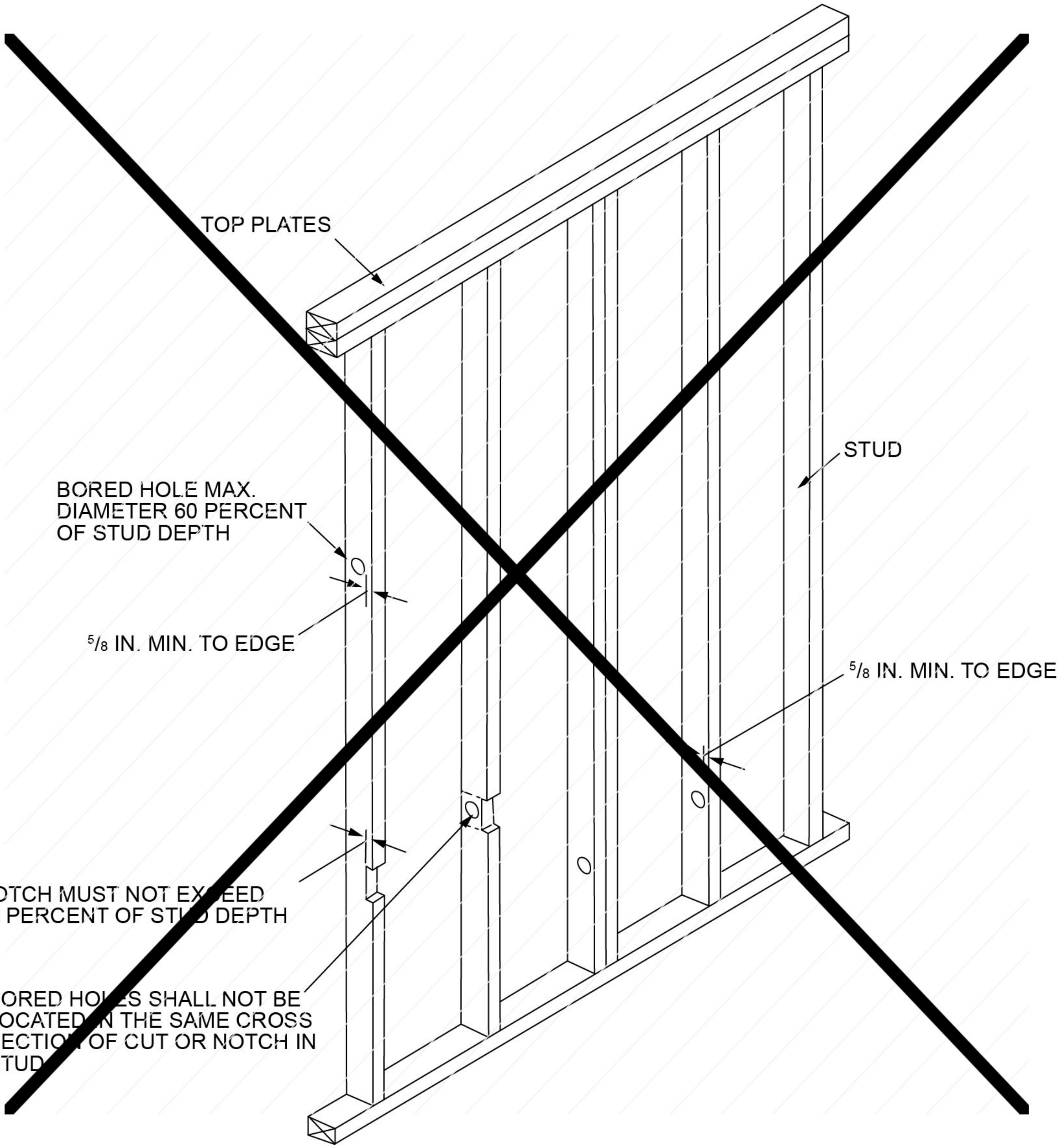

L
L/3
D/3 MAX.
L/3
NO NOTCHES
PERMITTED
D/3 MAX.
D
D/6 MAX.
D/6 MAX. FOR
MEMBERS
LESS THAN
4 IN. NOMINAL
DIMENSION
FLOOR JOIST— CENTER CUTS
D/4 MAX.
D
D/4 MAX.
FLOOR JOIST— END CUTS
D/3 MAX.
PIPE OR CONDUIT
2 IN. MIN. FROM TOP
AND BOTTOM OF JOIST
D (ACTUAL DEPTH)

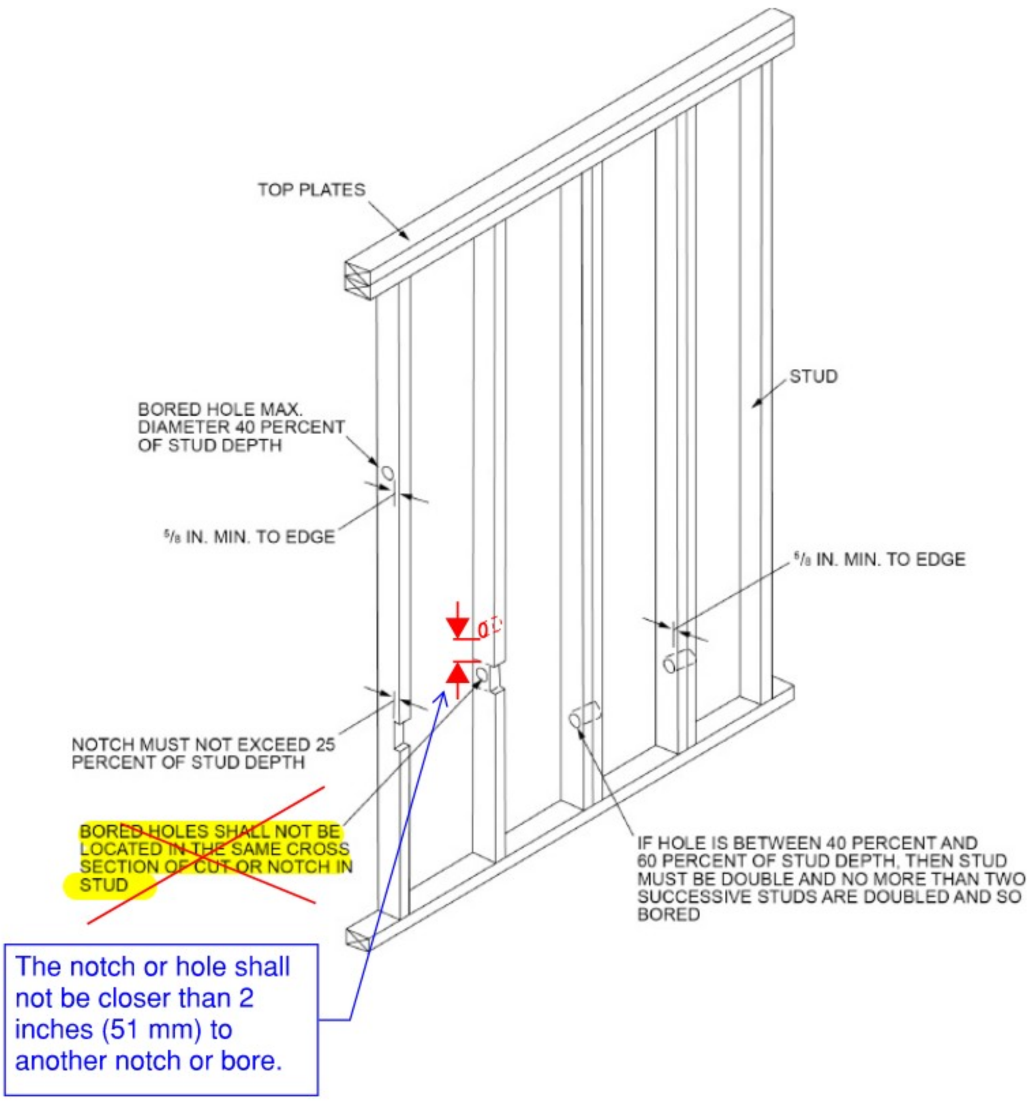


For SI: 1 inch = 25.4 mm.

FIGURE R502.8 CUTTING, NOTCHING AND DRILLING

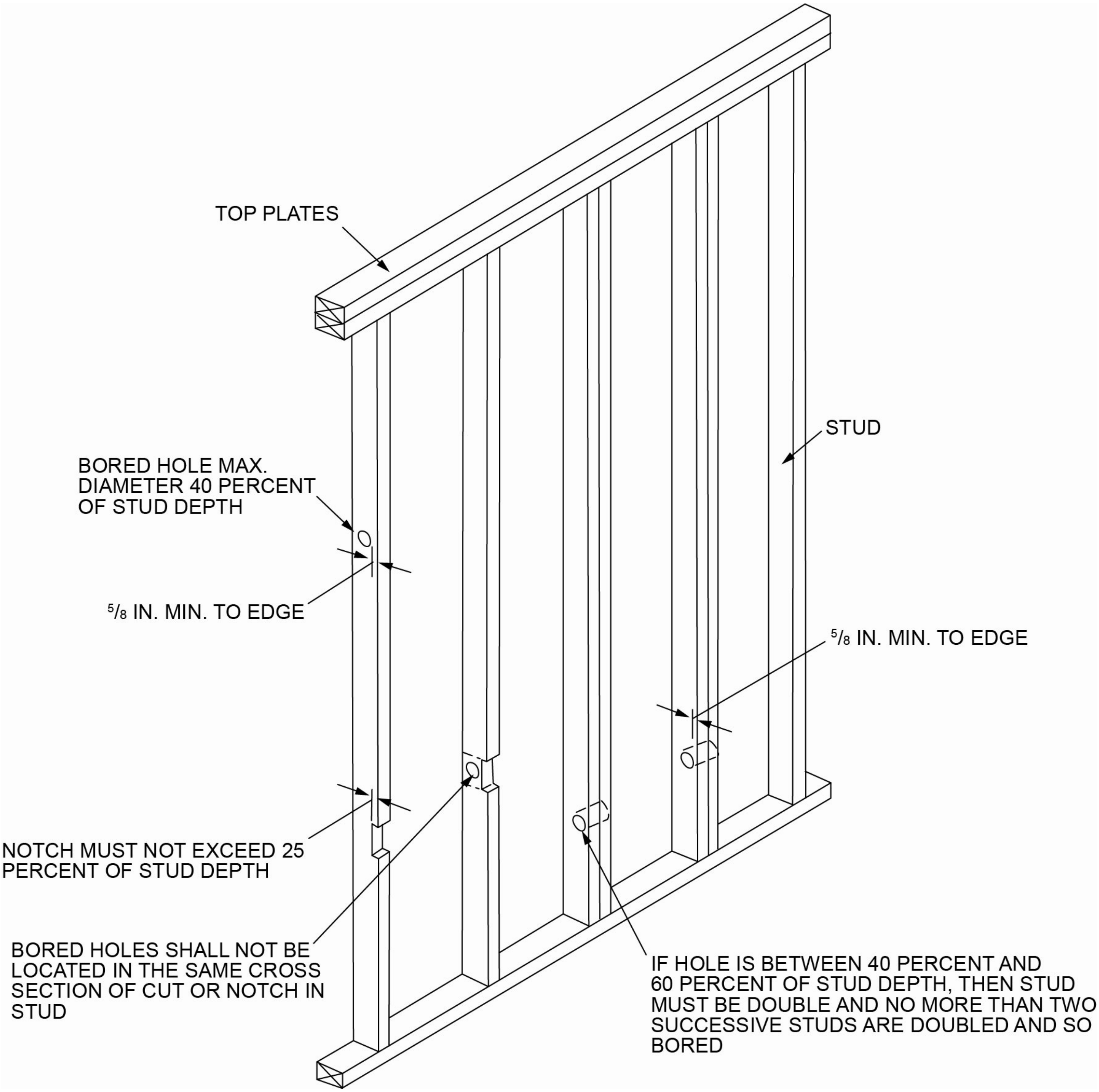
R502.8.1 Sawn lumber. Notches in solid lumber joists, rafters and beams shall not exceed one-sixth of the depth of the member, shall not be longer than one-third of the depth of the member and shall not be located in the middle one-third of the span. Notches at the ends of the member shall not exceed one-fourth the depth of the member. The tension side of members 4 inches (102 mm) or greater in nominal thickness shall not be notched except at the ends of the members. The diameter of holes bored or cut into members shall not exceed one-third the depth of the member. Holes shall not be closer than 2 inches (51 mm) to the top or bottom of the member, or to any other hole located in the member. Where the member is notched or bored, the notch or hole shall not be closer than 2 inches (51 mm) to ~~the~~ another notch or bore.





For SI: 1 inch = 25.4 mm.

FIGURE R602.6(2) NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR NONBEARING WALLS



For SI: 1 inch = 25.4 mm. **Note:** Condition for exterior and bearing walls.

FIGURE R602.6(1) NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS

R602.6 Drilling and notching of studs. <u>Notches or bores shall not be closer than 2 inches (51 mm) to another notch or bore.</u> Drilling and notching of studs shall <u>also</u> be in accordance with the following:

1. Notching. A stud in an exterior wall or bearing partition shall not be cut or notched to a depth exceeding 25 percent of its depth. Studs in nonbearing partitions shall not be notched to a depth exceeding 40 percent of a single stud depth.

2. Boring. The diameter of bored holes in studs shall not exceed 60 percent of the stud depth, the edge of the hole shall not be less than $^5/_8$ inch (16 mm) from the edge of the stud. ~~, and the hole shall not be located in the same section as a cut or notch~~. Where the diameter of a bored hole in a stud located in exterior walls or bearing partitions is over 40 percent, such stud shall be doubled and not more than two successive doubled studs shall be so bored. See Figures R602.6(1) and R602.6(2).

   Exception: Where *approved*, stud shoes are installed in accordance with the manufacturer's instructions.

Reason: This code change proposal is intended to correct **inconsistencies** in the code provisions for cutting, notching, and boring of dimensional wood framing . We believe the following proposed revisions will clarify the intent of the code requirements:

- **R502.8.1 Sawn lumber:** The proposed amendment to the last sentence clarifies that the 2-inch minimum spacing allowance applies to wood members that are either notched or bored.
- **R602.6 Drilling and Notching of Studs:** The proposed amendment makes the boring and notching requirements for wall studs consistent with the permitted 2-inch spacing requirements for joists, rafters, and beams (IBC 2308.6.1/ R502.8.1).

WABO TCD has also submitted a separate and almost identical code change proposal to the IBC Section **2308.6.1 (Floor joists, roof rafters, and ceiling joists) and IBC Section 2308.6.3 (Bored holes**), that address the same items above.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the intent of the code and does not result in any economic impact.

RB171-25

RB172-25

IRC: R502.8, R502.8.2, R502.8.1, FIGURE R502.8, R602.6 (New), R602.6.1 (New), R602.6, R602.6.1, R802.7, R802.7.2, R802.7.1, R802.7.1.1, FIGURE R802.7.1.1, R802.7.1.2, FIGURE R802.7.1.2

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

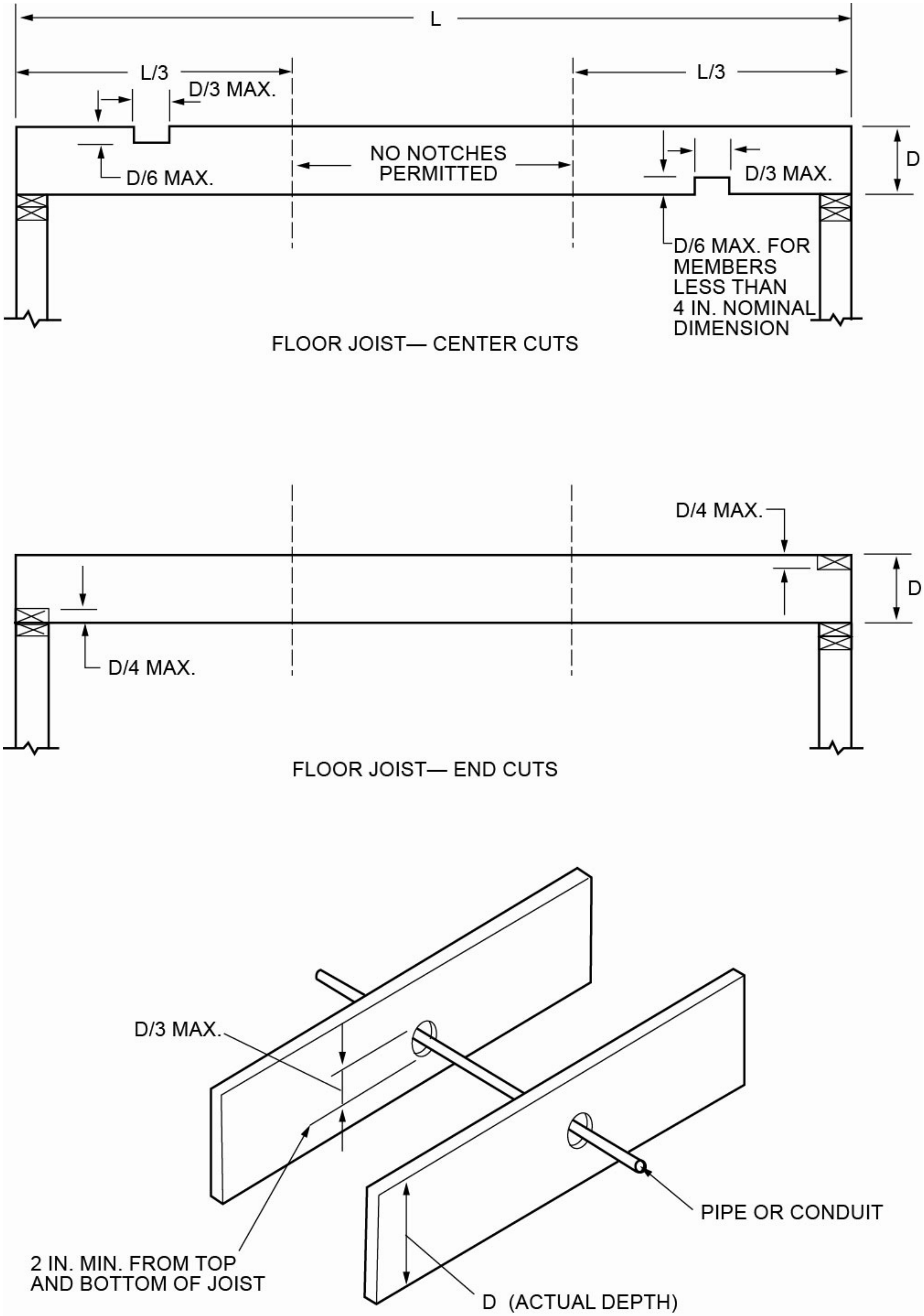
2024 International Residential Code

Revise as follows:

R502.8 Cutting, drilling and notching. Structural floor members shall not be cut, bored or notched in excess of the limitations specified in this section.~~ See Figure R502.8.~~

~~R502.8.2~~ R502.8.1 Engineered wood products. Cuts, notches and holes bored in trusses, *structural composite lumber*, structural glued-laminated ~~members~~ timber, cross-laminated timber ~~members~~ or prefabricated wood I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such *alterations* are specifically considered in the design of the member by a *registered design professional*.

~~R502.8.1~~ R502.8.2 Sawn lumber. Notches in ~~solid~~ sawn lumber joists, rafters and beams shall not exceed one-sixth of the depth of the member, shall not be longer than one-third of the depth of the member and shall not be located in the middle one-third of the span. Notches at the ends of the member shall not exceed one-fourth the depth of the member. The tension side of members 4 inches (102 mm) or greater in nominal thickness shall not be notched except at the ends of the members. The diameter of holes bored or cut into members shall not exceed one-third the depth of the member. Holes shall not be closer than 2 inches (51 mm) to the top or bottom of the member, or to any other hole located in the member. Where the member is notched, the hole shall not be closer than 2 inches (51 mm) to the notch. See Figure R502.8.2.



For SI: 1 inch = 25.4 mm.

FIGURE ~~R502.8~~ R502.8.2 CUTTING, NOTCHING AND DRILLING

Add new text as follows:

R602.6 Cutting, drilling and notching. Structural wall members shall not be cut, bored or notched in excess of the limitations specified in this section.

R602.6.1 Engineered wood products. Cuts, notches and holes bored in *structural composite lumber*, structural glue-laminated timber, *cross-laminated timber* or prefabricated wood I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such *alterations* are specifically considered in the design of the member by a *registered design professional*.

Revise as follows:

~~**R602.6**~~ **R602.6.2** ~~**Drilling and notching of studs**~~**Sawn lumber.** Drilling and notching of sawn lumber studs shall be in accordance with the following:

1. Notching. A stud in an exterior wall or bearing partition shall not be cut or notched to a depth exceeding 25 percent of its depth. Studs in nonbearing partitions shall not be notched to a depth exceeding 40 percent of a single stud depth.
2. Boring. The diameter of bored holes in studs shall not exceed 60 percent of the stud depth, the edge of the hole shall not be less than $^{5}/_{8}$ inch (16 mm) from the edge of the stud, and the hole shall not be located in the same section as a cut or notch. Where the diameter of a bored hole in a stud located in exterior walls or bearing partitions is over 40 percent, such stud shall be doubled and not more than two successive doubled studs shall be so bored. See Figures R602.6(1) and R602.6(2).

    Exception: Where *approved*, stud shoes are installed in accordance with the manufacturer's instructions.

~~**R602.6.1**~~ **R602.6.2.1 Drilling and notching of top plate.** Where piping or ductwork is placed in or partly in an exterior wall or interior *load-bearing wall*, necessitating cutting, drilling or notching of the top plate by more than 50 percent of its width, a galvanized metal tie not less than 0.054 inch thick (1.37 mm) (16 ga) and $1^{1}/_{2}$ inches (38 mm) wide shall be fastened across and to the plate at each side of the opening with not less than eight 10d (0.148 inch diameter) nails having a minimum length of $1^{1}/_{2}$ inches (38 mm) at each side or equivalent. The metal tie must extend not less than 6 inches past the opening. See Figure R602.6.1.

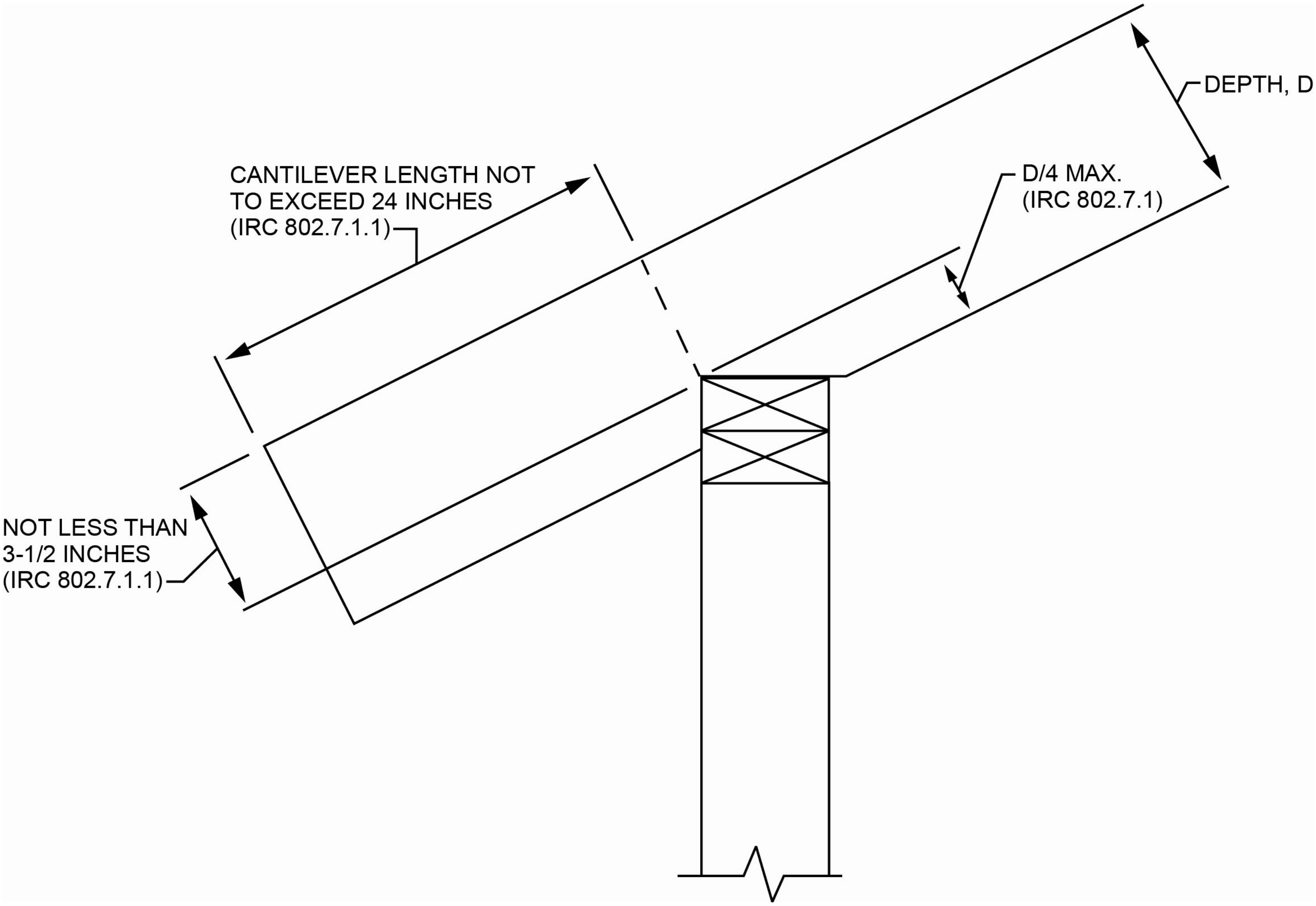
Exception: Where the entire side of the wall with the notch or cut is covered by *wood structural panel* sheathing.

R802.7 Cutting, drilling and notching. Structural roof members shall not be cut, bored or notched in excess of the limitations specified in this section.

~~**R802.8.2**~~ **R802.7.1 Engineered wood products.** Cuts, notches and holes bored in trusses, *structural composite lumber*, structural glue-laminated ~~members~~ timber, *cross-laminated timber* ~~members~~ or prefabricated wood I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such *alterations* are specifically considered in the design of the member by a *registered design professional*.

~~**R802.7.1**~~ **R802.7.2 Sawn lumber.** Cuts, notches and holes in ~~solid~~ sawn lumber joists, rafters, blocking and beams shall comply with the provisions of Section R502.8.1 except that cantilevered portions of rafters shall be permitted in accordance with Section ~~R802.7.1~~ R802.7.2.1.

~~**R802.7.1.1**~~ **R802.7.2.1 Cantilevered portions of rafters.** Notches on cantilevered portions of rafters are permitted provided the dimension of the remaining portion of the rafter is not less than $3^{1}/_{2}$ inches (89 mm) and the length of the cantilever does not exceed 24 inches (610 mm) in accordance with Figure ~~R802.7.1.1~~ R802.7.2.1.



For SI: 1 inch = 25.4 mm.

FIGURE ~~R802.7.1.1~~ R802.7.2.1 RAFTER NOTCH

~~R802.7.1.2~~ R802.7.2.2 Ceiling joist taper cut. Taper cuts at the ends of the ceiling joist shall not exceed one-fourth the depth of the member in accordance with Figure ~~R802.7.1.2~~ R802.7.2.2.

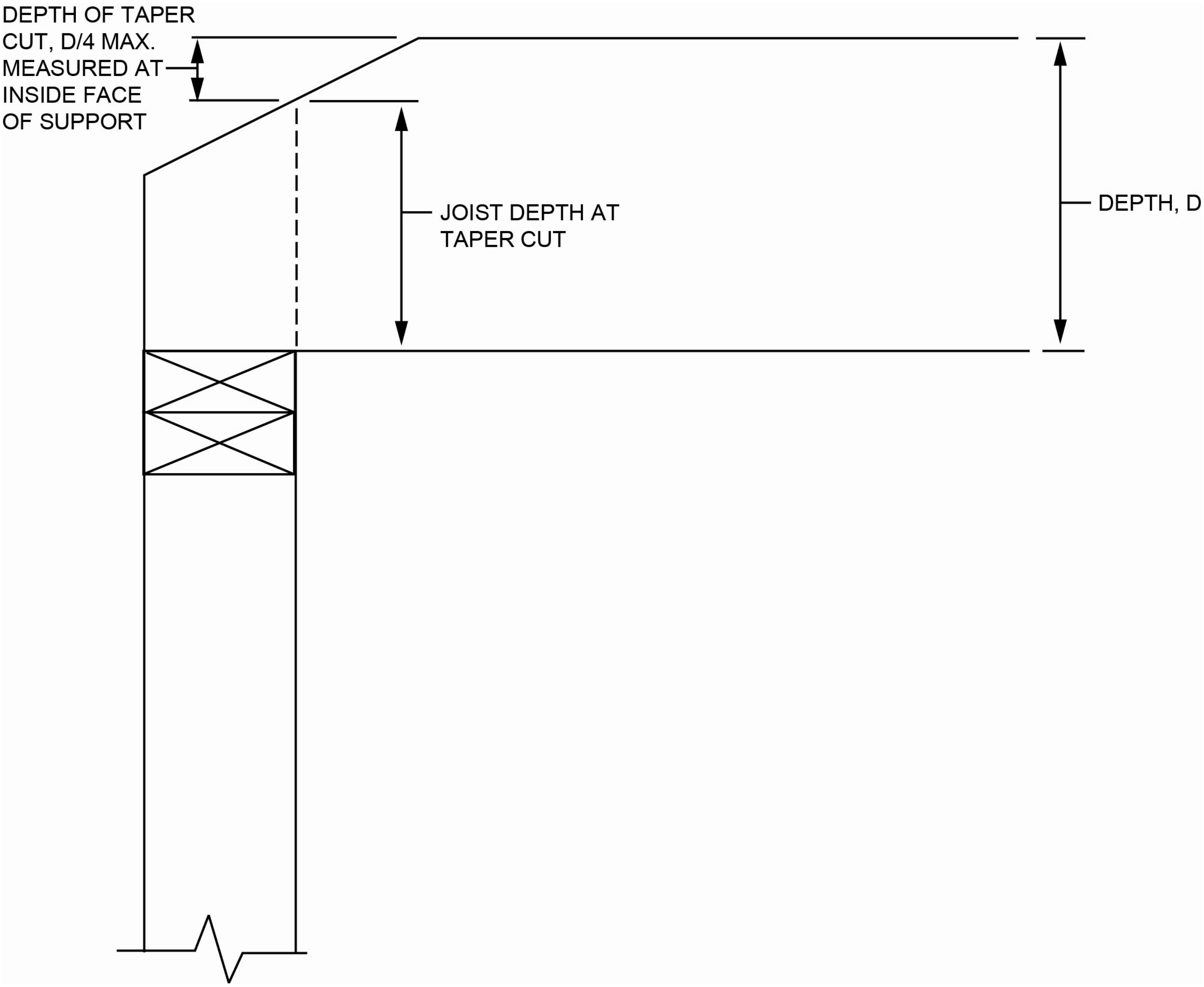


FIGURE ~~R802.7.1.2~~ R802.7.2.2 CEILING JOIST TAPER CUT

Reason: The IRC specifies that cuts, notches, and holes in engineered wood products are prohibited except where permitted by the manufacturer's recommendations for floor construction in R502.8.2 and for roof-ceiling construction in R802.7.2, but does not include such provisions in the wall framing section. This proposal adds a similar provision to the wall construction section.

Additionally, the sections have been reorganized for consistency and to prevent engineered wood product provisions from being overlooked. Terminology has been adjusted to say “sawn lumber” for technical accuracy and consistency where applicable.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change. The proposal reorganizes and adds existing provisions where it is missing and clarifies the intent.

RB172-25

RB173-25

IRC: R503.1, TABLE R503.1, TABLE R507.9.1.3(1), TABLE R703.3(1), R703.3.3, R803.1, TABLE R803.1, TABLE R905.1.1(1), R905.2.1, R905.3.1, R905.4.1, R905.4.4.1, R905.5.1, R905.6.1, R905.7.1, R905.7.1.1, R905.8.1, R905.8.1.1, R905.10.1, R905.15.1, R905.16.1

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

Revise as follows:

R503.1 Sawn Lumber sheathing. Maximum allowable spans for sawn lumber ~~used as~~ floor sheathing shall conform to Tables~~s~~ R503.1~~, R503.2.1.1(1) and R503.2.1.1(2)~~.

TABLE R503.1 MINIMUM THICKNESS OF SAWN LUMBER FLOOR SHEATHING

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per square inch = 6.895 kPa.

N/A = Not Applicable.

a. For this support spacing, sawn lumber sheathing shall have a minimum F_b of 675 and minimum E of 1,100,000 (see ANSI AWC NDS).

b. For this support spacing, sawn lumber sheathing shall have a minimum F_b of 765 and minimum E of 1,400,000 (see ANSI AWC NDS).

c. For this support spacing, sawn lumber sheathing shall have a minimum F_b of 855 and minimum E of 1,700,000 (see ANSI AWC NDS).

TABLE R507.9.1.3(1) DECK LEDGER CONNECTION TO BAND JOIST

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Interpolation permitted. Extrapolation is not permitted.

b. Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.

c. Dead Load = 10 psf. Snow load shall not be assumed to act concurrently with live load.

d. The tip of the lag screw shall fully extend beyond the inside face of the band joist. Lag screws shall be full-body diameter screws.

e. Sheathing shall be wood structural panel or ~~solid~~ sawn lumber.

f. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, sawn lumber or foam sheathing. Up to $^1/_2$-inch thickness of stacked washers shall be permitted to substitute for up to $^1/_2$ inch of allowable sheathing thickness where combined with wood structural panel or sawn lumber sheathing.

TABLE R703.3(1) SIDING MINIMUM ATTACHMENT AND MINIMUM THICKNESS

Portions of table not shown remain unchanged.

SIDING MATERIAL	NOMINAL THICKNESS (inches)	JOINT TREATMENT	TYPE OF SUPPORTS FOR THE SIDING MATERIAL AND FASTENERS					
			~~Wood~~ Sawn lumber or wood structural panel sheathing into stud	Fiberboard sheathing into stud	Gypsum sheathing into stud	Foam plastic sheathing into stud[l]	Direct to studs	Number or spacing of fasteners

R703.3.3 Fasteners. *Exterior wall coverings* shall be securely fastened with aluminum, galvanized, stainless steel or rust-preventative coated nails or staples in accordance with Table R703.3(1) or with other *approved* corrosion-resistant fasteners in accordance with the wall covering manufacturer's installation instructions. Nails and staples shall comply with ASTM F1667. Nails shall be T-head, modified round head, or round head with smooth or deformed shanks. Staples shall have a minimum crown width of $^{7}/_{16}$ inch (11.1 mm) outside diameter and be manufactured of minimum 16-gage wire. Where fiberboard, gypsum, or foam plastic sheathing backing is used, nails or staples shall be driven into the studs. Where ~~wood~~ sawn lumber sheathing or *wood structural panel* sheathing is used, fasteners shall be driven into studs unless otherwise permitted to be driven into sheathing in accordance with either the siding manufacturer's installation instructions or Table R703.3.3.

R803.1 Sawn Lumber sheathing. Allowable spans for sawn lumber ~~used as~~ roof sheathing shall conform to Table R803.1. Spaced sawn lumber sheathing for wood shingle and shake roofing shall conform to the requirements of Sections R905.7 and R905.8. Spaced sawn lumber sheathing is not allowed in *Seismic Design Category* D_2.

TABLE R803.1 MINIMUM THICKNESS OF SAWN LUMBER ROOF SHEATHING

Portions of table not shown remain unchanged.

TABLE R905.1.1(1) UNDERLAYMENT TYPES

Portions of table not shown remain unchanged.

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
Wood shakes on ~~solid~~ wood structural panels or closely fitted sawn lumber sheathing	R905.8	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Metal panels on ~~solid~~ wood structural panels or closely fitted sawn lumber sheathing	R905.10	ASTM D226 Type I or II ASTM D4869 Type I, II III or IV	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257

R905.2.1 Sheathing requirements. Asphalt shingles shall be fastened to *wood structural panels* or ~~solid~~ closely fitted sawn lumber sheathing.

R905.3.1 Sheathing requirements. Concrete and clay tile shall be installed over wood structural panels or ~~solid~~ closely fitted sawn lumber sheathing.

Exception: Spaced sawn lumber sheathing in accordance with Section R803.1 shall be permitted in *Seismic Design Categories* A, B and C.

R905.4.1 Sheathing requirements. *Metal roof shingles* shall be fastened to *wood structural panels*~~, solid lumber sheathing~~ or closely fitted sawn lumber sheathing, except where the *roof covering* is specifically designed to be applied to spaced sawn lumber sheathing.

R905.4.4.1 Wind resistance of metal roof shingles. *Metal roof shingles* fastened to *wood structural panels*~~, solid lumber sheathing~~ or closely fitted sawn lumber sheathing shall be tested in accordance with ASTM D3161, FM 4474, UL 580 or UL 1897. *Metal roof shingles* tested in accordance with ASTM D3161 shall meet the classification requirements of Table R905.4.4.1 for the appropriate maximum *basic wind speed* and the metal shingle packaging shall bear a *label* to indicate compliance with ASTM D3161 and the required classification in Table R905.2.4.1.

R905.5.1 Sheathing requirements. Mineral-surfaced roll roofing shall be fastened to *wood structural panels* or ~~solid~~ closely fitted sawn lumber sheathing .

R905.6.1 Sheathing requirements. Slate shingles shall be fastened to *wood structural panels* or ~~solid~~ closely fitted sawn lumber sheathing.

R905.7.1 Sheathing requirements. Wood shingles shall be fastened to *wood structural panels*, ~~solid~~ closely fitted sawn lumber sheathing or spaced sawn lumber sheathing. Where spaced sawn lumber sheathing is used, sheathing boards shall be not less than 1-inch by 4-inch (25 mm by 102 mm) nominal dimensions and shall be spaced on centers equal to the weather exposure from Table R905.7.6(1) to coincide with the placement of fasteners. Where 1-inch by 4-inch (25 mm by 102 mm) spaced sawn lumber sheathing is installed at 10 inches (254 mm) or greater, additional 1-inch by 4-inch (25 mm by 102 mm) boards shall be installed between the sheathing boards. Where wood shingles are installed over spaced sawn lumber sheathing and the underside of the shingles are exposed to the *attic* space, the *attic* shall be ventilated in accordance with Sections R806.1, R806.2, R806.3 and R806.4. The shingles shall not be backed with materials that will occupy the required air gap space and prevent the free movement of air on the interior side of the spaced sawn lumber sheathing.

R905.7.1.1 ~~Solid sheathing required~~ Sheathing under ice barrier. ~~In areas where the average daily temperature in January is 25°F (-4°C) or less,~~ *wood structural panels* or ~~solid~~ closely fitted sawn lumber sheathing is required on ~~that~~ portions of the roof deck ~~requiring~~ where the application of an ice barrier is required by Section R905.1.2 .

R905.8.1 Sheathing requirements. Wood shakes shall be fastened to *wood structural panels*, ~~solid~~ closely fitted sawn lumber sheathing or spaced sawn lumber sheathing. Where spaced sawn lumber sheathing is used, sheathing boards shall be not less than 1-inch by 4-inch (25 mm by 102 mm) nominal dimensions and shall be spaced on centers equal to the weather exposure from Table R905.8.7 to coincide with the placement of fasteners. Where 1-inch by 4-inch (25 mm by 102 mm) spaced sawn lumber sheathing is installed at 10 inches (254 mm) on center, additional 1-inch by 4-inch (25 mm by 102 mm) boards shall be installed between the sheathing boards. Where wood shakes are installed over spaced sawn lumber sheathing and the underside of the shakes are exposed to the *attic* space, the *attic* shall be ventilated in accordance with Sections R806.1, R806.2, R806.3 and R806.4. The shakes shall not be backed with materials that will occupy the required air gap space and prevent the free movement of air on the interior side of the spaced sawn lumber sheathing.

R905.8.1.1 ~~Solid sheathing required~~ Sheathing under ice barrier. ~~In areas where the average daily temperature in January is 25°F (-4°C) or less,~~ *wood structural panels* or ~~solid~~ closely fitted sawn lumber sheathing is required on ~~that~~ portions of the roof deck ~~requiring~~ where the application of an ice barrier is required by Section R905.1.2.

R905.10.1 Sheathing requirements. *Metal roof panel* roof coverings shall be fastened to *wood structural panels*, ~~solid~~ closely fitted sawn lumber sheathing or spaced sawn lumber sheathing, except where the *roof covering* is specifically designed to be applied to spaced supports without sheathing.

R905.15.1 Sheathing requirements. *BIPV shingles* shall be fastened to *wood structural panels*~~, solid lumber sheathing~~ or closely fitted sawn lumber sheathing, except where the *roof covering* is specifically designed to be applied over spaced sawn lumber sheathing.

R905.16.1 Sheathing requirements. *BIPV roof panels* shall be fastened to *wood structural panels*~~, solid lumber sheathing~~ or ~~closely fitted~~ closely fitted sawn lumber sheathing , except where the *roof covering* is specifically designed to be applied over spaced sawn lumber sheathing.

Reason: Code users have questioned if "lumber sheathing" is the same thing as "wood structural panels". This code change is intended to make a clearer distinction between the two by changing "lumber sheathing" to "sawn lumber sheathing" throughout. Sawn lumber is the appropriate terminology that refers to structural wood members that are not a composite and are rather sawn from a log.

Additionally, the phrase "solid sheathing" is misleading where sawn lumber is used as it leaves the code user to question if any gaps are permitted. The code also recognizes "closely fitted" as a phrase to indicate that sawn lumber used as sheathing is permitted to be installed with necessary gaps due to construction tolerances, provided they are closely fitted. Therefore the language has been cleaned up to only refer to "closely fitted" in the context of sawn lumber sheathing.

Lastly, a change has been made to the provisions for decking requirements of wood shakes and shingles to appropriately indicate Section R905.1.2 for the requirement to install an ice barrier, rather than have duplicated language in that section and the sheathing requirement sections.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed in this code change.

RB173-25

RB174-25

IRC: R506.3.3

Proponents: Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov); Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com)

2024 International Residential Code

Revise as follows:

R506.3.3 Vapor retarder. A minimum ~~6 mil (0.006 inch; 152 µm)~~ 10 mil (0.010 inch; 0.25mm) polyethylene or *approved* vapor retarder conforming to ASTM E 1745 requirementswith joints lapped not less than 6 inches (152 mm) shall be placed between the concrete floor slab and the base course or the prepared subgrade where a base course does not exist.

Exception: The vapor retarder is not required for the following:

1. Garages, utility *buildings* and other unheated *accessory structures*.
2. For unheated storage rooms having an area of less than 70 square feet (6.5 m^2) and carports.
3. Driveways, walks, patios and other flatwork not likely to be enclosed and heated at a later date.
4. Where *approved* by the *building official*, based on local site conditions.

Reason: Due to the change in the manufacturing process of polyethylene from virgin resins to post consumer products, 6mil is no longer sufficient in a generic product. The amount of post consumer polymers is not regulated. The organics in post consumer polymers break down when installed under a concrete slab in contact with soil causing premature failure of the vapor retarder. In addition to the organics, the material manufacturing is not consistent for generic polyethylene sheet material. Most manufactures use a single layer manufacturing process which results in a weaker material that is more susceptible to damage during the installation process. When workers walk on the product, the small pebbles and aggregates in the sub base materials can puncture the material resulting in an ineffective installation. The permeance rating of generic 6 mil polyethylene sheeting is 0.13 which exceeds the minimum 0.10 rating required for vapor retarders. Increasing the minimum thickness requirement will keep the integrity of the polyethylene when used in contact with soil. This keeps a prescriptive option in the code for ease of compliance for the builders and designers.

There are products on the market that can meet the performance requirements of a vapor barrier in a thinner material or a different composition. Adding the option to demonstrate compliance with ASTM E 1745 allows manufacturers to provide products that have been tested and proven to be sufficient for the application other than the generic polyethylene.

ACI 302.1R-15 “Guide to Concrete Floor and Slab Construction” highly recommends 10 mil vapor retarder in compliance with ASTM E1745 for concrete floors and slabs on grade (reference Chapter 5 Section 5.2.3.1 Vapor Retarder Permeance). Where moisture sensitive flooring (carpet, wood, linoleum, etc.…) will be installed over the concrete, a vapor retarder minimizes the transmission of moisture through the slab to the floor (reference Chapter 5 section 5.2.3 Moisture Protection). The increased thickness provides additional resiliency during construction and increases the resistance to moisture transmission for the life of the building. The current exemption addresses situations where moisture sensitive flooring is unlikely to be installed.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$22-$59

Estimated Immediate Cost Impact Justification (methodology and variables):

The median single family home is 1965 sq/ft. When the home is 2 stories with a 2 car garage, the first floor footprint requiring a vapor barrier would be reduced to 782 sq/ft. A single story house with 6 mil Polyethylene would cost $137. The same home using 10 mil would be $196 for an increase of $59. Using a 6 mil multi layer product meeting the ASTM standard would cost $245 for an increase of $108. roughly 50% of new homes are 2 stories which would reduce the average cost below these numbers.

RB174-25

RB175-25

IRC: R506.3.3

Proponents: Tom Marks, Stego Industries, LLC, representing Stego Industries

2024 International Residential Code

Revise as follows:

R506.3.3 Vapor retarder. A minimum 6 mil (0.006 inch; 152 µm) polyethylene or *approved* vapor retarder shall comply with ASTM E1745 with joints lapped not less than 6 inches (152 mm) shall be placed between the concrete floor slab and the base course or the prepared subgrade where a base course does not exist.

Exception: The vapor retarder is not required for the following:

1. Garages, utility *buildings* and other unheated *accessory structures*.
2. For unheated storage rooms having an area of less than 70 square feet (6.5 m^2) and carports.
3. Driveways, walks, patios and other flatwork not likely to be enclosed and heated at a later date.
4. Where *approved* by the *building official*, based on local site conditions.

Reason: Isolating concrete floor slabs from soil threats is a critical component to the longevity, durability, and indoor air quality of homes; as well as in helping reduce long-term operation costs for homeowners. A vapor retarder that meets ASTM E1745 represents a simple and relatively low up-front cost approach to more consistently and effectively control natural water vapor diffusion compared to 6 mil polyethylene sheeting (generally standard, commodity plastic films) referenced currently.

This is a section of the IRC that has gone through changes over the last couple cycles (2021 to 2024). The proposed change for IRC 2027 strikes a balance relative to previous verbiage and historical concerns. That is, 2021 IRC updated to a 10 mil ASTM E1745 Class A polyethylene sheet vapor retarder. But, in 2024 IRC this was reverted back to minimum 6 mil polyethylene sheet as the only prescriptive requirement, citing things like: Class A being potentially overkill for home construction, and upfront cost concerns.

However, when it comes to water vapor control between homes and the ground, ASTM E1745 is an industry-established performance standard for vapor retarders and should have a place in code for new home construction. Its scope ensures flexible sheet films meet consistent performance characteristics uniquely critical for this specific application, including baseline and after conditioning (e.g., simulated service conditions) water vapor permeance, puncture resistance, and tensile strength. The Class designations (A, B, and C) correlate to increasing strength levels. The performance benchmarks outlined in the standard are important because vapor retarders beneath concrete floor slabs should not only effectively impede water vapor diffusion but maintain a level of integrity during installation/concrete placement and over time beneath the slab. To meet this standard, vapor retarders are generally “engineered”, meaning they are specifically designed and produced to consistently meet the performance requirements outlined in ASTM E1745 and suited for this below-slab application.

Standard, commodity polyethylene sheeting may have a useful place throughout code in other applications, including vapor control or reduction in other parts of the home enclosure. But, the problems with standard, commodity polyethylene sheeting beneath concrete floor slabs are well understood and documented. As standard poly sheeting is generally comprised of reprocessed and recycled raw materials, there is often variation in performance from one roll to the next. This inevitably leads to potential inconsistency in specific performance characteristics essential for this application: effective vapor permeance over, puncture resistance, longevity beneath the slab, etc.

As such, long-standing industry guidelines and best practices have moved past the use of generic polyethylene sheeting beneath concrete slabs. Although ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture Sensitive Flooring Materials was referenced in the 2021 comment cycle, it is likely more apt to draw attention to ACI 332-20 Code Requirements for Residential Concrete and ACI 332.1R-18 Guide to Residential Concrete Construction.

ACI 332-20 provides commentary related to and referencing ASTM E1745, but (in line with the proposed change here) without a specific Class threshold required. Even more, ACI 332.1R-18 clearly states: “Membrane materials should comply with ASTM E1745.” The proposed comment aligns with ACI 332 guidance, including omitting a specific Class (e.g., Class A) level requirement. This will help reduce the first cost to the builder as it allows for more options to help meet project performance and budget needs, likely necessary in the new home construction landscape.

It may be worth noting that below-slab vapor retarders that meet ASTM E1745 are also outlined in guidance from the Portland Cement Association, EPA, and myriads of industry experts; as well as referenced in green certification programs for new homes, such as Indoor AirPlus. Incorporating ASTM E1745 as a prescriptive requirement for vapor retarders beneath concrete floor slabs would simply be aligning residential code with already established best practice.

The potential concerns to both homebuilders and homeowners as a result of unchecked (or inadequately prevented) water vapor migration into and through the concrete slab from the ground is also well understood and documented. Chief may be the potential for water vapor accumulation beneath resilient or other moisture-sensitive flooring materials, leading to adhesive and flooring failures. Floor failures are costly and impactful to remediate for the homeowner and can be a source liability for homebuilders.

There is also the potential for mold growth where water vapor accumulation (and increased RH) is realized, impacting the indoor air quality of the home. Indoor air quality may also be impacted when the vapor retarder beneath the concrete slab is serving utility as part of a radon mitigation system as well. Especially in a passive system, the performance and integrity of the vapor retarder becomes even more critical. In fact, now that the Radon Control Methods in the IRC (Appendix BE) specifically reference R506.3.3 for the soil-gas-retarder beneath slabs, it is even more beneficial to include ASTM E1745. The stakes for human health and safety get even higher when the vapor retarder/soil-gas-retarder is a component in a radon control system.

Bibliography: ASTM E1745-17 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs

ASTM E1643-11Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

ACI 332.1-18Guide to Residential Concrete Construction

ACI 332-20 Code Requirements for Residential Concrete

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposed change may represent a relatively small increase in the first cost to the homebuilder. Roughly \$0.10/ft²over standard, commodity 6 mil polyethylene sheeting.

Estimated Immediate Cost Impact Justification (methodology and variables):

The reason for the increase in material cost is simply the higher performance of the membrane. Engineered films that meet ASTM E1745 and are, thus, intended and suited specifically for vapor protection beneath concrete floor slabs utilize higher quality, strategically designed raw materials.

Previous concerns with the premium cost of an ASTM E1745 vapor retarder are, in our opinion and expertise, mischaracterized. The material cost may go up a bit more if a homebuilder used a thicker vapor retarder (such as 15 mil), but we believe the estimate provided here is more in-line with the actual material cost expected for an ASTM E1745 compliant material at equivalent thicknesses of commodity poly sheeting builders may be using currently. Keep in mind there are many existing manufacturers that make products that meet these performance levels (vapor retarders that meet ASTM E1745 have been common in commercial construction for almost 30 years). So, there is already a competitive marketplace for these products and wide availability for homebuilders and trades.

It is important to keep in mind that the lowered operational costs (e.g., reduced humidity, prevented flooring failures, etc.) likely far outweigh the relatively low first cost to the builder with the use of a higher-performance below-slab vapor retarder. Moisture-induced concrete issues, like flooring failures, can be a source of repair costs and liability for builders. With insurance premium costs rising, inexpensive preventive approaches like this will benefit builders holistically.

RB175-25

RB176-25

IRC: R506.3.3, ASTM Chapter 44 (New)

Proponents: Tom Marks, Stego Industries, LLC, representing Stego Industries

2024 International Residential Code

Revise as follows:

R506.3.3 Vapor retarder. A minimum 6 mil (0.006 inch; 152 µm) polyethylene or *approved* vapor retarder with joints lapped not less than 6 inches (152 mm) shall be placed between the concrete floor slab and the base course or the prepared subgrade where a base course does not exist. <u>The vapor retarder shall be installed in accordance with ASTM E1643.</u>

Exception: The vapor retarder is not required for the following:

1. Garages, utility *buildings* and other unheated *accessory structures*.
2. For unheated storage rooms having an area of less than 70 square feet (6.5 m^2) and carports.
3. Driveways, walks, patios and other flatwork not likely to be enclosed and heated at a later date.
4. Where *approved* by the *building official*, based on local site conditions.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

<u>E1643-24</u> <u>Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs</u>

Reason: Isolating concrete floor slabs from soil threats is a critical component to the longevity, durability, and indoor air quality of homes; as well as in helping reduce long-term operational costs for homeowners. Installing the vapor retarder per ASTM E1643 will help ensure it appropriately impedes water vapor diffusion over the life of the home without adding significant up-front costs to the homebuilder.

ASTM E1643 is the Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs. It has served as the established industry standard for below-slab vapor retarder installation, helping achieve the system performance for effectively protecting homes and efficiency for the installer.

It includes best practices for the placement, protection, inspection, and repair of the vapor retarder. Pertinent and important aspects of ASTM E1643 are generally captured in current requirements of ACI 332-20 Code Requirements for Residential Concrete, including sealing around penetrations and sealing the 6 inch overlap at seams. The goal being a continuous membrane between the bottom of the concrete slab and ground.

Indoor air quality may also be impacted when the vapor retarder beneath the concrete slab is serving utility as part of a radon mitigation system as well. Especially in a passive system, the performance and integrity of the vapor retarder becomes even more critical. In fact, now that the Radon Control Methods in the IRC (Appendix BE) specifically reference R506.3.3 for the soil-gas-retarder beneath slabs, it is even more beneficial to include ASTM E1643. The stakes for human health and safety get even higher when the vapor retarder/soil-gas-retarder is a component in a radon control system. ASTM E1643 is written with steps and best practices helpful in achieving a more airtight vapor retarder useful in radon control.

Bibliography: ASTM E1643-11 Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

ACI 332-20 Code Requirements for Residential Concrete

Cost Impact: Increase

Estimated Immediate Cost Impact:

This proposed change may represent a relatively small increase in the first cost to the homebuilder. Roughly $0.20-0.50/ft² per home.

Estimated Immediate Cost Impact Justification (methodology and variables):

The reason for the increase in material cost for potentially more specialized accessories for sealing seams, penetrations, and at the perimeter of the slab placement, as well as added installation costs for that work.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTM E1643-24 Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

RB176-25

RB177-25

IRC: R507.2.2.2

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Residential Code

R507.2.2 Plastic composite deck boards, stair treads, guards or handrails. *Plastic composite* exterior deck boards, stair treads, *guards* and *handrails* shall comply with the requirements of ASTM D7032 and this section.

Revise as follows:

R507.2.2.2 Flame spread index. *Plastic composite* deck boards, stair treads, *guards*, and *handrails* shall exhibit a *flame spread index* not exceeding 200 when tested in accordance with ASTM E84 or UL 723 with the test specimen remaining in place during the test.

~~**Exception:** *Plastic composites* determined to be noncombustible.~~

Reason: This exception is potentially misleading because plastic composites are never noncombustible materials.

Plastic composites are not noncombustible materials because all of them have a very significant fraction of plastic in them and no plastics are noncombustible. Also, wood-plastic composites have a very significant (typically more than 50%) fraction of wood, and wood is also combustible.

In order for a material to be a plastic composite it must comply with the IRC definition of a plastic composite.

IRC definitions:

PLASTIC COMPOSITE. A generic designation that refers to wood-plastic composites and plastic lumber.

This issue merits looking further into how the ASTM committees responsible for wood-plastic composites and plastic lumber describe the products.

ASTM D7032 is the standard that all plastic composite deck boards (and so on) need to comply with (see Section 507.2.2). It is under the jurisdiction of ASTM committee D7 on wood. ASTM D6032 defines as follows:

plastic lumber*—a manufactured product made primarily from plastic materials (filled or unfilled), typically used as a building material, which is usually rectangular in cross section.*
wood-plastic composite (WPC)*—a composite made primarily from wood- or cellulose-based materials and plastic(s).*

ASTM D883 is the terminology standard for the committee on plastics (ASTM D20) that is responsible for the standards on plastic lumber, including ASTM D6662.

ASTM D883 defines as follows:

plastic composite, *n—a material consisting of two or more distinct immiscible materials, at least one of which is a plastic.*

Discussion—Codes identify plastic lumber and wood/plastic composites as plastic composites, for application as materials for exterior decking, stair treads, handrails and guardrails. Codes define plastic composite as "a generic designation that refers to wood/plastic composites and plastic lumber." Outside of code use, a wide variety of plastic composites exist, which are used for many applications. Such plastic composites can contain multiple types of fibrous fillers other than wood fibers (including glass reinforcements) or even contain no fibrous components. Plastic composites have in common only that they are composed of two or more constituent materials, one of which is a plastic.

plastic lumber, *n—a manufactured product made primarily from plastic materials (filled or unfilled), typically used as a building material for purposes similar to those of traditional lumber, which is usually rectangular in cross-section.*
Discussion—Plastic lumber is typically supplied in sizes similar to those of traditional lumber board, timber and dimension lumber; however the tolerances for plastic lumber and for traditional lumber are not necessarily the same.

For a material to be classified as a noncombustible material it must pass the requirements of ASTM E136, with the details shown in section 703.3.1 of the IBC.

Clearly, neither a material made "primarily from plastic materials" nor a material made "primarily from wood- or cellulose-based materials and plastic(s)" will be able to comply with the requirements of ASTM E136.

Note: The IBC has a similar exception in section 2612.3 and I forgot to make a proposal to delete that.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The section is superfluous and potentially misleading since plastic composite materials are not noncombustible.

RB177-25

RB178-25

IRC: R507.3

Proponents: Lucas Pump, City of Cedar Rapids, representing Self (l.pump@cedar-rapids.org)

2024 International Residential Code

Revise as follows:

R507.3 Footings. Decks shall be supported on concrete footings or other *approved* structural systems designed to accommodate all loads in accordance with Section R301. Deck footings shall be sized to carry the imposed loads from the deck structure to the ground as shown in Figure R507.3.

Exceptions:

1. Footings shall not be required for free-standing decks consisting of joists directly supported on grade over their entire length.
2. Footings shall not be required for free-standing decks that meet all of the following criteria:
   - 2.1. The joists bear directly on *precast concrete* pier blocks at grade without support by beams or posts.
   - 2.2. The area of the deck does not exceed 200 square feet (18.6 m^2).
   - 2.3. The walking surface is not more than ~~20 inches (508 mm)~~ <u>30 inches (762 mm)</u> above grade at any point within 36 inches (914 mm) measured horizontally from the edge.

Reason: This proposal would match the criteria for requiring a building permit per Section R105.2 (10). If an exterior deck is under 30" above grade (and less than 200 sq. ft.) it doesn't require a permit, therefore the footing requirement should match this requirement. This also matches the language from guardrail requirements - as this height of 30" above grade has been determined to be the threshold in which the deck is more hazardous; so permitting, guardrails and other code requirements of Section 507 are required.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$100-$500 per deck . This would decrease the cost of construction of decks that are between 20" to 30" above grade because they will not be required to be on a footing.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost saving would vary based on the size of the deck and post/footing spacing would be determined by the size of the beam, but could save $100 - $500 per deck, plus the deck builder wouldn't have to wait on an inspector for a "footing inspection" on a deck that is a low hazard.

RB178-25

RB179-25

IRC: TABLE R507.3.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

TABLE R507.3.1 MINIMUM FOOTING SIZE FOR DECKS

LIVE OR GROUND SNOW LOAD[b] (psf)	TRIBUTARY AREA[e] (ft^2)	LOAD-BEARING VALUE OF SOILS[a, c, d] (psf) 1,500 Side of a square footing (inches)	1,500 Diameter of a round footing (inches)	1,500 Plain concrete thickness (inches)	2,000 Side of a square footing (inches)	2,000 Diameter of a round footing (inches)	2,000 Plain concrete thickness (inches)	≥ 3,000 Side of a square footing (inches)	≥ 3,000 Diameter of a round footing (inches)	≥ 3,000 Plain concrete thickness (inches)
	5	7	8	6	7	8	6	7	8	6
	20	10	12	6	9	9	6	7	8	6
	40	14	16	6	12	14	6	10	12	6
	60	17	19	6	15	17	6	12	14	6
40	80	20	22	7	17	19	6	14	16	6
	100	22	25	8	19	21	6	15	17	6
	120	24	27	9	21	23	7	17	19	6
	140	26	29	10	22	25	8	18	21	6
	160	28	31	11	24	27	9	20	22	7
	5	7	8	6	7	8	6	7	8	6
	20	11	13	6	10	11	6	8	9	6
	40	15	17	6	13	15	6	11	13	6
	60	19	21	6	16	18	6	13	15	6
50	80	21	24	8	19	21	6	15	17	6
	100	24	27	9	21	23	7	17	19	6
	120	26	30	10	23	26	8	19	21	6
	140	28	32	11	25	28	9	20	23	7
	160	30	34	12	26	30	10	21	24	8
	5	7	8	6	7	8	6	7	8	6
	20	12	14	6	11	12	6	9	10	6
	40	16	19	6	14	16	8	12	14	6
	60	20	23	7	17	20	6	14	16	6
60	80	23	26	9	20	23	7	16	19	6
	100	26	29	10	22	25	8	18	21	6
	120	28	32	11	25	28	9	20	23	7
	140	31	35	12	27	30	10	22	24	8
	160	33	37	13	28	32	11	23	26	9
	5	7	8	6	7	8	6	7	8	6
	20	12	14	6	11	13	6	9	10	6
	40	18	20	6	15	17	6	12	14	6
	60	21	24	8	19	21	6	15	17	6
70	80	25	28	9	21	24	8	18	20	6
	100	28	31	11	24	27	9	20	22	7
	120	30	34	12	26	30	10	21	24	8
	140	33	37	13	28	32	11	23	26	9
	160	35	40	15	30	34	12	25	28	9

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m^2, 1 pound per square foot = 0.0479 kPa.

a. Interpolation permitted, extrapolation not permitted.

b. Based on highest load case: Dead + Live or Dead + Snow.
   Dead load = 10 psf. Snow load is not assumed to be concurrent with live load.

c. Footing dimensions shall allow complete bearing of the post.

d. If the support is a brick or CMU pier, the footing shall have a minimum 2-inch projection on all sides.

e. Area, in square feet, of deck surface supported by post and footings.

Reason: The added text is provided to clarify how to use the table for the code users and be consistent with other tables in the code. This code change clarifies the use of column "LIVE OR GROUND SNOW LOADb (psf)" in the table. The table values are based on the highest load case: Dead + Live or Dead + Snow. Dead load = 10 psf. Snow load is not assumed to be concurrent with live load.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal clarifies how to use the table values.

RB179-25

RB180-25

IRC: TABLE R507.6

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

TABLE R507.6 MAXIMUM DECK JOIST SPANS

LOAD[a] (psf)	JOIST SPECIES[b]	JOIST SIZE	ALLOWABLE JOIST SPAN[b, c] (feet-inches)			MAXIMUM CANTILEVER[d, f] (feet-inches)							
			Joist spacing (inches)			Joist back span[g] (feet)							
			12	16	24	4	6	8	10	12	14	16	18
40 live load	Southern pine	2 × 6	9-11	9-0	7-7	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2 × 8	13-1	11-10	9-8	1-0	1-6	2-0	2-6	2-3	NP	NP	NP
		2 × 10	16-2	14-0	11-5	1-0	1-6	2-0	2-6	3-0	3-4	3-4	NP
		2 × 12	18-0	16-6	13-6	1-0	1-6	2-0	2-6	3-0	3-6	4-0	4-1
	Douglas fir-larch[e] Hem-fir[e] Spruce-pine-fir[e]	2 × 6	9-6	8-4	6-10	1-0	1-6	1-4	NP	NP	NP	NP	NP
		2 × 8	12-6	11-1	9-1	1-0	1-6	2-0	2-3	2-0	NP	NP	NP
		2 × 10	15-8	13-7	11-1	1-0	1-6	2-0	2-6	3-0	3-3	NP	NP
		2 × 12	18-0	15-9	12-10	1-0	1-6	2-0	2-6	3-0	3-6	3-11	3-11
	Redwood[f] Western cedars[f] Ponderosa pine[f] Red pine[f]	2 × 6	8-10	8-0	6-10	1-0	1-4	1-1	NP	NP	NP	NP	NP
		2 × 8	11-8	10-7	8-8	1-0	1-6	2-0	1-11	NP	NP	NP	NP
		2 × 10	14-11	13-0	10-7	1-0	1-6	2-0	2-6	3-0	2-9	NP	NP
		2 × 12	17-5	15-1	12-4	1-0	1-6	2-0	2-6	3-0	3-6	3-8	NP
50 ground snow load	Southern pine	2 × 6	9-2	8-4	7-4	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2 × 8	12-1	11-0	9-5	1-0	1-6	2-0	2-5	2-3	NP	NP	NP
		2 × 10	15-5	13-9	11-3	1-0	1-6	2-0	2-6	3-0	3-1	NP	NP
		2 × 12	18-0	16-2	13-2	1-0	1-6	2-0	2-6	3-0	3-6	3-10	3-10
	Douglas fir-larch[e] Hem-fir[e] Spruce-pine-fir[e]	2 × 6	8-10	8-0	6-8	1-0	1-6	1-4	NP	NP	NP	NP	NP
		2 × 8	11-7	10-7	8-11	1-0	1-6	2-0	2-3	NP	NP	NP	NP
		2 × 10	14-10	13-3	10-10	1-0	1-6	2-0	2-6	3-0	3-0	NP	NP
		2 × 12	17-9	15-5	12-7	1-0	1-6	2-0	2-6	3-0	3-6	3-8	NP
	Redwood[f] Western cedars[f] Ponderosa pine[f] Red pine[f]	2 × 6	8-3	7-6	6-6	1-0	1-4	1-1	NP	NP	NP	NP	NP
		2 × 8	10-10	9-10	8-6	1-0	1-6	2-0	1-11	NP	NP	NP	NP
		2 × 10	13-10	12-7	10-5	1-0	1-6	2-0	2-6	2-9	NP	NP	NP
		2 × 12	16-10	14-9	12-1	1-0	1-6	2-0	2-6	3-0	3-5	3-5	NP
60 ground snow load	Southern pine	2 × 6	8-8	7-10	6-10	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2 × 8	11-5	10-4	8-9	1-0	1-6	2-0	2-4	NP	NP	NP	NP
		2 × 10	14-7	12-9	10-5	1-0	1-6	2-0	2-6	2-11	2-11	NP	NP
		2 × 12	17-3	15-0	12-3	1-0	1-6	2-0	2-6	3-0	3-6	3-7	NP
	Douglas fir-larch[e] Hem-fir[e] Spruce-pine-fir[e]	2 × 6	8-4	7-6	6-2	1-0	1-6	1-4	NP	NP	NP	NP	NP
		2 × 8	10-11	9-11	8-3	1-0	1-6	2-0	2-2	NP	NP	NP	NP
		2 × 10	13-11	12-4	10-0	1-0	1-6	2-0	2-6	2-10	NP	NP	NP
		2 × 12	16-6	14-3	11-8	1-0	1-6	2-0	2-6	3-0	3-5	3-5	NP
	Redwood[f] Western cedars[f] Ponderosa pine[f] Red pine[f]	2 × 6	7-9	7-0	6-2	1-0	1-4	NP	NP	NP	NP	NP	NP
		2 × 8	10-2	9-3	7-11	1-0	1-6	2-0	1-11	NP	NP	NP	NP
		2 × 10	13-0	11-9	9-7	1-0	1-6	2-0	2-6	2-7	NP	NP	NP
		2 × 12	15-9	13-8	11-2	1-0	1-6	2-0	2-6	3-0	3-2	NP	NP
70 ground snow load	Southern pine	2 × 6	8-3	7-6	6-5	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2 × 8	10-10	9-10	8-2	1-0	1-6	2-0	2-2	NP	NP	NP	NP
		2 × 10	13-9	11-11	9-9	1-0	1-6	2-0	2-6	2-9	NP	NP	NP
		2 × 12	16-2	14-0	11-5	1-0	1-6	2-0	2-6	3-0	3-5	3-5	NP
	Douglas fir-larch[e] Hem-fir[e] Spruce-pine-fir[e]	2 × 6	7-11	7-1	5-9	1-0	1-6	NP	NP	NP	NP	NP	NP
		2 × 8	10-5	9-5	7-8	1-0	1-6	2-0	2-1	NP	NP	NP	NP
		2 × 10	13-3	11-6	9-5	1-0	1-6	2-0	2-6	2-8	NP	NP	NP
		2 × 12	15-5	13-4	10-11	1-0	1-6	2-0	2-6	3-0	3-3	NP	NP
	Redwood[f] Western cedars[f] Ponderosa pine[f] Red pine[f]	2 × 6	7-4	6-8	5-10	1-0	1-4	NP	NP	NP	NP	NP	NP
		2 × 8	9-8	8-10	7-4	1-0	1-6	1-11	NP	NP	NP	NP	NP
		2 × 10	12-4	11-0	9-0	1-0	1-6	2-0	2-6	2-6	NP	NP	NP
		2 × 12	14-9	12-9	10-5	1-0	1-6	2-0	2-6	3-0	3-0	NP	NP

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

NP = Not Permitted.

a. Dead load = 10 psf. Snow load not assumed to be concurrent with live load.

b. No. 2 grade, wet service factor included.

c. L/Δ = 360 at main span.

d. L/Δ = 180 at cantilever with a 220-pound point load applied to end.

e. Includes incising factor.

f. Incising factor not included.

g. Interpolation permitted ~~allowed~~. Extrapolation not permitted ~~is not allowed~~.

Reason: "allowed" and "not allowed" are not standard code language. In addition, all the other design tables in Section 507 are written "Interpolation permitted, extrapolation not permitted", as proposed herein. As a professional standard, consistent language is preferred.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is only for consistency of terminology and language. There is no impact to the cost of construction.

RB180-25

RB181-25

IRC: R507.6.2

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R507.6.2 Deck joist lateral restraint. Joist ends and bearing locations shall be provided with lateral resistance to prevent rotation. Where lateral restraint is provided by joist hangers or blocking between joists, their depth shall equal not less than 60 percent of the joist depth. Where lateral restraint is provided by rim joists, they shall be secured to the end of each joist with not fewer than three 10d (3-inch by 0.128-inch) (76 mm by 3.3 mm) nails or three No. 10 x 3-inch-long (76 mm) wood screws.

Exception. Where the joist cantilever length is 24 inches or less and the building is assigned to Seismic Design Category A, B or C, blocking at the support for the cantilever shall not be required.

Reason: Section R502.3.3 of the IRC requires blocking at joist bearing locations when the joist is cantilevered, but not when the cantilever length is 24 inches or less. This applies to joists that are supporting a bearing wall on their cantilevered ends, so it should be appropriate for deck joist cantilevers as well. Deck joists cantilevers are not receiving the additional load of a bearing wall supporting a roof assembly.

This change first occurred in the creation for the 2015 IRC through proposal RB247-13 from the National Association of Home Builders. Their reason statement is as follows:

The purpose of this code change proposal is to restore an exception to the requirement for full-depth blocking at the supported end of cantilever for low-seismic areas and short cantilevers. This exception was originally proposed by the Virginia Building and Code Officials Association as part of a revision to 2006 IRC Section R602.10.8 (RB225-06/07) and approved for the 2009 IRC (see 2009 IRC Section 602.10.7, Item #1). The provision made sense as the full-depth rim joist is close enough to the cantilever support (24" or less) to provide the rotational restraint that would otherwise be provided by the blocking at the support. There is no need for two closely-spaced sets of full-depth blocking in the specified case. During the ICC Ad-Hoc Wall Bracing Committee's work on the "Mothership" proposal (RB105-09/10), it was realized the provision in R602.10 conflicted with existing footnotes in Tables R502.3.3(1) and R502.3.3.(2). The Ad-Hoc Committee opted to remove the exception rather than attempting to fix the conflict, leaving just a pointer allowing cantilevered floor joists complying with Section R502.3.3 to support braced wall panels. This proposal restores the original intent of the 2006/2007 VBCOA proposal by adding the exception to the two footnotes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change will have a very minor impact of reducing the cost of deck construction, so I decided not to attempt to quantify and justify it. Often blocking material is so short it gets thrown away anyway. Some labor time is saved. Mostly this change is intended to reduce unnecessary requirements and build public trust in the requirements of the IRC.

RB181-25

RB182-25

IRC: R507.8, R507.9, R507.9.1, R507.9.1.1, R507.9.1.2, R507.9.1.3, R507.9.1.4, R507.9.1.5, R507.9.1.6, R507.9.1.7, R507.9.1.8, R507.9.2, TABLE R507.9.1.3(1), FIGURE R507.9.1.3(1), TABLE R507.9.1.3(2), FIGURE R507.9.1.3(2), FIGURE R507.9.2(1), FIGURE R507.9.2(2)

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

R507.8 Vertical and lateral supports. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. For decks with cantilevered framing members, connection to exterior walls or other framing members shall be designed and constructed to resist uplift resulting from the full *live load* specified in Table R301.5 acting on the cantilevered portion of the deck. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting.

Delete without substitution:

~~**R507.9 Vertical and lateral supports at band joist.** Vertical and lateral supports for decks shall comply with this section.~~

~~**R507.9.1 Vertical supports.** Vertical loads shall be transferred to band joists with ledgers in accordance with this section.~~

Revise as follows:

~~**R507.9.1.1**~~ **<u>R507.8.1</u> Ledger details.** Deck ledgers shall be a minimum 2-inch by 8-inch (51 mm by 203 mm) nominal, No. 2 grade or better pressure-preservative-treated Southern pine, incised pressure-preservative-treated hem-fir, or decay-resistant, *naturally durable wood* . Deck ledgers shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer.

~~**R507.9.1.2**~~ **<u>R507.8.2</u> Band joist details.** Band joists supporting a ledger shall be a minimum 2-inch-nominal (51 mm), solid-sawn, spruce-pine-fir or better lumber or a minimum 1-inch (25 mm) nominal engineered wood rim boards in accordance with Section R502.1.7. Band joists shall bear fully on the primary structure capable of supporting all required loads.

~~**R507.9.1.3**~~ **<u>R507.8.3</u> Ledger to band joist details.** Where ledgers are fastened in accordance with Table <u>R507.8.3(1)</u> ~~R507.9.1.3(1)~~ , fasteners shall comply with Section R507.2.3 and shall be installed in accordance with Table <u>R507.8.3(2)</u> ~~R507.9.1.3(2)~~ and Figures <u>R507.8.3(1)</u> ~~R507.9.1.3(1)~~ and <u>R507.8.3(2)</u> ~~R507.9.1.3(2)~~. Holes for $^1/_2$-inch (12.7 mm) lag screws shall be predrilled with two drill bits so that a hole $^1/_2$ inch (12.7mm) in diameter is drilled through the ledger and sheathing, if present, and a hole $^5/_{16}$ inch (7.9 mm) to $^3/_8$ inch (9.5mm) in diameter is drilled through the band joist.

~~**R507.9.1.4**~~ **<u>R507.8.4</u> Alternate ledger details.** Alternate framing configurations supporting a ledger constructed to meet the load requirements of Section R301.5 shall be permitted.

~~**R507.9.1.5**~~ **<u>R507.8.5</u> Ledger flashing.** Where ledgers are attached to wood-frame construction, flashing shall be installed above the ledger to prevent the entry of water into the wall cavity or behind the ledger. Flashing shall extend vertically not less than 2 inches (51 mm) above the ledger. Flashing shall extend horizontally not less than 4 inches (102 mm) beyond the ledger face or shall extend to the ledger face and not less than $^1/_4$ inch down the ledger face.

Exceptions:

1. Where a window or door opening is located less than 2 inches (51 mm) above the ledger, flashing shall extend to the bottom of the wall opening.
2. Flashing is not required where the ledger is spaced horizontally from the *exterior wall covering* not less than $^1/_4$ inch (6.4 mm) to allow for drainage and ventilation behind the ledger.

~~R507.9.1.6~~ R507.8.6 **Water-resistive barrier.** The water-resistive barrier required by Section R703.2 shall be lapped over a vertical leg of the ledger flashing or counterflashing extending up the wall by not less than 2 inches (51 mm) or the height of the vertical flashing leg, whichever is less. The *water-resistive barrier* shall continue from the top of the ledger flashing down the wall and behind the ledger flashing and ledger.

Exceptions:

1. Flashing shall be permitted to be placed against the face of the *water-resistive barrier* where a self-adhering membrane counterflashing is installed not less than 2 inches (51 mm) over the vertical leg of the flashing and not less than 2 inches (51 mm) onto the *water-resistive barrier*.
2. Flashing shall be permitted to be placed in front of the *water-resistive barrier* and behind the *exterior wall covering* where ledgers are spaced horizontally from the exterior wall not less than $^1/_4$ inch (6.4 mm) to allow for drainage and ventilation behind the ledger.

~~R507.9.1.7~~ R507.8.7 **Existing walls.** Where ledgers are attached to existing walls without water-resistive barriers, a *water-resistive barrier* shall be installed behind the ledger and ledger flashing. The *water-resistive barrier* shall extend to the top of the ledger flashing vertical leg and not less than $^1/_2$ inch (12.7 mm) beyond the sides and bottom of the ledger. A self-adhering membrane counterflashing shall be installed not less than 2 inches (51 mm) over the vertical leg of the ledger flashing and not less than 2 inches (51 mm) onto the existing sheathing.

Exceptions:

1. Where a window or door opening is located less than 2 inches (51 mm) above the ledger, flashing shall extend to the bottom of the wall opening.
2. Flashing is not required where the ledger is spaced horizontally from the *exterior wall covering* not less than $^1/_4$ inch (6.4 mm) to allow for drainage and ventilation behind the ledger.

~~R507.9.1.8~~ R507.8.8 **Exterior wall coverings.** *Exterior wall coverings* shall be terminated above the finished deck surface in accordance with the covering manufacturer's requirements and Chapter 7, as applicable to the type of covering.

Exception: *Exterior wall covering*s shall be permitted behind ledgers in accordance with Section R507.8.5 ~~R507.9.1.5~~ where capable of resisting compression forces from the ledger attachment.

~~R507.9.2~~ R507.9 **Lateral ~~connection~~ bracing.** Lateral loads shall be transferred to the ground or to a structure capable of transmitting them to the ground. Where ~~the~~ lateral bracing is provided with a load connection ~~is provided~~ in accordance with Figure R507.9~~.2~~(1), hold-down tension devices shall be installed in not less than two locations per deck, within 24 inches (610 mm) of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1,500 pounds (6672 N). Where the lateral load connections are provided in accordance with Figure R507.9~~.2~~(2), the hold-down tension devices shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds (3336 N).

TABLE ~~R507.9.1.3(1)~~ R507.8.3(1) DECK LEDGER CONNECTION TO BAND JOIST

Portions of table not shown remain unchanged.

LOAD[c] (psf)	JOIST SPAN[a] (feet)	ON-CENTER SPACING OF FASTENERS[b] (inches)		
		$^1/_2$-inch diameter lag screw with $^1/_2$-inch maximum sheathing[d, e]	$^1/_2$-inch diameter bolt with $^1/_2$-inch maximum sheathing[e]	$^1/_2$-inch diameter bolt with 1-inch maximum sheathing[f]
40 live load	6	30	36	36
	8	23	36	36
	10	18	34	29
	12	15	29	24
	14	13	24	21
	16	11	21	18
	18	10	19	16
50 ground snow load	6	29	36	36
	8	22	36	35
	10	17	33	28
	12	14	27	23

	14	12	23	20
	16	11	20	17
	18	9	18	15
60 ground snow load	6	25	36	36
	8	18	35	30
	10	15	28	24
	12	12	23	20
	14	10	20	17
	16	9	17	15
	18	8	15	13
70 ground snow load	6	22	36	35
	8	16	31	26
	10	13	25	21
	12	11	20	17
	14	9	17	15
	16	8	15	13
	18	7	13	11

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Interpolation permitted. Extrapolation is not permitted.

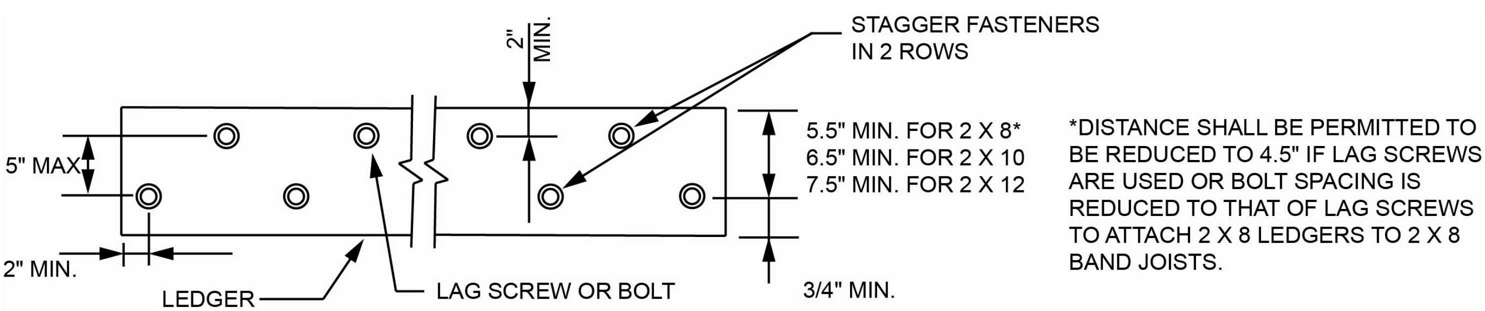
b. Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.

c. Dead Load = 10 psf. Snow load shall not be assumed to act concurrently with live load.

d. The tip of the lag screw shall fully extend beyond the inside face of the band joist. Lag screws shall be full-body diameter screws.

e. Sheathing shall be wood structural panel or solid sawn lumber.

f. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to $^{1}/_{2}$-inch thickness of stacked washers shall be permitted to substitute for up to $^{1}/_{2}$ inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.



For SI: 1 inch = 25.4 mm.

FIGURE ~~R507.9.1.3(1)~~ R507.8.3(1) PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

TABLE ~~R507.9.1.3(2)~~ R507.8.3(2) PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

	MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS			
	TOP EDGE	**BOTTOM EDGE**	**ENDS**	**ROW SPACING**
Ledger[a]	2 inches[d]	$^{3}/_{4}$ inch	2 inches[b]	$1^{5}/_{8}$ inches[b]
Band Joist[c]	$^{3}/_{4}$ inch	2 inches	2 inches	$1^{5}/_{8}$ inches[b]

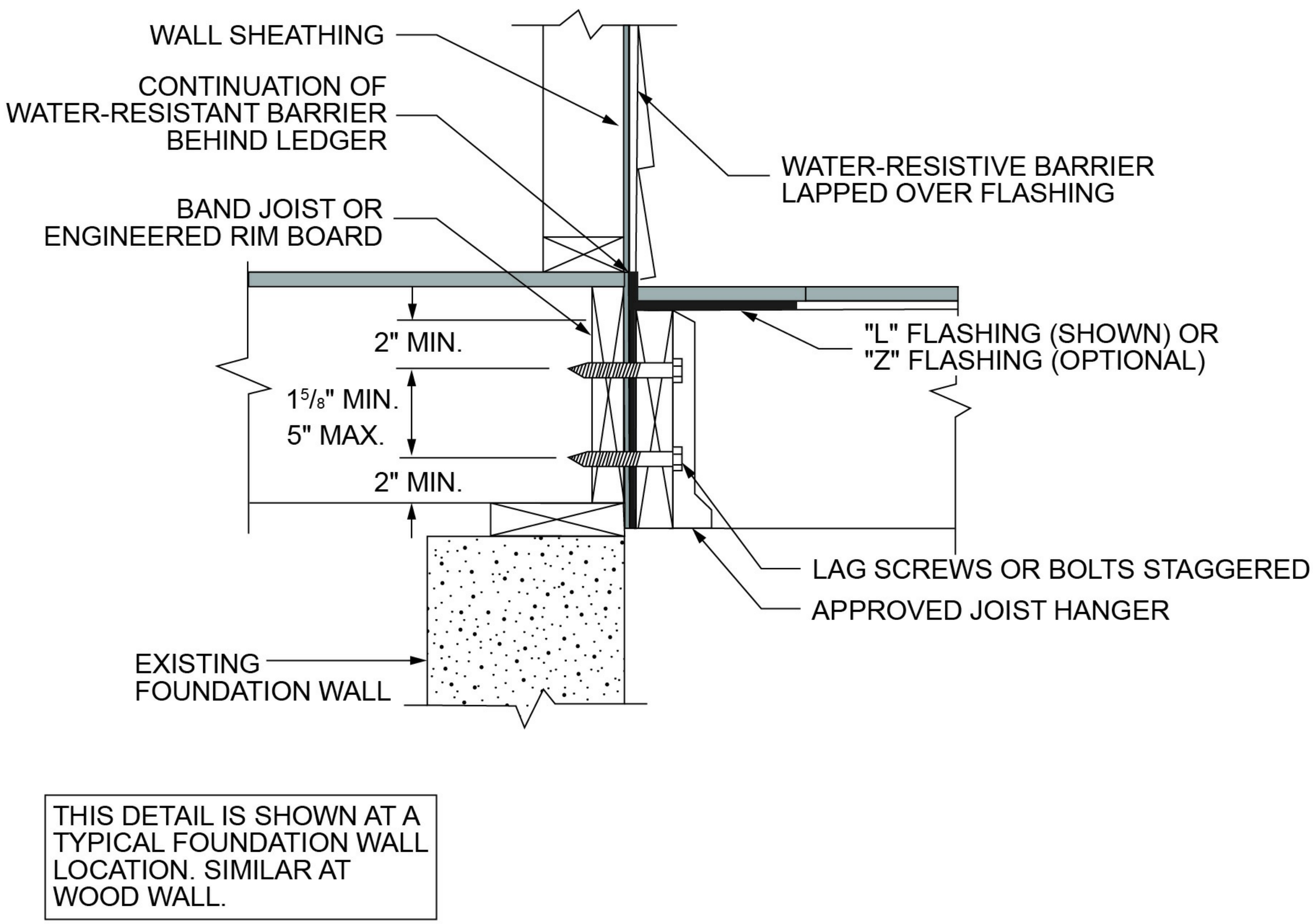
For SI: 1 inch = 25.4 mm.

a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.9.1.3(1).

b. Maximum 5 inches.

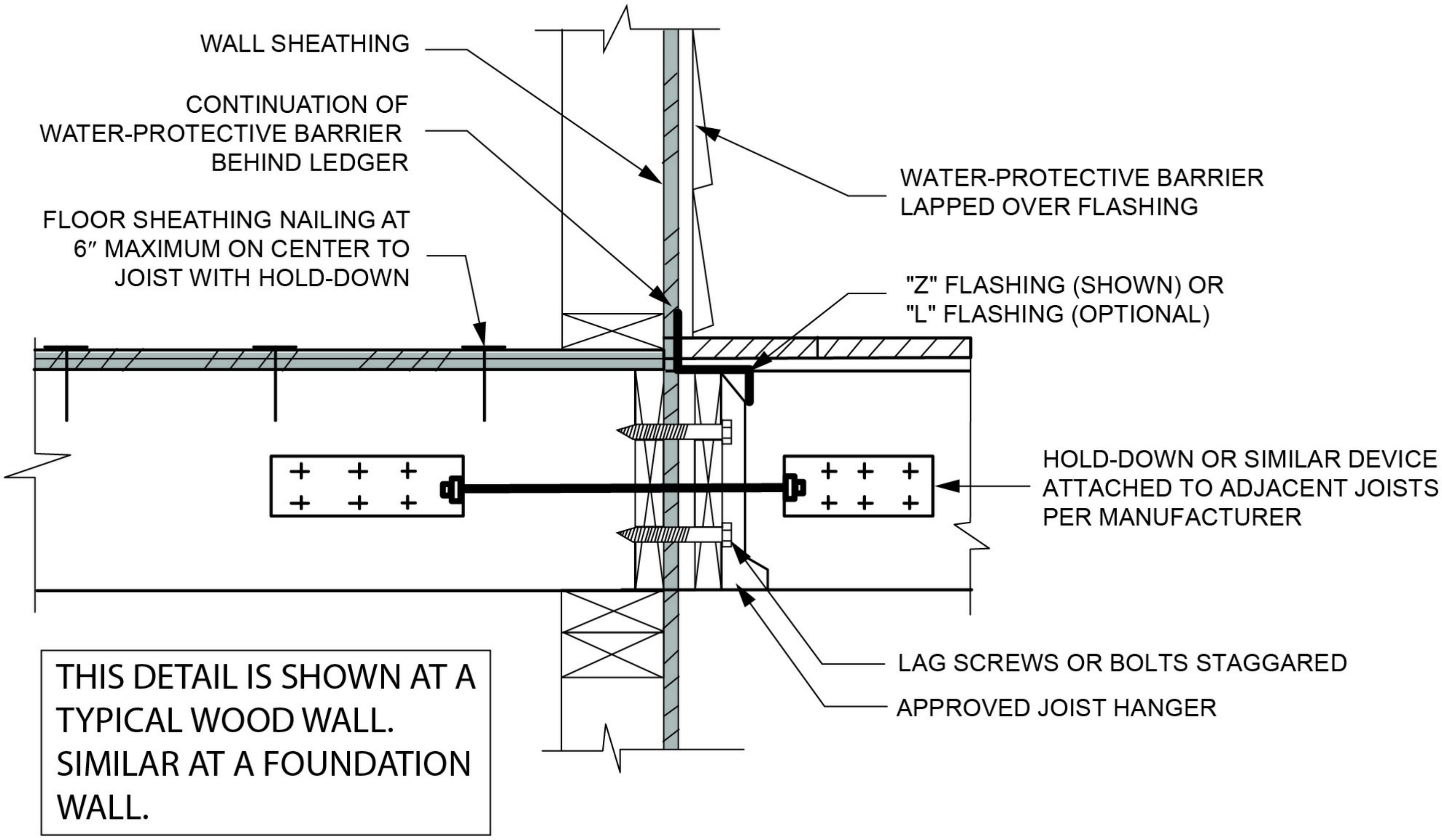
c. For engineered rim joists, the manufacturer's recommendations shall govern.

d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.9.1.3(1).



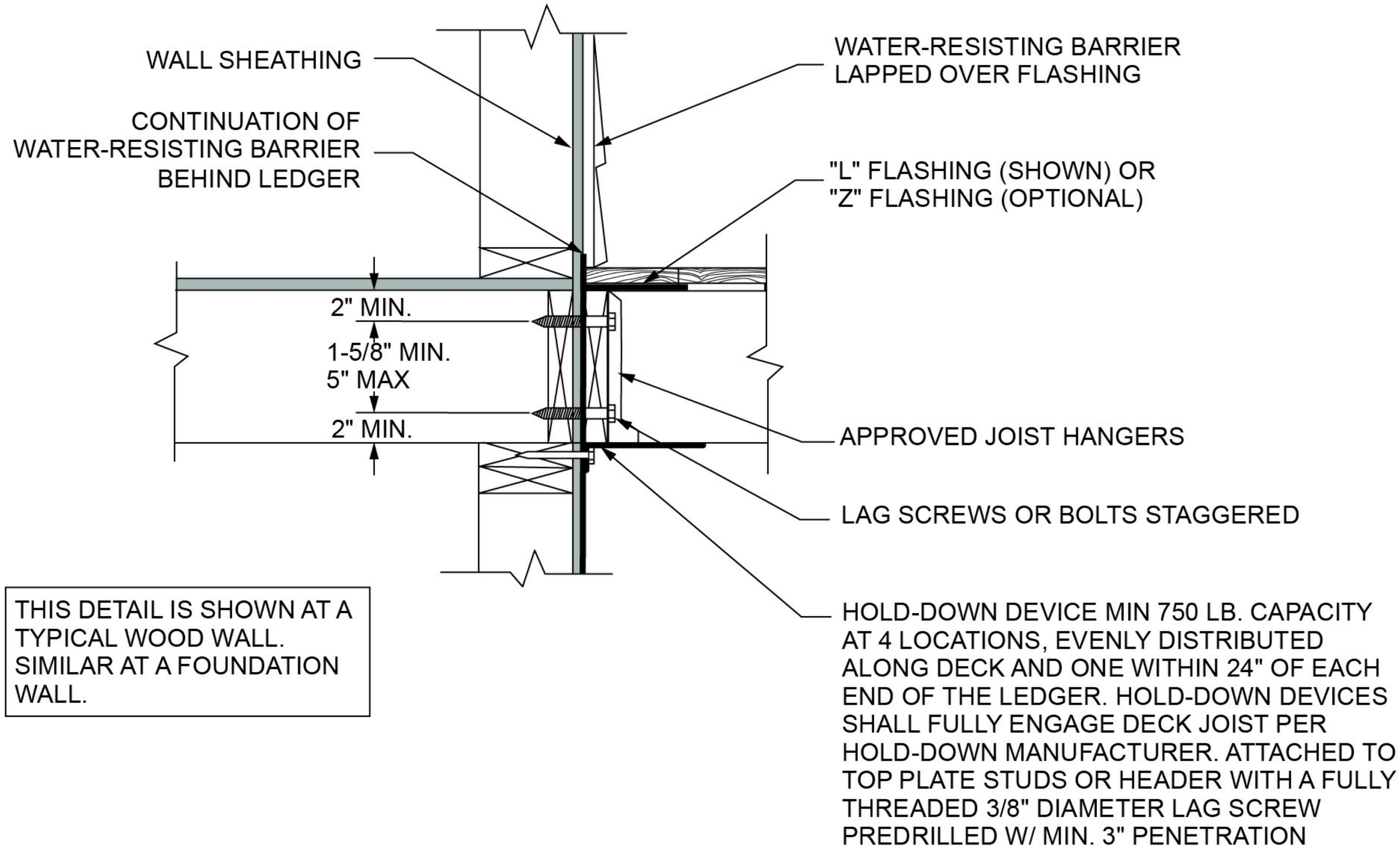
For SI: 1 inch = 25.4 mm.

FIGURE ~~R507.9.1.3(2)~~ R507.8.3(2) PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS



For SI: 1 inch = 25.4 mm.

FIGURE ~~R507.9.2(1)~~ R507.9(1) DECK ATTACHMENT FOR LATERAL LOADS



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE ~~R507.9.2(2)~~ R507.9(2) DECK ATTACHMENT FOR LATERAL LOADS

Reason: Since the 2015 IRC, new deck design provisions have been added or improved in each edition thanks to the collaborative efforts of many private professionals, organizations, and building officials, informally called "The Deck Code Coalition". Though so much great work was done in providing prescriptive deck design codes, a major component of a sound deck structure has not been addressed, lateral live loads. In the 2024 IRC, I wrote a proposal attempting to address this by shining light on the fact that a deck without bracing will sway and the IRC only provides hold down connections at the ledger to address lateral loads. This would be like having design codes for a wall that includes hold downs at the foundation but no wall sheathing or bracing. What kind of house would that build? My efforts in 2024 were met with much opposition and were disapproved. I do not believe anyone has worked on research for prescriptive methods for deck lateral bracing since then.

The purpose of this proposal is to continue to draw attention to the need to complete the design provisions for decks by addressing lateral bracing. This proposal eliminates unnecessary subsections resulting in long strings of section numbers. It also places the lateral load section in its own subsection under R507 instead of being under the ledger provisions. There are many ways to brace a deck that are not just connections at the ledger. Connections at the ledger only brace a deck when build in an inside corner. By renaming that section "lateral bracing" it is my hope the reader of the IRC will recognize that some sort of bracing is necessary, whether provided with details in the IRC or not.

This proposal will better set up the IRC for the attention it needs and for a proposal in 2030.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only restructures the organization of existing code language. There is some change in language but only to clarify what is already necessary.

RB182-25

RB183-25

IRC: TABLE R507.9.1.3(1)

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

TABLE R507.9.1.3(1) DECK LEDGER CONNECTION TO BAND JOIST

LOAD[c] (psf)	JOIST SPAN[a] (feet)	ON-CENTER SPACING OF FASTENERS[b] (inches)		
		1/2-inch diameter lag screw with 1/2-inch maximum sheathing[d, e]	1/2-inch diameter bolt with 1/2-inch maximum sheathing[e]	1/2-inch diameter bolt with 1-inch maximum sheathing[f]
40 live load	6	30	36	36
	8	23	36	36
	10	18	34	29
	12	15	29	24
	14	13	24	21
	16	11	21	18
	18	10	19	16
50 ground snow load	6	29	36	36
	8	22	36	35
	10	17	33	28
	12	14	27	23
	14	12	23	20
	16	11	20	17
	18	9	18	15
60 ground snow load	6	25	36	36
	8	18	35	30
	10	15	28	24
	12	12	23	20
	14	10	20	17
	16	9	17	15
	18	8	15	13
70 ground snow load	6	22	36	35
	8	16	31	26
	10	13	25	21
	12	11	20	17
	14	9	17	15
	16	8	15	13
	18	7	13	11

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Interpolation permitted. Extrapolation is not permitted.

b. Ledgers shall be flashed in accordance with Section ~~R703.4~~ R507.9.1.5 ~~to prevent water from contacting the house band joist~~.

c. Dead Load = 10 psf. Snow load shall not be assumed to act concurrently with live load.

d. The tip of the lag screw shall fully extend beyond the inside face of the band joist. Lag screws shall be full-body diameter screws.

e. Sheathing shall be wood structural panel or solid sawn lumber.

f. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to 1/2-inch thickness of stacked washers shall be permitted to substitute for up to 1/2 inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

Reason: Section R703.4 "Flashing" was changed in the 2024 IRC to reference deck ledger flashing to the new Section R507.9.1.5. This proposal simply bypasses that double reference. I suggest deleting the statement about ledger flashing performance (not let water contact the band joist), as this footnote is just meant as a reminder that there are additional ledger flashing codes. The ledger flashing codes referenced in this footnote provide sufficient detail for ledger flashing performance.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only clarifies the current intent of the IRC.

RB183-25

RB184-25

IRC: R507.9.1.6, R507.9.1.7

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R507.9.1.6 Water-resistive barrier. The *water-resistive barrier* ~~water-resistive barrier~~ required by Section R703.2 shall be lapped over a vertical leg of the ledger flashing or counterflashing extending up the wall by not less than 2 inches (51 mm) or the height of the vertical flashing leg, whichever is less. The *water-resistive barrier* shall continue from the top of the ledger flashing down the wall and behind the ledger flashing and ledger.

Exceptions:

1. Flashing shall be permitted ~~to be placed~~ in front of ~~against the face of~~ the *water-resistive barrier* where a self-adhering membrane counterflashing is installed not less than 2 inches (51 mm) over the vertical leg of the flashing and not less than 2 inches (51 mm) onto the *water-resistive barrier*.
2. Flashing shall be permitted ~~to be placed~~ in front of the *water-resistive barrier* and behind the *exterior wall covering* where ledgers are spaced horizontally from the exterior wall not less than $^{1}/_{4}$ inch (6.4 mm) to allow for drainage and ventilation behind the ledger.

R507.9.1.7 Existing walls. Where ledgers are attached to existing walls without *water-resistive barriers* ~~water-resistive barriers~~, a *water-resistive barrier* shall be installed behind the ledger and ledger flashing. The *water-resistive barrier* shall extend to the top of the ledger flashing vertical leg and not less than $^{1}/_{2}$ inch (12.7 mm) beyond the sides and bottom of the ledger. A self-adhering membrane counterflashing shall be installed not less than 2 inches (51 mm) over the vertical leg of the ledger flashing and not less than 2 inches (51 mm) onto the existing sheathing.

Exceptions:

1. Where a window or door opening is located less than 2 inches (51 mm) above the ledger, flashing shall extend to the bottom of the wall opening.
2. Flashing is not required where the ledger is spaced horizontally from the *exterior wall covering* not less than $^{1}/_{4}$ inch (6.4 mm) to allow for drainage and ventilation behind the ledger.

Reason: The language of exception 1 under water-resistive barriers is changed to match exception 2, for no reason other than consistency in language. The phrase "to be placed" is unnecessary.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only clarifies the current intent of these sections. There is no impact on the cost of construction.

RB184-25

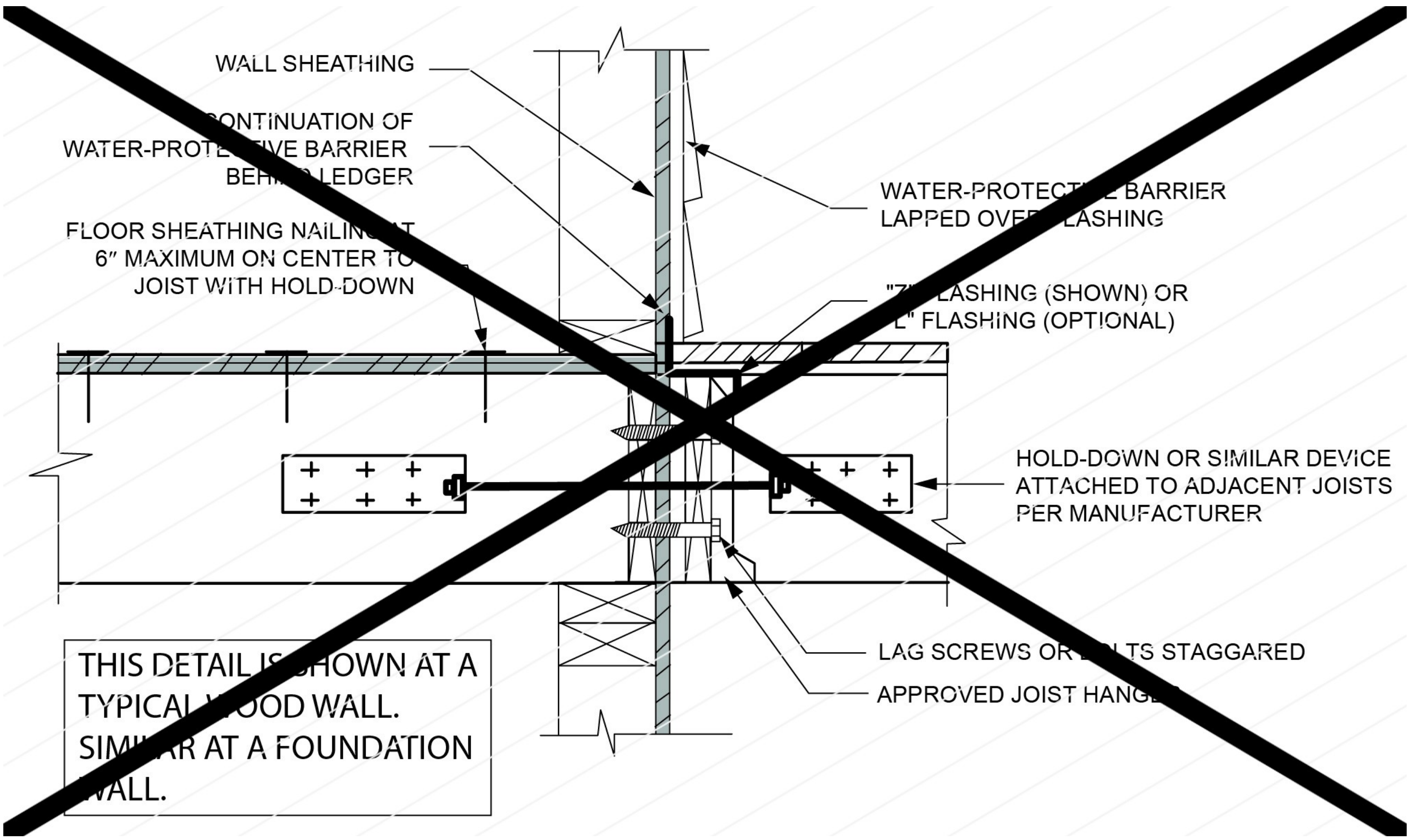
RB185-25

IRC: FIGURE R507.9.2(1)

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

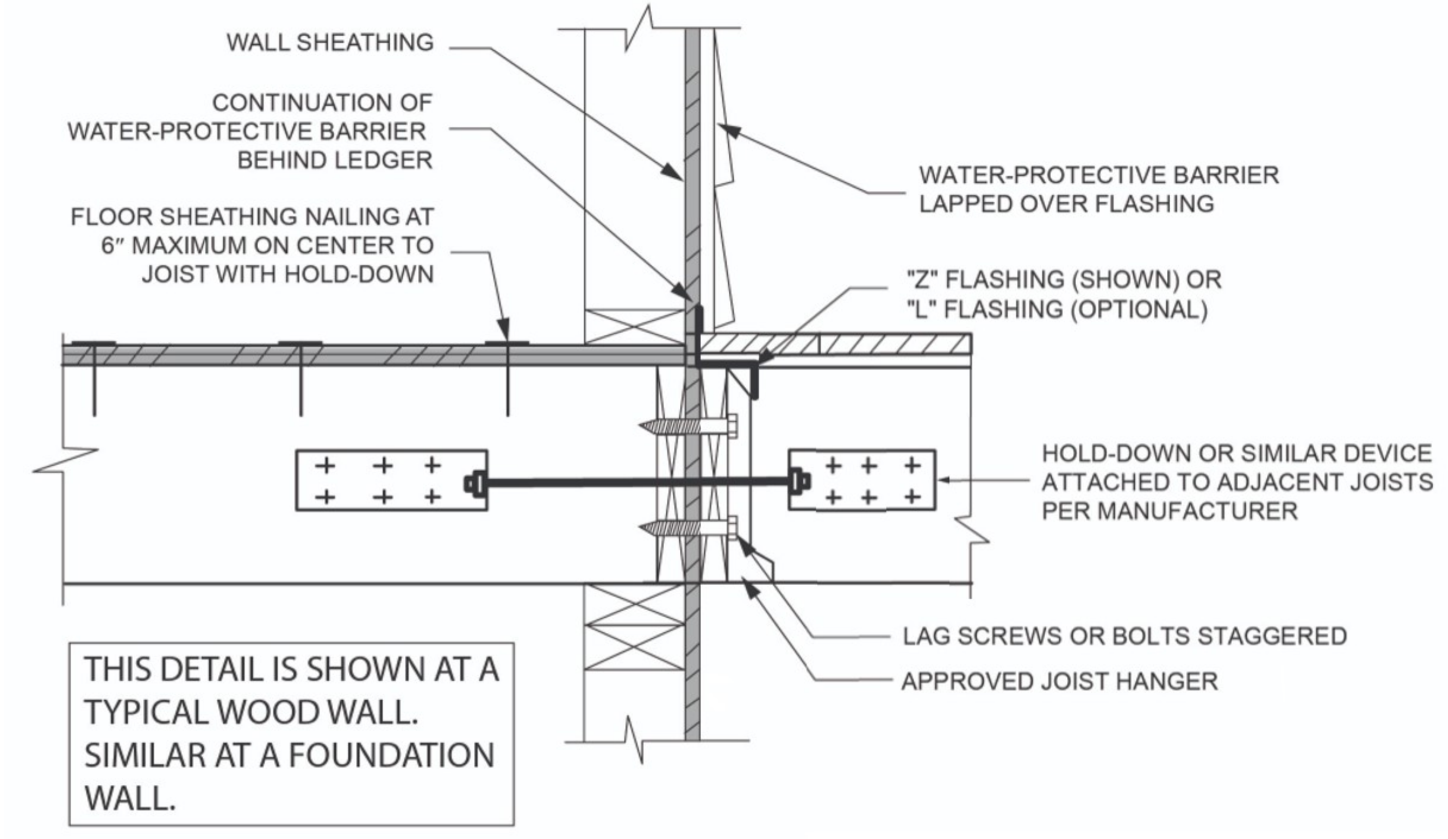
2024 International Residential Code

Delete and substitute as follows:



~~For SI: 1 inch = 25.4 mm.~~

~~**FIGURE R507.9.2(1) DECK ATTACHMENT FOR LATERAL LOADS**~~



For SI: 1 inch = 25.4 mm.

FIGURE R507.9.2(1) DECK ATTACHMENT FOR LATERAL LOADS

Reason: The existing Figure R507.9.2(1) has an unlabeled gap between the ledger and the wall sheathing, which caused some confusion about siding material or an air gap being permitted between them. This is an editorial fix to the figure to remove that gap to show that the ledger needs to be tight to the wall sheathing. A spelling error in the existing Figure was also corrected.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no technical change proposed in this code change. The Figure is being modified to clarify existing code requirements.

RB185-25

RB186-25

IRC: R507.10.2

Proponents: Edward Lisinski, American Wood Council, representing ICC Region III Code Development Committee (elisinski@awc.org)

2024 International Residential Code

Revise as follows:

R507.10.2 Wood posts at deck guards. Where ~~4-inch by 4-inch (102 mm by 102 mm)~~ wood posts support guard loads applied to the top of the *guard*, such posts shall not be notched at the connection to the supporting structure.

Reason: This section was originally referring only to 4x4 guard posts on residential decks. Most of that language was removed for the 2021 IRC code edition, however this reference to a 4x4 guard post remained. This issue that comes up is that it does not address a 2x4, 4x6 or any other size guard post. It does not address a guard post made up of (2) 2x4s. If a notch is permitted in a 6x6 post, there is no limit on how much could be notched. By removing the reference to a 4x4 guard post only, this will require all guard posts using the prescriptive requirements of R507 to be unnotched. If there is a situation where a guard post is needed to be notched, then these prescriptive requirements would not apply, and the deck could be designed through engineering analysis or through an alternative means and materials approval process.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

In order to prescriptively meet load requirements, no guard posts should be notched. This proposal just clarifies that requirement.

RB186-25

RB187-25

IRC: TABLE R602.3(1)

Proponents: Tim Earl, GBH International, representing the Gypsum Association (tearl@gbhint.com)

2024 International Residential Code

Revise as follows:

TABLE R602.3(1) FASTENING SCHEDULE

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s; 1 ksi = 6.895 MPa.

a. Nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections are carbon steel and shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank diameters of 0.142 inch or less. Connections using nails and staples of other materials, such as stainless steel, shall be designed by accepted engineering practice or approved under Section R104.2.2.

b. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

c. Nails shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater.

d. Four-foot by 8-foot or 4-foot by 9-foot panels shall be applied vertically.

e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).

f. For wood structural panel roof sheathing attached to gable end roof framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 4 inches on center where the ultimate design wind speed is greater than 130 mph in Exposure B or greater than 110 mph in Exposure C. Fastener spacing applies where roof framing specific gravity is 0.42 or larger. Where roof framing specific gravity is greater than or equal to 0.35 but less than 0.42 in accordance with AWC NDS, fastening of roof sheathing shall be with RSRS-03 ($2^1/_2$″ × 0.131″ × 0.281″ head) nails.

g. Paper-faced gypsum ~~Gypsum~~ sheathing shall conform to ASTM C1396 . Glass-mat gypsum sheathing shall conform to ASTM C1177. ~~and~~ gypsum sheathing shall be installed in accordance with ASTM C1280 or GA 253. Fiberboard sheathing shall conform to ASTM C208.

h. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.

i. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite side of the rafter shall not be required.

Reason: This proposal adds the appropriate ASTM standard for glass-mat gypsum sheathing to the footnote. It is already referenced elsewhere in the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This adds an additional ASTM specification which was missing from the list.

RB188-25

IRC: TABLE R602.3(1), TABLE R602.3(2), TABLE R602.3(3), R608.9.2, R608.9.3, R608.10, TABLE R703.15.1, TABLE R703.15.2, TABLE R703.16.2, TABLE R704.3.4, R802.11

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

Revise as follows:

TABLE R602.3(1) FASTENING SCHEDULE

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s; 1 ksi = 6.895 MPa.

a. Nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections are carbon steel and shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank diameters of 0.142 inch or less. Connections using nails and staples of other materials, such as stainless steel, shall be designed by accepted engineering practice or approved under Section R104.2.2.

b. RSRS-01 is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667.

c. Nails shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater.

d. Four-foot by 8-foot or 4-foot by 9-foot panels shall be applied vertically.

e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).

f. For wood structural panel roof sheathing attached to gable end roof framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 4 inches on center where the ultimate design wind speed is greater than 130 mph in Exposure B or greater than 110 mph in Exposure C. Fastener spacing applies where roof framing is Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or other species with specific gravity ~~is~~ greater than or equal to 0.42 ~~or larger~~ in accordance with AWC NDS. Where roof framing specific gravity is greater than or equal to 0.35 but less than 0.42 ~~in accordance with AWC NDS~~, fastening of roof sheathing shall be with RSRS-03 ($2^1/_2$″ × 0.131″ × 0.281″ head) nails.

g. Gypsum sheathing shall conform to ASTM C1396 and shall be installed in accordance with ASTM C1280 or GA 253. Fiberboard sheathing shall conform to ASTM C208.

h. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.

i. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite side of the rafter shall not be required.

TABLE R602.3(2) ALTERNATE ATTACHMENTS TO TABLE R602.3(1)

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm.

g. Alternate fastening is only permitted for roof sheathing where the ultimate design wind speed is less than or equal to 110 mph, and where fasteners are installed 3 inches on center at all supports, and where fastening is to wood framing of Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or other ~~a~~ species with specific gravity greater than or equal to 0.42 in accordance with AWC NDS.

TABLE R602.3(3) REQUIREMENTS FOR WOOD STRUCTURAL PANEL WALL SHEATHING USED TO RESIST WIND PRESSURES[a, b, c]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

d. Fastener spacing applies where wall framing is Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or other species with specific gravity ~~is~~ greater than or equal to 0.42 ~~or larger~~ in accordance with AWC NDS. Where wall framing specific gravity is greater than or equal to 0.35 but less than 0.42 ~~in accordance with AWC NDS~~, maximum nail spacing in the field of the panel shall be 8 inches.

R608.9.2 Connections between concrete walls and light-frame floor systems. Connections between concrete walls and light-frame floor systems shall be in accordance with one of the following:

1. For floor systems of wood-framed construction, the provisions of Section R608.9.1 and the prescriptive details of Figures R608.9(1) through R608.9(4), where permitted by the tables accompanying those figures. Portions of connections of wood-framed floor systems not noted in the figures shall be in accordance with Section R502, or AWC WFCM, if applicable. Wood framing members shall be of ~~a~~ Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or other species having a specific gravity equal to or greater than 0.42 in accordance with AWC NDS.
2. For floor systems of cold-formed steel construction, the provisions of Section R608.9.1 and the prescriptive details of Figures R608.9(5) through R608.9(8), where permitted by the tables accompanying those figures. Portions of connections of cold-formed steel-framed floor systems not noted in the figures shall be in accordance with Section R505, or AISI S230, if applicable.
3. Proprietary connectors selected to resist loads and load combinations in accordance with Appendix A (ASD) or Appendix B (LRFD) of PCA 100.
4. An engineered design using loads and load combinations in accordance with Appendix A (ASD) or Appendix B (LRFD) of PCA 100.
5. An engineered design using loads and material design provisions in accordance with this code, or in accordance with ASCE 7, ACI 318, and AWC NDS for wood-framed construction or AISI S100 for cold-formed steel frame construction.

R608.9.3 Connections between concrete walls and light-frame ceiling and roof systems. Connections between concrete walls and light-frame ceiling and roof systems shall be in accordance with one of the following:

1. For ceiling and roof systems of wood-framed construction, the provisions of Section R608.9.1 and the prescriptive details of Figures R608.9(9) and R608.9(10), where permitted by the tables accompanying those figures. Portions of connections of wood-framed ceiling and roof systems not noted in the figures shall be in accordance with Section R802, or AWC WFCM, if applicable. Wood framing members shall be ~~of a~~ Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or other species having a specific gravity equal to or greater than 0.42 in accordance with AWC NDS.
2. For ceiling and roof systems of cold-formed steel construction, the provisions of Section R608.9.1 and the prescriptive details of Figures R608.9(11) and R608.9(12), where permitted by the tables accompanying those figures. Portions of connections of cold-formed steel-framed ceiling and roof systems not noted in the figures shall be in accordance with Section R804, or AISI S230, if applicable.
3. Proprietary connectors selected to resist loads and load combinations in accordance with Appendix A (ASD) or Appendix B (LRFD) of PCA 100.

4. An engineered design using loads and load combinations in accordance with Appendix A (ASD) or Appendix B (LRFD) of PCA 100.
5. An engineered design using loads and material design provisions in accordance with this code, or in accordance with ASCE 7, ACI 318, and AWC NDS for wood-framed construction or AISI S100 for cold-formed steel-framed construction.

R608.10 Floor, roof and ceiling diaphragms. Floors and roofs in *buildings* with exterior walls of concrete shall be designed and constructed as *diaphragms*. Where gable-end walls occur, ceilings shall be designed and constructed as *diaphragms*. The design and construction of floors, roofs and ceilings of wood framing or cold-formed-steel framing serving as *diaphragms* shall comply with the applicable requirements of this code, or AWC WFCM or AISI S230, if applicable. Wood framing members shall be ~~of a~~ Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or other species having a specific gravity equal to or greater than 0.42 in accordance with AWC NDS.

TABLE R703.15.1 CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

DR = Design Required.

o.c. = On Center.

a. Wood framing shall be Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, ~~Spruce-pine-fir~~ or ~~any wood~~ other species with a specific gravity of 0.42 or greater in accordance with AWC NDS.

b. The thickness of wood structural panels complying with the specific gravity requirement of Note a shall be permitted to be included in satisfying the minimum penetration into framing. For cladding connections to wood structural panels, refer to Table R703.3.3. For brick veneer tie connections to wood structural panels, refer to Table R703.8.4(2).

c. Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

d. Fastener vertical spacing is an average spacing associated with the following nail count per foot: 6-inch spacing is associated with two nails per foot, 8-inch spacing is associated with 1.5 nails per foot, and 12-inch spacing is associated with one nail per foot.

e. Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C578 or ASTM C1289.

f. Cladding weight is the maximum weight of cladding materials in pounds per square foot of wall area. The 3 psf category typically applies to panel and lap siding materials; the 11 psf category typically applies to conventional three-coat stucco of $^{7}/_{8}$-inch thickness; and 15 psf to 25 psf categories typically apply to adhered masonry veneers.

TABLE R703.15.2 FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a, b]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

DR = Design Required.

o.c. = On Center.

a. Wood framing and furring shall be Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir ~~Spruce-pine-fir~~ or other ~~any wood~~ species with a specific gravity of 0.42 or greater in accordance with AWC NDS.

b. Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

c. The thickness of wood structural panels complying with the specific gravity requirements of Note a shall be permitted to be included in satisfying the minimum required penetration into framing.

d. Where the required cladding fastener penetration into wood material exceeds $^3/_4$ inch and is not more than $1^1/_2$ inches, a minimum 2× wood furring or an approved design shall be used.

e. Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C578 or ASTM C1289.

f. Furring shall be spaced not more than 24 inches on center, in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

g. Cladding weight is the maximum weight of cladding materials in pounds per square foot of wall area. The 3 psf category typically applies to panel and lap siding materials; the 11 psf category typically applies to conventional three-coat stucco of $^7/_8$-inch thickness; and 15 psf to 25 psf categories typically apply to adhered masonry veneers.

TABLE R703.16.2 FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 mil = 0.0254 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

DR = Design Required.

o.c. = On Center.

a. Wood furring shall be Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, ~~Spruce-pine-fir~~ or other ~~any softwood~~ species with a specific gravity of 0.42 or greater in accordance with AWC NDS. Steel furring shall be minimum 33-ksi steel. Steel studs shall be minimum 33-ksi steel for 33-mil and 43-mil thickness, and 50-ksi steel for 54-mil steel or thicker.

b. Screws shall comply with the requirements of ASTM C1513.

c. Where the required cladding fastener penetration into wood material exceeds $^3/_4$ inch and is not more than $1^1/_2$ inches, a minimum 2-inch nominal wood furring or an approved design shall be used.

d. Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C578 or ASTM C1289.

e. Furring shall be spaced not more than 24 inches (610 mm) on center, in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

TABLE R704.3.4 PRESCRIPTIVE ALTERNATIVE FOR WOOD STRUCTURAL PANEL EXTERIOR SOFFIT [b, c, d, e]

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

e. Fastener spacing applies where wood exterior soffit framing member ~~specific gravity~~ is Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or other species with specific gravity greater than or equal to 0.42 ~~or larger~~ in accordance with AWC NDS. Where the specific gravity of exterior soffit framing members is greater than or equal to 0.35 but less than 0.42 ~~in accordance with AWC NDS~~, the fastener spacing shall be multiplied by 0.67 or the same fastener spacing as prescribed for galvanized steel nails shall be permitted to be used where RSRS-01 (2-inch by 0.099-inch by 0.266-inch head) nails replace 6d box nails and RSRS-03 ($2^1/_2$-inch × 0.131-inch × 0.281-inch head) nails replace 8d common nails or 10d box nails. RSRS is a Roof Sheathing Ring Shank nail meeting the specifications in ASTM F1667. Framing members shall be minimum 2 × 3 nominal with the larger dimension in the cross section aligning with the length of fasteners to provide sufficient embedment depths.

R802.11 Roof tie uplift resistance. *Roof assemblies* shall have uplift resistance in accordance with Sections R802.11.1 and R802.11.2.

Exceptions: Rafters or trusses shall be permitted to be attached to their supporting wall assemblies in accordance with Table R602.3(1) where either of the following occur:

1. Where ~~the specific gravity of the wood species used for~~ wall framing is Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or other species with specific gravity greater than or equal to 0.42 in accordance with AWC NDS and the uplift force per rafter or truss does not exceed 200 pounds (90.8 kg) as determined by Table R802.11.
2. Where the *basic wind speed* does not exceed 115 miles per hour (51.4 m/s), the wind exposure category is B, the roof pitch is 5 units vertical in 12 units horizontal (42-percent slope) or greater, the roof span is 32 feet (9754 mm) or less, and rafters and trusses are spaced not more than 24 inches (610 mm) on center.

Reason: There are several sections of the IRC which direct the user to the ANSI/AWC *National Design Specification (NDS) for Wood Construction* to determine the specific gravity of the wood. This code change proposes to add names of common wood species that have a specific gravity of 0.42 or greater to reduce the need to lookup wood specific gravity in the NDS. The common wood species names listed (i.e., Southern Pine, Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir) all have specific gravity of 0.42 or greater and are used elsewhere in the code such as in span tables for joist, rafters, and headers. This revision will make the code easier to use without changing the technical requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There is no technical change proposed in this code change. The footnote clarifications improve the ease-of-use of the code.

RB188-25

RB189-25

IRC: R602.6, FIGURE R602.6(1), FIGURE R602.6(2)

Proponents: John Grenier, representing National Council of Structural Engineers Associations (NCSEA) (jgrenier@greniereng.com); Emily Guglielmo, representing NCSEA (eguglielmo@martinmartin.com)

2024 International Residential Code

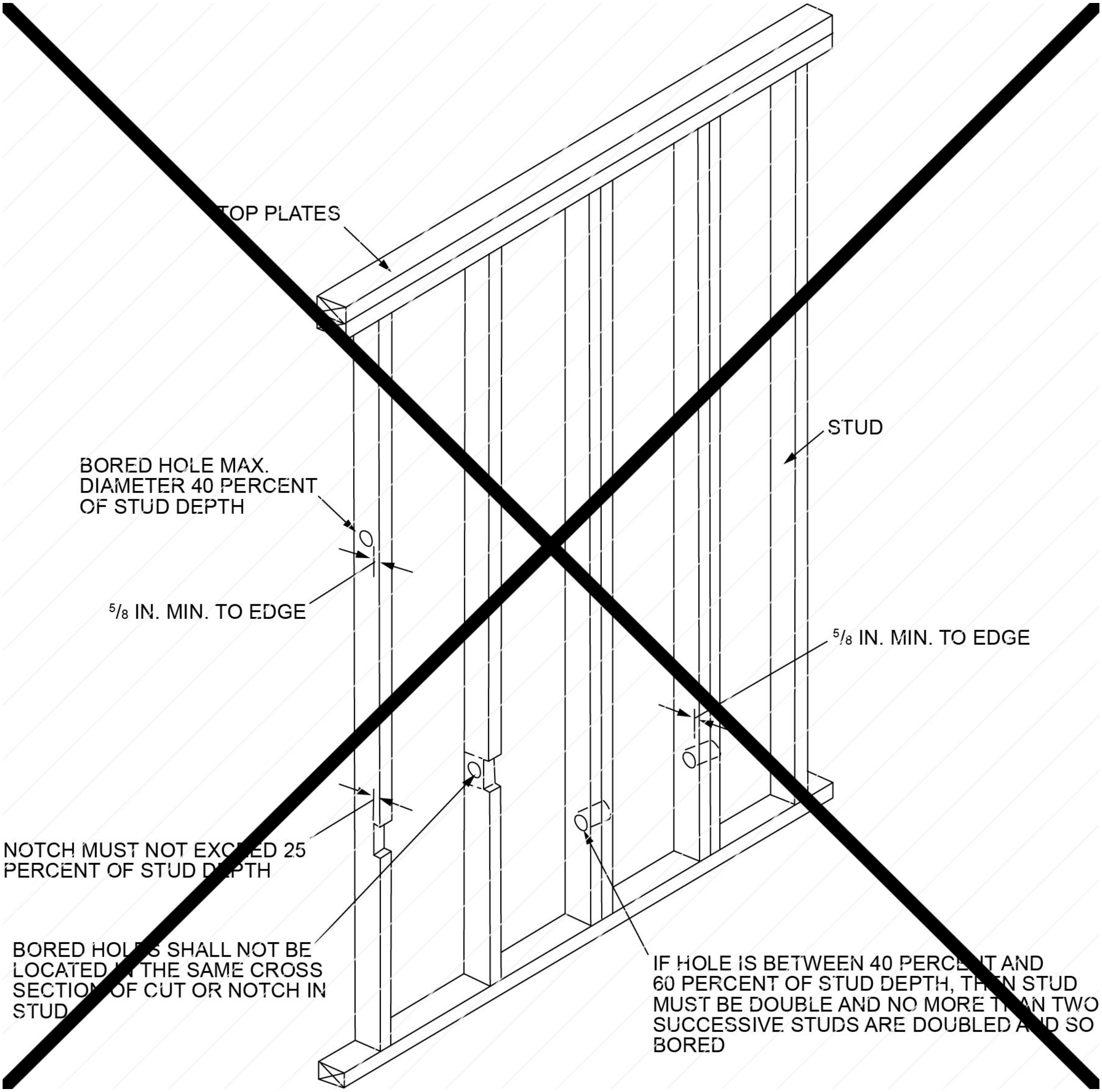
Revise as follows:

R602.6 Drilling and notching of studs. Drilling and notching of studs shall be in accordance with the following:

1. Notching. A stud in an exterior wall or bearing partition shall not be cut or notched in the middle one-third of the stud length and the cut or notch shall not exceed t ~~o a depth exceeding~~ 25 percent of its depth. Studs in nonbearing partitions shall not be notched to a depth exceeding 40 percent of a single stud depth.
2. Boring. The diameter of bored holes in studs shall not exceed 60 percent of the stud depth, the edge of the hole shall not be less than $^5/_8$ inch (16 mm) from the edge of the stud, and the hole shall not be located in the same section as a cut or notch. Where the diameter of a bored hole in a stud located in exterior walls or bearing partitions is over 40 percent, such stud shall be doubled and not more than two successive doubled studs shall be so bored. See Figures R602.6(1) and R602.6(2).

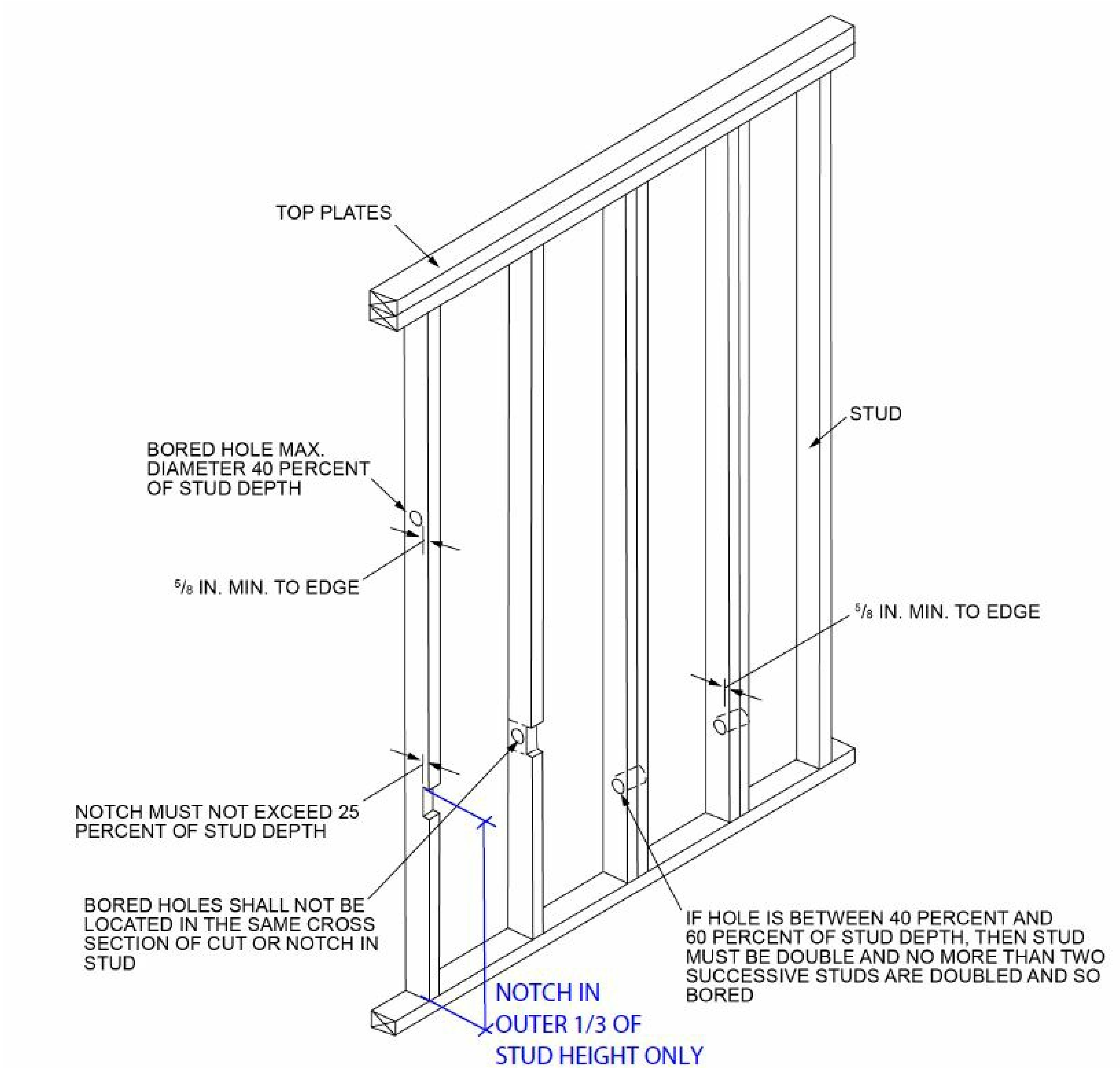
    Exception: Where *approved*, stud shoes are installed in accordance with the manufacturer's instructions.

Delete and substitute as follows:



~~For SI: 1 inch = 25.4 mm.~~ ~~**Note:** Condition for exterior and bearing walls.~~

~~**FIGURE R602.6(1) NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS**~~

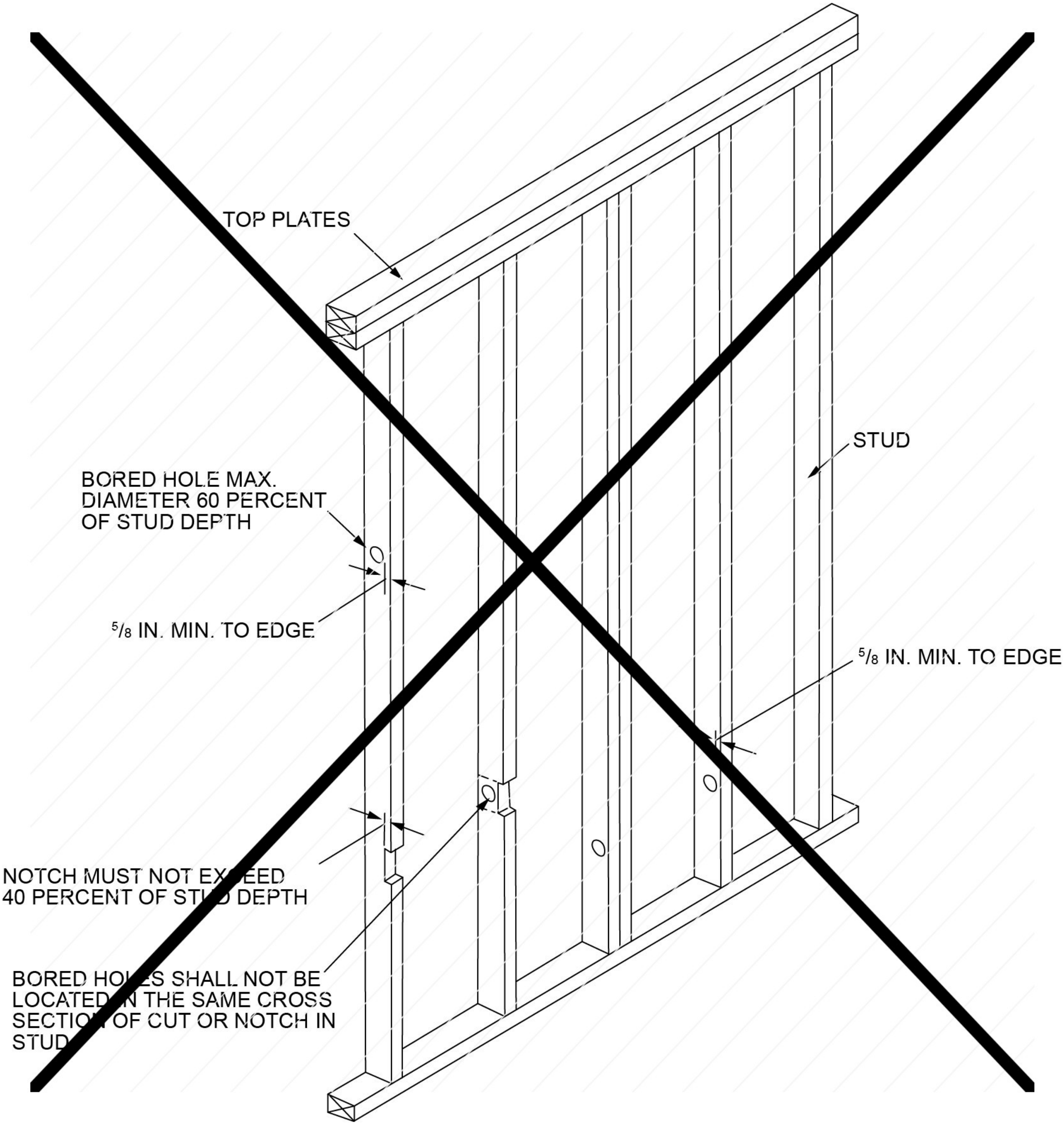


For SI: 1 inch = 25.4 mm.
Note: Condition for exterior and bearing walls.

FIGURE R602.6(1)
NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS

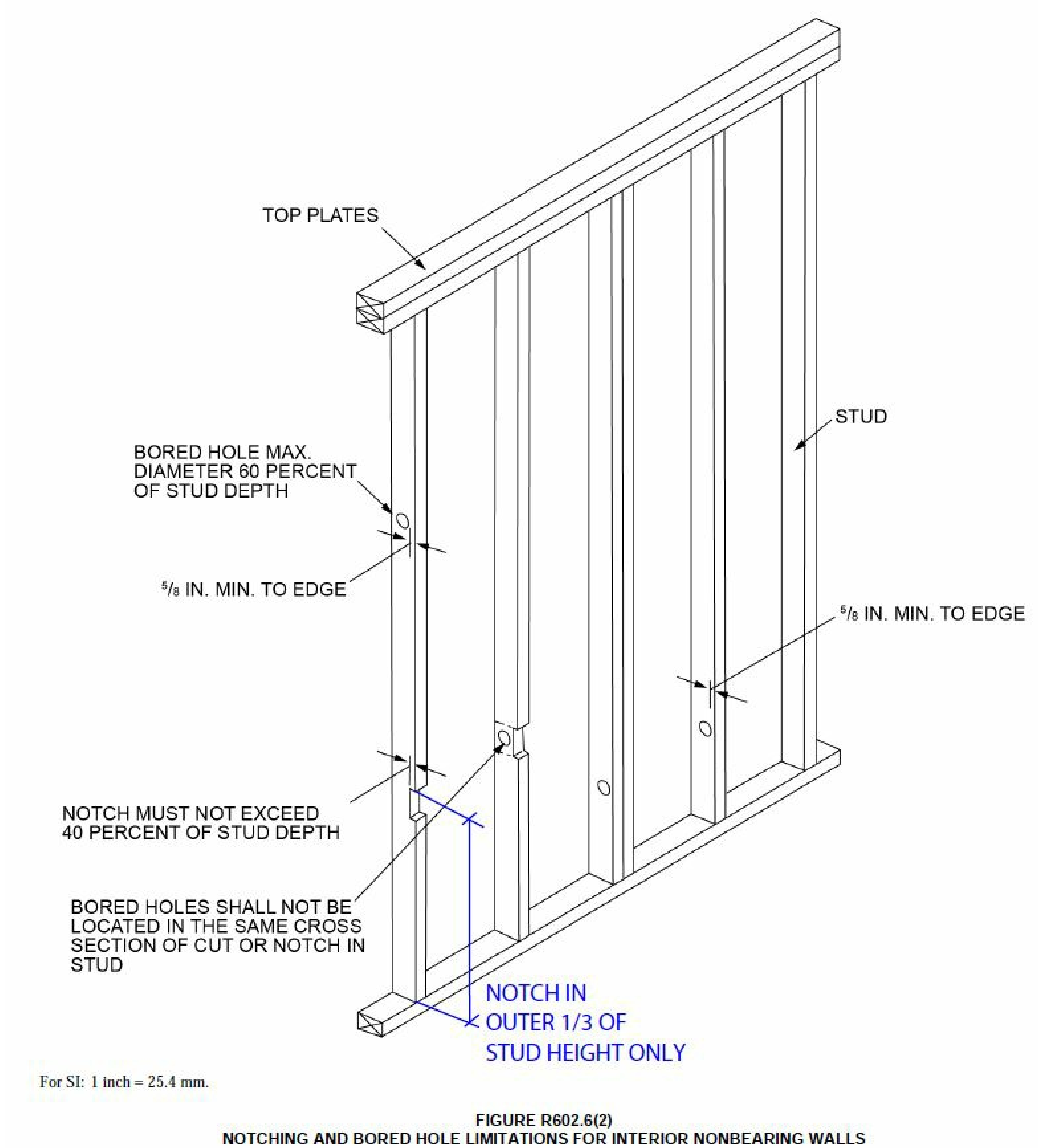
For SI: 1 inch = 25.4 mm. **Note:** Condition for exterior and bearing walls.

FIGURE R602.6(1) NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS



~~For SI: 1 inch = 25.4 mm.~~

~~**FIGURE R602.6(2) NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR NONBEARING WALLS**~~



For SI: 1 inch = 25.4 mm.

FIGURE R602.6(2) NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR NONBEARING WALLS

Reason: Proposal seeks to clarify language for notching of exterior, bearing and nonbearing partitions. Additional limitations are applied so that notching and cuts are limited to the limited to the outer 1/3rd of studs. This is consistent with limitations on studs notching location limits contained in the NDS WFCM.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0. This proposal may slightly increase the cost of construction. Notching limitations on stud walls will limit where notches can occur thus potentially increasing the cost of construction

Estimated Immediate Cost Impact Justification (methodology and variables):

By clarifying the limitations on cutting, notching or boring of wood studs, the contractor will need to more carefully plan for the installation of electrical wiring and the in wall plumbing for a project, resulting in potentially more time needed during the construction process.

Estimated Life Cycle Cost Impact:

Decrease

Estimated Life Cycle Cost Impact Justification (methodology and variables):

This proposal has the potential of reducing life cycle costs by eliminating distressed or damaged wall framing that would require replacement or strengthening.

RB189-25

RB190-25

IRC: TABLE R602.7(1)

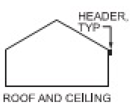
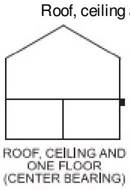
Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

Revise as follows:

TABLE R602.7(1) GIRDER SPANS[a] AND HEADER SPANS[a] FOR EXTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, Southern pine and spruce-pine-fir[b] and required number of jack studs)

Portions of table not shown remain unchanged.

GIRDERS AND HEADERS SUPPORTING	SIZE	ALLOWABLE STRESS DESIGN GROUND SNOW LOAD, $P_{g(asd)}$ (psf)[e]																	
		30						50						70					
		Building width[c] (feet)																	
		12		24		36		12		24		36		12		24		36	
		Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]
Roof and ceiling 	1-2 × 6	4-0	1	~~3-1~~ 3-0	2	~~2-7~~ 2-6	2	3-5	1	~~2-8~~ 2-7	2	~~2-3~~ 2-2	2	3-0	2	2-4	2	~~2-0~~ 1-11	2
	1-2 × 8	5-1	2	~~3-11~~ 3-10	2	3-3	2	4-4	2	~~3-4~~ 3-3	2	~~2-10~~ 2-9	2	3-10	2	~~3-0~~ 2-11	2	~~2-6~~ 2-5	3
	1-2 × 10	6-0	2	~~4-8~~ 4-7	2	~~3-11~~ 3-10	2	5-2	2	~~4-0~~ 3-11	2	~~3-4~~ 3-3	3	4-7	2	~~3-6~~ 3-5	3	~~3-0~~ 2-11	3
	1-2 × 12	7-1	2	~~5-5~~ 5-4	2	~~4-7~~ 4-6	3	6-1	2	~~4-8~~ 4-7	3	~~3-11~~ 3-10	3	~~5-5~~ 5-4	2	~~4-2~~ 4-1	3	~~3-6~~ 3-5	3
	2-2 × 4	4-0	1	~~3-1~~ 3-0	1	~~2-7~~ 2-6	1	3-5	1	2-7	1	2-2	1	3-0	1	~~2-4~~ 2-3	1	~~2-0~~ 1-11	1
	2-2 × 6	~~6-0~~ 5-11	1	~~4-7~~ 4-6	1	~~3-10~~ 3-9	1	5-1	1	~~3-11~~ 3-10	1	~~3-3~~ 3-2	2	4-6	1	~~3-6~~ 3-5	2	~~2-11~~ 2-10	2
	2-2 × 8	~~7-7~~ 7-6	1	~~5-9~~ 5-8	1	~~4-10~~ 4-9	2	6-5	1	~~5-0~~ 4-10	2	~~4-2~~ 4-1	2	~~5-9~~ 5-8	1	~~4-5~~ 4-4	2	~~3-9~~ 3-7	2
	2-2 × 10	~~9-0~~ 8-11	1	~~6-10~~ 6-9	2	~~5-9~~ 5-8	2	7-8	2	~~5-11~~ 5-9	2	~~4-11~~ 4-10	2	6-9	2	~~5-3~~ 5-1	2	~~4-5~~ 4-3	2
	2-2 × 12	~~10-7~~ 10-6	2	~~8-1~~ 7-11	2	~~6-10~~ 6-8	2	9-0	2	~~6-11~~ 6-9	2	~~5-10~~ 5-8	2	8-0	2	~~6-2~~ 6-0	2	~~5-2~~ 5-0	3
	3-2 × 8	9-5	1	~~7-3~~ 7-2	1	~~6-1~~ 6-0	1	8-1	1	~~6-3~~ 6-1	1	~~5-3~~ 5-1	2	7-2	1	~~5-6~~ 5-5	2	~~4-8~~ 4-6	2
	3-2 × 10	~~11-3~~ 11-2	1	~~8-7~~ 8-5	1	~~7-3~~ 7-1	2	9-7	1	~~7-4~~ 7-3	2	~~6-2~~ 6-1	2	8-6	1	~~6-7~~ 6-5	2	~~5-6~~ 5-4	2
	3-2 × 12	13-2	1	~~10-1~~ 10-0	2	~~8-6~~ 8-4	2	11-3	2	~~8-8~~ 8-6	2	~~7-4~~ 7-1	2	10-0	2	~~7-9~~ 7-7	2	~~6-6~~ 6-4	2
	4-2 × 8	10-11	1	~~8-4~~ 8-3	1	~~7-0~~ 6-11	1	9-4	1	~~7-2~~ 7-0	1	~~6-0~~ 5-11	1	8-3	1	~~6-4~~ 6-3	1	~~5-4~~ 5-3	2
	4-2 × 10	12-11	1	~~9-11~~ 9-9	1	~~8-4~~ 8-2	1	~~11-1~~ 11-0	1	~~8-6~~ 8-4	1	~~7-2~~ 7-0	2	~~9-10~~ 9-9	1	~~7-7~~ 7-5	2	~~6-4~~ 6-2	2
	4-2 × 12	15-3	1	~~11-8~~ 11-6	1	~~9-10~~ 9-7	2	13-0	1	~~10-0~~ 9-10	2	~~8-5~~ 8-3	2	~~11-7~~ 11-6	1	~~8-11~~ 8-9	2	~~7-6~~ 7-3	2
Roof, ceiling and one center-bearing floor 	1-2 × 6	3-3	1	~~2-7~~ 2-6	2	2-2	2	3-0	2	2-4	2	2-0	2	2-9	2	2-2	2	1-10	2
	1-2 × 8	4-1	2	~~3-3~~ 3-2	2	2-9	2	3-9	2	~~3-0~~ 2-11	2	2-6	3	3-6	2	2-9	2	2-4	3
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	1-2 × 12	5-9	2	4-6	3	3-10	3	5-3	2	~~4-2~~ 4-1	3	3-6	3	4-10	3	3-10	3	3-3	4
	2-2 × 4	~~3-3~~ 3-2	1	2-6	1	~~2-2~~ 2-1	1	~~3-0~~ 2-11	1	~~2-4~~ 2-3	1	~~2-0~~ 1-11	1	2-8	1	~~2-2~~ 2-1	1	1-10	1
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	2-2 × 8	6-1	1	~~4-10~~ 4-9	2	~~4-1~~ 4-0	2	5-7	2	~~4-5~~ 4-4	2	~~3-9~~ 3-8	2	5-2	2	~~4-1~~ 4-0	2	~~3-6~~ 3-5	2
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	4-2 × 8	8-10	1	6-11	1	~~5-11~~ 5-10	1	8-1	1	6-4	1	~~5-5~~ 5-4	2	7-5	1	~~5-11~~ 5-10	1	~~5-0~~ 4-11	2
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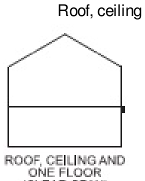
	4-2 × 12	12-4	1	~~9-8~~ 9-7	2	~~8-3~~ 8-2	2	11-4	2	~~8-11~~ 8-10	2	~~7-7~~ 7-5	2	10-4	2	~~8-3~~ 8-2	2	~~7-0~~ 6-11	2
Roof, ceiling and one clear-span floor 	1-2 × 6	2-11	2	2-3	2	1-11	2	2-9	2	2-1	2	1-9	2	2-7	2	2-0	2	1-8	2
	1-2 × 8	3-9	2	2-10	2	2-5	3	3-6	2	2-8	2	2-3	3	3-3	2	2-6	3	~~2-2~~ 2-1	3
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	2-2 × 8	5-6	2	4-3	2	3-7	2	5-2	2	~~4-0~~ 3-11	2	3-4	2	4-10	2	~~3-9~~ 3-8	2	~~3-2~~ 3-1	2
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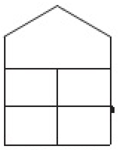
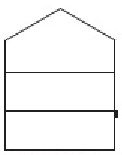
	3-2 × 12	9-8	2	7-5	2	6-2	2	9-0	2	~~7-0~~ 6-11	2	5-10	2	8-6	2	~~6-7~~ 6-6	2	~~5-6~~ 5-5	3
	4-2 × 8	8-0	1	6-1	1	5-1	2	7-5	1	~~5-9~~ 5-8	2	~~4-10~~ 4-9	2	7-0	1	~~5-5~~ 5-4	2	~~4-7~~ 4-6	2
	4-2 × 10	9-6	1	7-3	2	6-1	2	8-10	1	~~6-10~~ 6-9	2	~~5-9~~ 5-8	2	8-4	1	~~6-5~~ 6-4	2	~~5-5~~ 5-4	2
	4-2 × 12	11-2	2	8-6	2	7-2	2	10-5	2	~~8-0~~ 7-11	2	~~6-9~~ 6-8	2	~~9-10~~ 9-9	2	~~7-7~~ 7-6	2	~~6-5~~ 6-3	2
	1-2 × 6	2-8	2	2-1	2	1-10	2	2-7	2	2-0	2	~~1-9~~ 1-8	2	2-5	2	1-11	2	~~1-8~~ 1-7	2
	1-2 × 8	3-5	2	2-8	2	2-4	3	3-3	2	~~2-7~~ 2-6	2	2-2	3	3-1	2	2-5	3	~~2-1~~ 2-0	3
	1-2 × 10	4-0	2	3-2	3	2-9	3	3-10	2	~~3-1~~ 3-0	3	2-7	3	3-8	2	~~2-11~~ 2-10	3	2-5	3

GIRDERS AND HEADERS SUPPORTING	SIZE	ALLOWABLE STRESS DESIGN GROUND SNOW LOAD, P (psf)																	
		30						50						70					
		Building width (feet)																	
		12		24		36		12		24		36		12		24		36	
		Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ	Span	NJ
Roof, ceiling and two center-bearing floors  ROOF, CEILING AND TWO FLOORS (CENTER BEARING)	1-2 × 12	4-9	3	3-9	3	3-2	4	4-6	3	3-7	3	~~3-1~~ 3-0	4	4-3	3	~~3-5~~ 3-4	3	~~2-11~~ 2-10	4
	2-2 × 4	2-8	1	2-1	1	1-9	1	2-6	1	2-0	1	1-8	1	2-5	1	~~1-11~~ 1-10	1	1-7	1
	2-2 × 6	4-0	1	3-2	2	2-8	2	3-9	1	3-0	2	~~2-7~~ 2-6	2	3-7	1	2-10	2	2-5	2
	2-2 × 8	5-0	2	4-0	2	3-5	2	~~4-10~~ 4-9	2	~~3-10~~ 3-9	2	~~3-3~~ 3-2	2	~~4-7~~ 4-6	2	3-7	2	~~3-1~~ 3-0	2
	2-2 × 10	6-0	2	4-9	2	4-0	2	5-8	2	4-6	2	3-10	3	5-5	2	4-3	2	~~3-8~~ 3-7	3
	2-2 × 12	7-0	2	5-7	2	4-9	3	6-8	2	~~5-4~~ 5-3	3	4-6	3	6-4	2	5-0	3	4-3	3
	3-2 × 8	6-4	1	5-0	2	4-3	2	6-0	1	4-9	2	~~4-1~~ 4-0	2	5-8	2	~~4-6~~ 4-5	2	~~3-10~~ 3-9	2
	3-2 × 10	7-6	2	5-11	2	5-1	2	7-1	2	~~5-8~~ 5-7	2	~~4-10~~ 4-9	2	6-9	2	~~5-4~~ 5-3	2	~~4-7~~ 4-6	2
	3-2 × 12	8-10	2	7-0	2	5-11	2	8-5	2	~~6-8~~ 6-7	2	~~5-8~~ 5-7	3	~~8-0~~ 7-11	2	~~6-4~~ 6-3	2	~~5-4~~ 5-3	3
	4-2 × 8	7-3	1	5-9	1	4-11	2	6-11	1	~~5-6~~ 5-5	2	4-8	2	6-7	1	5-2	2	~~4-5~~ 4-4	2
	4-2 × 10	8-8	1	6-10	2	5-10	2	8-3	2	6-6	2	~~5-7~~ 5-6	2	~~7-10~~ 7-9	2	~~6-2~~ 6-1	2	~~5-3~~ 5-2	2
	4-2 × 12	10-2	2	8-1	2	6-10	2	9-8	2	~~7-8~~ 7-7	2	~~6-7~~ 6-6	2	9-2	2	~~7-3~~ 7-2	2	~~6-2~~ 6-1	2
Roof, ceiling, and two clear-span floors  ROOF, CEILING AND TWO FLOORS (CLEAR SPAN)	1-2 × 6	2-3	2	1-9	2	1-5	2	2-3	2	1-9	2	1-5	3	2-2	2	1-8	2	1-5	3
	1-2 × 8	2-10	2	2-2	3	1-10	3	2-10	2	2-2	3	1-10	3	2-9	2	2-1	3	~~1-10~~ 1-9	3
	1-2 × 10	3-4	2	2-7	3	2-2	3	3-4	3	2-7	3	2-2	4	3-3	3	2-6	3	~~2-2~~ 2-1	4
	1-2 × 12	4-0	3	3-0	3	2-7	4	4-0	3	3-0	4	2-7	4	3-10	3	~~3-0~~ 2-11	4	2-6	4
	2-2 × 4	2-3	1	1-8	1	1-4	1	2-3	1	1-8	1	1-4	1	2-2	1	~~1-8~~ 1-7	1	1-4	2
	2-2 × 6	3-4	1	2-6	2	2-2	2	3-4	2	2-6	2	2-2	2	3-3	2	2-6	2	2-1	2
	2-2 × 8	4-3	2	3-3	2	2-8	2	4-3	2	3-3	2	2-8	2	4-1	2	~~3-2~~ 3-1	2	2-8	3
	2-2 × 10	5-0	2	3-10	2	3-2	3	5-0	2	3-10	2	3-2	3	4-10	2	~~3-9~~ 3-8	3	~~3-2~~ 3-1	3
	2-2 × 12	5-11	2	4-6	3	3-9	3	5-11	2	4-6	3	3-9	3	5-8	2	~~4-5~~ 4-4	3	~~3-9~~ 3-8	3
	3-2 × 8	5-3	1	4-0	2	3-5	2	5-3	2	4-0	2	3-5	2	5-1	2	3-11	2	3-4	2
	3-2 × 10	6-3	2	4-9	2	4-0	2	6-3	2	4-9	2	4-0	2	6-1	2	4-8	2	~~4-0~~ 3-11	3
	3-2 × 12	7-5	2	5-8	2	4-9	3	7-5	2	5-8	2	4-9	3	7-2	2	5-6	3	~~4-8~~ 4-7	3
	4-2 × 8	6-1	1	4-8	2	3-11	2	6-1	1	4-8	2	3-11	2	5-11	1	~~4-7~~ 4-6	2	3-10	2
	4-2 × 10	7-3	2	5-6	2	4-8	2	7-3	2	5-6	2	4-8	2	7-0	2	~~5-5~~ 5-4	2	~~4-7~~ 4-6	2
	4-2 × 12	8-6	2	6-6	2	5-6	2	8-6	2	6-6	2	5-6	2	8-3	2	6-4	2	5-4	3

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas fir-larch, hem-fir, Southern pine, and spruce-pine-fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

e. Use 30 psf allowable stress design ground snow load for cases in which allowable stress design ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

f. Spans are calculated assuming a single span header or girder under uniform load where the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (for example, cripple studs bearing on the header), tabulated spans for headers consisting of 2 × 8, 2 × 10, or 2 × 12 sizes shall be multiplied by 0.70 or the header or girder shall be designed.

Reason: This proposal updates the header tables in multiple locations to be aligned with ASCE 7-22. The proposed spans align with those found in the ANSI/AWC *2024 Wood Frame Construction Manual (WFCM).* Additionally, language has been added to footnote f to clarify that all header and girder calculations are based on the assumption that they are single-span headers or girders. This clarification is necessary as multi-span headers are not addressed by the tables. The table heading and footnote e have been revised to reflect that the code now uses allowable stress design ground snow load.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal updates the header tables in multiple locations to be aligned with ASCE 7-22. Updated spans are typically shorter by either 1 or 2 inches. This minor adjustment in span will likely not impact the lumber lengths needed for construction, as some trimming will still be necessary to accommodate the actual header span end use. As the cost impact cannot be a decrease, and any increase is minimal that may not be realized due to typical waste, the cost impact is estimated at an increase of $0.

RB190-25

RB191-25

IRC: R602.7, TABLE R602.7(1), TABLE R602.7(2) (New), TABLE R602.7(2), R602.7(4) (New)

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

Revise as follows:

R602.7 Headers. For header spans, see Tables R602.7(1), R602.7(2), R602.7(3), R602.7(4) and R602.7(~~3~~5).

TABLE R602.7(1) LATERALLY SUPPORTED GIRDER SPANS[a] AND HEADER SPANS[a] FOR EXTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, Southern pine and spruce-pine-fir[b] and required number of jack studs)

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas fir-larch, hem-fir, Southern pine, and spruce-pine-fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

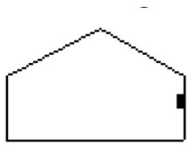
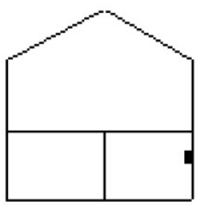
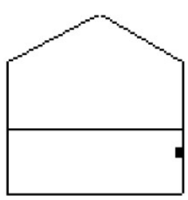
e. Use 30 psf ground snow load for cases in which ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

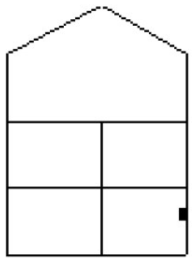
f. Spans are calculated assuming a single span header or girder under uniform load where the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (for example, cripple studs bearing on the header), refer to Table R602.7(2). ~~tabulated spans for headers consisting of 2 × 8, 2 × 10, or 2 × 12 sizes shall be multiplied by 0.70 or the header or girder shall be designed.~~

Add new text as follows:

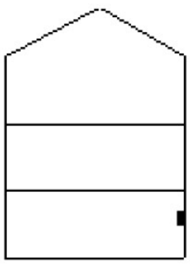
TABLE R602.7(2)
LATERALLY UNSUPPORTED (DROPPED) GIRDER SPANS[a] AND HEADER SPANS[a] FOR EXTERIOR BEARING WALLS (Maximum spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and required number of jack studs)

GIRDERS AND HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf)[e]																	
		30						50						70					
		Building width[c] (feet)																	
		12		24		36		12		24		36		12		24		36	
		Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]	Span[f]	NJ[d]
	1-2 × 6	3-11	1	3-0	2	2-6	2	3-4	1	2-7	2	2-2	2	3-0	2	2-3	2	1-11	2
	1-2 × 8	4-10	2	3-9	2	3-2	2	4-2	2	3-3	2	2-8	2	3-9	2	2-10	2	2-5	3
	1-2 × 10	5-7	2	4-4	2	3-8	2	4-10	2	3-9	2	3-2	3	4-4	2	3-4	3	2-10	3
	1-2 × 12	6-2	2	4-11	2	4-3	3	5-5	2	4-4	3	3-8	3	4-11	2	3-10	3	3-3	3
	2-2 × 4	3-11	1	3-0	1	2-6	1	3-4	1	2-6	1	2-2	1	3-0	1	2-3	1	1-11	1
Roof and ceiling	2-2 × 6	5-8	1	4-4	1	3-8	1	4-11	1	3-9	1	3-2	2	4-5	1	3-4	2	2-10	2
	2-2 × 8	6-9	1	5-4	1	4-6	2	5-11	1	4-7	2	3-11	2	5-4	1	4-2	2	3-6	2

	2-2 × 10	7-6	1	6-0	2	5-2	2	6-7	2	5-3	2	4-6	2	6-0	2	4-9	2	4-1	2
	2-2 × 12	8-0	2	6-6	2	5-9	2	7-2	2	5-10	2	5-1	2	6-6	2	5-4	2	4-7	3
	3-2 × 8	8-0	1	6-5	1	5-6	1	7-1	1	5-7	1	4-10	2	6-5	1	5-1	2	4-4	2
	3-2 × 10	8-9	1	7-1	1	6-2	2	7-9	1	6-3	2	5-5	2	7-1	1	5-8	2	4-11	2
	3-2 × 12	9-4	1	7-7	2	6-8	2	8-4	2	6-9	2	5-11	2	7-7	2	6-2	2	5-5	2
	4-2 × 8	8-10	1	7-2	1	6-3	1	7-11	1	6-4	1	5-5	1	7-2	1	5-9	1	4-11	2
	4-2 × 10	9-8	1	7-11	1	6-11	1	8-8	1	7-0	1	6-1	2	7-11	1	6-5	2	5-6	2
	4-2 × 12	10-4	1	8-5	1	7-5	2	9-3	1	7-6	2	6-7	2	8-6	1	6-11	2	6-0	2
	1-2 × 6	3-2	1	2-6	2	2-2	2	2-11	2	2-4	2	1-11	2	2-8	2	2-2	2	1-10	2
	1-2 × 8	4-0	2	3-2	2	2-8	2	3-8	2	2-11	2	2-5	3	3-5	2	2-8	2	2-3	3
	1-2 × 10	4-7	2	3-8	2	3-2	3	4-3	2	3-5	3	2-11	3	3-11	2	3-2	3	2-8	3
	1-2 × 12	5-3	2	4-3	3	3-8	3	4-10	2	3-11	3	3-4	3	4-6	3	3-8	3	3-1	4
Roof, ceiling and one center-bearing floor	2-2 × 4	3-2	1	2-6	1	2-1	1	2-11	1	2-3	1	1-11	1	2-8	1	2-1	1	1-9	1
	2-2 × 6	4-8	1	3-8	1	3-2	2	4-4	1	3-4	2	2-10	2	3-11	1	3-2	2	2-8	2
	2-2 × 8	5-8	1	4-6	2	3-11	2	5-3	2	4-2	2	3-7	2	4-10	2	3-11	2	3-4	2
	2-2 × 10	6-4	2	5-2	2	4-6	2	5-11	2	4-10	2	4-2	2	5-6	2	4-6	2	3-10	2
	2-2 × 12	6-10	2	5-9	2	5-0	2	6-5	2	5-4	2	4-8	3	6-1	2	5-0	2	4-5	3
	3-2 × 8	6-9	1	5-6	1	4-9	2	6-4	1	5-1	2	4-5	2	5-11	1	4-9	2	4-1	2
	3-2 × 10	7-5	1	6-2	2	5-5	2	7-0	1	5-9	2	5-0	2	6-6	2	5-5	2	4-8	2
	3-2 × 12	8-0	2	6-8	2	5-11	2	7-6	2	6-3	2	5-6	2	7-0	2	5-11	2	5-2	2
	4-2 × 8	7-7	1	6-3	1	5-5	1	7-1	1	5-9	1	5-0	2	6-7	1	5-5	1	4-8	2
	4-2 × 10	8-4	1	6-11	2	6-1	2	7-9	1	6-5	2	5-7	2	7-4	1	6-1	2	5-3	2
	4-2 × 12	8-11	1	7-5	2	6-7	2	8-4	2	6-11	2	6-2	2	7-10	2	6-7	2	5-10	2
	1-2 × 6	2-11	2	2-3	2	1-10	2	2-8	2	2-1	2	1-9	2	2-7	2	1-11	2	1-8	2
	1-2 × 8	3-8	2	2-10	2	2-4	3	3-5	2	2-7	2	2-2	3	3-2	2	2-6	3	2-1	3
	1-2 × 10	4-3	2	3-4	3	2-9	3	4-0	2	3-1	3	2-7	3	3-9	2	2-11	3	2-5	3
	1-2 × 12	4-10	2	3-10	3	3-3	3	4-6	3	3-7	3	3-0	4	4-4	3	3-4	3	2-10	4
Roof, ceiling and one clear-span floor	2-2 × 4	2-11	1	2-3	1	1-10	1	2-8	1	2-1	1	1-9	1	2-6	1	1-11	1	1-7	1
	2-2 × 6	4-3	1	3-3	2	2-9	2	4-0	1	3-1	2	2-7	2	3-9	1	2-10	2	2-5	2
	2-2 × 8	5-2	2	4-1	2	3-6	2	4-10	2	3-10	2	3-3	2	4-7	2	3-7	2	3-0	2
	2-2 × 10	5-10	2	4-8	2	4-0	2	5-6	2	4-5	2	3-9	2	5-3	2	4-2	2	3-7	3
	2-2 × 12	6-4	2	5-3	2	4-7	3	6-1	2	4-11	2	4-3	3	5-9	2	4-8	3	4-1	3
	3-2 × 8	6-3	1	5-0	2	4-3	2	5-11	1	4-8	2	4-0	2	5-7	1	4-5	2	3-9	2
	3-2 × 10	6-11	2	5-7	2	4-10	2	6-7	2	5-3	2	4-7	2	6-3	2	5-0	2	4-4	2
	3-2 × 12	7-5	2	6-1	2	5-5	2	7-1	2	5-10	2	5-1	2	6-9	2	5-6	2	4-10	3
	4-2 × 8	7-0	1	5-8	1	4-10	2	6-8	1	5-4	2	4-6	2	6-4	1	5-0	2	4-3	2
	4-2 × 10	7-8	1	6-3	2	5-6	2	7-4	1	5-11	2	5-2	2	7-0	1	5-8	2	4-11	2
	4-2 × 12	8-3	2	6-9	2	6-0	2	7-10	2	6-5	2	5-8	2	7-6	2	6-2	2	5-5	2
	1-2 × 6	2-8	2	2-1	2	1-10	2	2-6	2	2-0	2	1-8	2	2-5	2	1-11	2	1-7	2
	1-2 × 8	3-4	2	2-8	2	2-3	3	3-2	2	2-6	2	2-2	3	3-0	2	2-4	3	2-0	3
	1-2 × 10	3-11	2	3-2	3	2-8	3	3-8	2	2-11	3	2-6	3	3-6	2	2-9	3	2-5	3
	1-2 × 12	4-6	3	3-8	3	3-2	4	4-3	3	3-5	3	2-11	4	4-1	3	3-3	3	2-9	4
Roof, ceiling and two center-bearing floors	2-2 × 4	2-8	1	2-1	1	1-9	1	2-6	1	2-0	1	1-8	1	2-4	1	1-10	1	1-7	1
	2-2 × 6	3-11	1	3-1	2	2-8	2	3-8	1	2-11	2	2-6	2	3-6	1	2-9	2	2-4	2
	2-2 × 8	4-10	2	3-11	2	3-4	2	4-7	2	3-8	2	3-2	2	4-4	2	3-5	2	2-11	2
	2-2 × 10	5-6	2	4-6	2	3-11	2	5-2	2	4-3	2	3-8	3	5-0	2	4-0	2	3-6	3
	2-2 × 12	6-0	2	5-0	2	4-5	3	5-9	2	4-9	3	4-2	3	5-6	2	4-7	3	4-0	3
	3-2 × 8	5-10	1	4-9	2	4-1	2	5-6	1	4-6	2	3-10	2	5-3	2	4-3	2	3-8	2
	3-2 × 10	6-6	2	5-4	2	4-9	2	6-2	2	5-1	2	4-5	2	5-11	2	4-10	2	4-3	2



Roof, ceiling, and two clear-span floors



3-2 × 12	7-0	2	5-11	2	5-3	2	6-8	2	5-7	2	5-0	3	6-5	2	5-5	2	4-9	3
4-2 × 8	6-7	1	5-5	1	4-8	2	6-3	1	5-1	2	4-5	2	6-0	1	4-10	2	4-2	2
4-2 × 10	7-3	1	6-0	2	5-4	2	6-11	2	5-9	2	5-0	2	6-8	2	5-6	2	4-9	2
4-2 × 12	7-9	2	6-6	2	5-10	2	7-5	2	6-3	2	5-6	2	7-2	2	6-0	2	5-4	2
1-2 × 6	2-3	2	1-8	2	1-5	2	2-3	2	1-8	2	1-5	3	2-2	2	1-8	2	1-5	3
1-2 × 8	2-10	2	2-2	3	1-10	3	2-10	2	2-2	3	1-10	3	2-8	2	2-1	3	1-9	3
1-2 × 10	3-4	2	2-6	3	2-2	3	3-4	3	2-6	3	2-2	4	3-2	3	2-6	3	2-1	4
1-2 × 12	3-10	3	3-0	3	2-6	4	3-10	3	3-0	4	2-6	4	3-8	3	2-10	4	2-5	4
2-2 × 4	2-3	1	1-8	1	1-4	1	2-3	1	1-8	1	1-4	1	2-2	1	1-7	1	1-4	2
2-2 × 6	3-3	1	2-6	2	2-1	2	3-3	2	2-6	2	2-1	2	3-2	2	2-5	2	2-1	2
2-2 × 8	4-1	2	3-2	2	2-8	2	4-1	2	3-2	2	2-8	2	3-11	2	3-1	2	2-7	3
2-2 × 10	4-9	2	3-8	2	3-2	3	4-8	2	3-8	2	3-2	3	4-6	2	3-7	3	3-0	3
2-2 × 12	5-4	2	4-3	3	3-8	3	5-3	2	4-3	3	3-8	3	5-1	2	4-1	3	3-6	3
3-2 × 8	5-0	1	3-11	2	3-4	2	5-0	2	3-11	2	3-4	2	4-10	2	3-9	2	3-2	2
3-2 × 10	5-9	2	4-7	2	3-10	2	5-7	2	4-6	2	3-10	2	5-5	2	4-4	2	3-9	3
3-2 × 12	6-4	2	5-2	2	4-5	3	6-2	2	5-0	2	4-5	3	5-11	2	4-10	3	4-3	3
4-2 × 8	5-9	1	4-6	2	3-10	2	5-8	1	4-6	2	3-10	2	5-5	1	4-4	2	3-8	2
4-2 × 10	6-6	2	5-2	2	4-5	2	6-4	2	5-1	2	4-5	2	6-1	2	4-11	2	4-3	2
4-2 × 12	7-1	2	5-9	2	5-0	2	6-10	2	5-7	2	4-11	2	6-7	2	5-5	2	4-9	3

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas Fir-Larch, Hem-Fir, Southern Pine, and Spruce-Pine-Fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

e. Use 30 psf ground snow load for cases in which ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

f. Spans are calculated assuming a single span header or girder under uniform load where the top of the header or girder is not laterally braced by perpendicular framing.

Revise as follows:

~~TABLE R602.7(2)~~ TABLE R602.7(3) LATERALLY SUPPORTED GIRDER SPANS[a] AND HEADER SPANS[a] FOR INTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir[b] and required number of jack studs)

Portions of table not shown remain unchanged.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

e. Spans are calculated assuming a single span header or girder under uniform load where the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (for example, cripple studs bearing on the header), refer to Table R602.7(4). ~~tabulated spans for headers consisting of 2 × 8, 2 × 10, or 2 × 12 sizes shall be multiplied by 0.70 or the header or girder shall be designed~~.

Add new text as follows:

R602.7(4)

TABLE R602.7(4)

LATERALLY UNSUPPORTED (DROPPED) GIRDER SPANS[a] AND HEADER SPANS[a] FOR INTERIOR BEARING WALLS (Maximum spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and required number of jack studs)

GIRDERS AND HEADERS SUPPORTING	SIZE	Building Width[c] (feet)					
		12		24		36	
		Span[e]	NJ[d]	Span[e]	NJ[d]	Span[e]	NJ[d]
One floor only	2-2 × 4	4-0	1	2-10	1	2-4	1
	2-2 × 6	5-11	1	4-3	1	3-5	1
	2-2 × 8	7-1	1	5-2	1	4-4	2
	2-2 × 10	7-11	1	5-11	2	5-0	2
	2-2 × 12	8-6	1	6-7	2	5-7	2
	3-2 × 8	8-5	1	6-4	1	5-3	1
	3-2 × 10	9-3	1	7-1	1	6-0	2
	3-2 × 12	9-11	1	7-8	2	6-7	2
	4-2 × 8	9-5	1	7-2	1	6-0	1
	4-2 × 10	10-3	1	7-11	1	6-9	1
	4-2 × 12	11-0	1	8-7	1	7-4	2
Two floors	2-2 × 4	2-7	1	1-11	1	1-7	1
	2-2 × 6	3-10	1	2-10	2	2-5	2
	2-2 × 8	4-9	1	3-7	2	3-0	2
	2-2 × 10	5-6	2	4-2	2	3-6	2
	2-2 × 12	6-1	2	4-9	2	4-1	3
	3-2 × 8	5-10	1	4-5	2	3-9	2
	3-2 × 10	6-7	1	5-1	2	4-4	2
	3-2 × 12	7-2	2	5-8	2	4-11	2
	4-2 × 8	6-7	1	5-4	1	4-5	2
	4-2 × 10	7-5	1	5-9	2	4-11	2
	4-2 × 12	8-0	1	6-4	2	5-6	2

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas Fir-Larch, Hem-Fir, Southern Pine, and Spruce-Pine-Fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

e. Spans are calculated assuming a single span header or girder under uniform load where the top of the header or girder is not laterally braced by perpendicular framing.

Reason: Laterally unsupported header and girder spans are currently addressed by a conservative adjustment in footnote f of the existing header/girder span tables. Spans for laterally unsupported headers and girders are added consistent with ANSI/AWC 2024 Wood Frame Construction Manual to show appropriate spans, avoiding the unnecessary conservatism. With this proposal, the laterally unsupported header and girder condition is now addressed by stand-alone tables and no longer needs to be addressed through an adjustment factor footnote. Existing tables have been renumbered and titles have been revised to reflect that they are applicable to laterally supported headers and girders.

Additionally, language has been added to the footnotes to clarify that all header and girder calculations are based on the assumption that they are single-span headers or girders. This clarification is necessary as multi-span headers are not addressed by the tables.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal revises the code for laterally unsupported (dropped) header and girder spans. The new tables remove unnecessary conservatism, therefore this proposal could potentially decrease construction costs where the tables are used. The decrease in cost is conservatively estimated as $0.

RB191-25

RB192-25

IRC: TABLE R602.7(2)

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

TABLE R602.7(2) GIRDER SPANS[a] AND HEADER SPANS[a] FOR INTERIOR BEARING WALLS (Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir[b] and required number of jack studs)

HEADERS AND GIRDERS SUPPORTING	SIZE	BUILDING Width[c] (feet) 12		24		36	
		Span[e]	NJ[d]	Span[e]	NJ[d]	Span[e]	NJ[d]
One floor only	2-2 × 4	4-1	1	2-10	1	2-4	1
	2-2 × 6	6-1	1	4-4	1	3-6	1
	2-2 × 8	7-9	1	5-5	1	4-5	2
	2-2 × 10	9-2	1	6-6	2	5-3	2
	2-2 × 12	10-9	1	7-7	2	6-3	2
	3-2 × 8	9-8	1	6-10	1	5-7	1
	3-2 × 10	11-5	1	8-1	1	6-7	2
	3-2 × 12	13-6	1	9-6	2	7-9	2
	4-2 × 8	11-2	1	7-11	1	6-5	1
	4-2 × 10	13-3	1	9-4	1	7-8	1
	4-2 × 12	15-7	1	11-0	1	9-0	2
Two floors	2-2 × 4	2-7	1	1-11	1	1-7	1
	2-2 × 6	3-11	1	2-11	2	2-5	2
	2-2 × 8	5-0	1	3-8	2	3-1	2
	2-2 × 10	5-11	2	4-4	2	3-7	2
	2-2 × 12	6-11	2	5-2	2	4-3	3
	3-2 × 8	6-3	1	4-7	2	3-10	2
	3-2 × 10	7-5	1	5-6	2	4-6	2
	3-2 × 12	8-8	2	6-5	2	5-4	2
	4-2 × 8	7-2	1	5-4	1	4-5	2
	4-2 × 10	8-6	1	6-4	2	5-3	2
	4-2 × 12	10-1	1	7-5	2	6-2	2

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Spans are given in feet and inches.

b. Spans are based on minimum design properties for No. 2 grade lumber of Douglas fir-larch, hem-fir, Southern pine, and spruce-pine-fir.

c. Building width is measured perpendicular to the girder or header ~~ridge~~. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an *approved* framing anchor attached to the full-height wall stud and to the header.

e. Spans are calculated assuming the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (for example, cripple studs bearing on the header), tabulated spans for headers consisting of 2 × 8, 2 × 10, or 2 × 12 sizes shall be multiplied by 0.70 or the header or girder shall be designed.

Reason: "Building width" is just a way for the IRC to figure out the rafter or joist span for the sake of sizing beams and headers. Measuring the building width needs to be in the direction parallel to the rafter or joist being supported. When sizing headers in exterior walls, rafters are being supported, and thus "building width" is perpendicular to the ridge supporting those rafters. However, for this table, girders and headers for interior walls are being sized. Under the prescriptive design method of "conventional wood frame construction" the roof is clear span and not supported by interior bearing walls. Yes... the use of purlins to support rafters mid span do transfer those loads to interior walls, but this table is appears to be based on the floor loads only. With that in mind, it seems that "building width" for use of this table would not care about the roof orientation, but rather the joist orientation. Thus the description of "building width" should be in reference to the direction of the joists and exterior walls and not the roof ridge. It is not uncommon for a building to have joists running in a direction different from the roof rafters.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only clarifies the existing intent of the IRC and does not affect the cost of construction.

RB192-25

RB193-25

IRC: R602.10.1.2, FIGURE R602.10.1.1

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

Revise as follows:

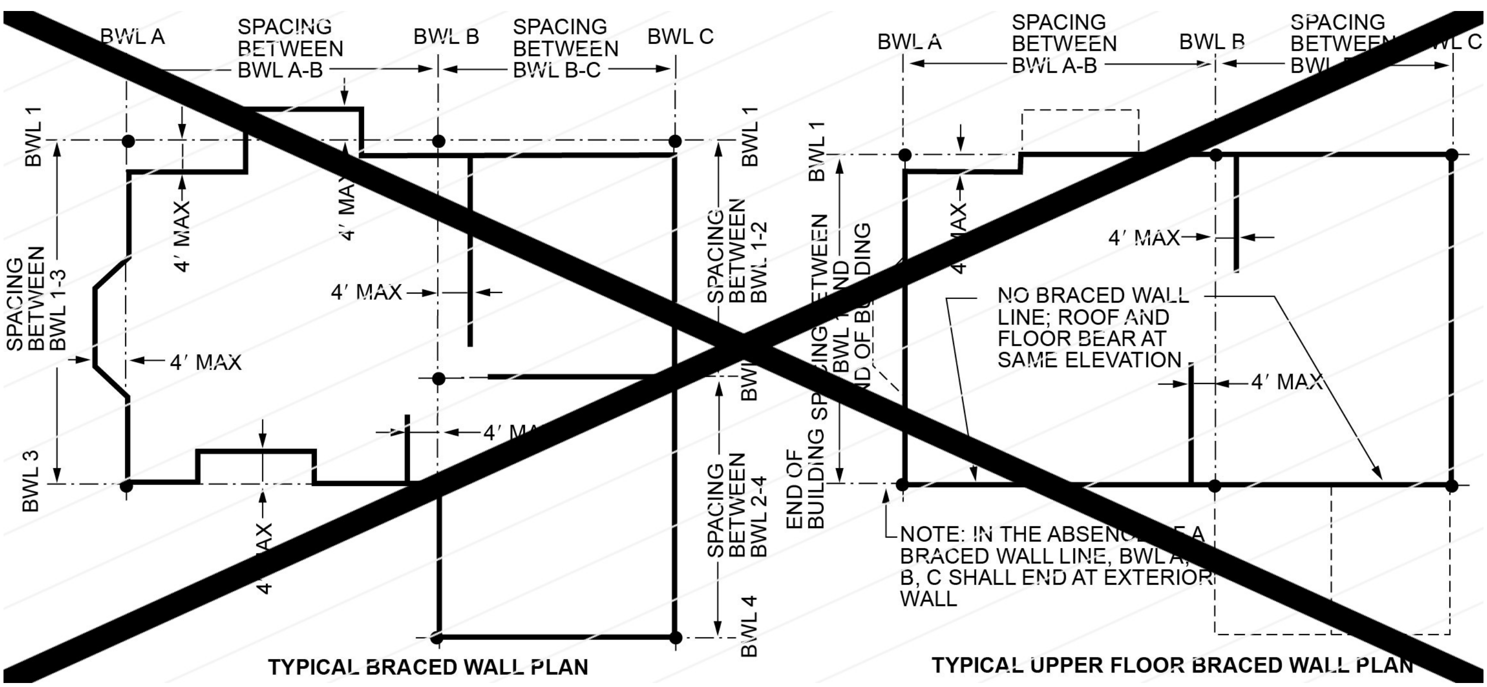
R602.10.1.2 Location of braced wall lines and permitted offsets. A braced wall line shall be provided at each exterior wall, as illustrated in Figure R602.10.1.1.

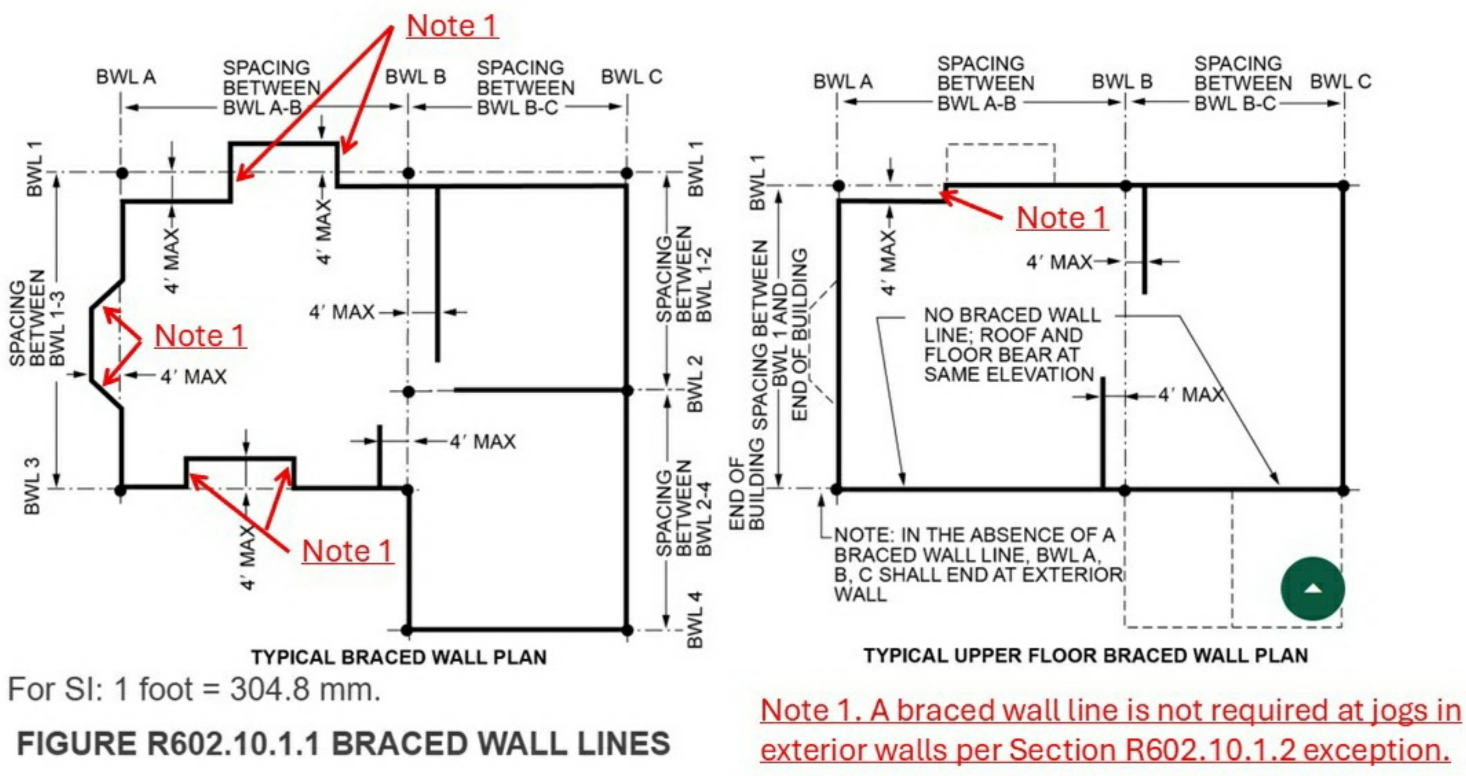
> **Exception:** A braced wall line is not required at jogs within exterior walls, as illustrated in Figure R602.10.1.1, provided that the jogs are less than eight feet long and oriented perpendicular to or at an angle to the exterior braced wall line.

In addition, interior braced wall lines shall be provided as required to meet the braced wall line spacing requirements of Section R602.10.1.13. Each *braced wall line* shall be located such that no more than two-thirds of the required *braced wall panel* length is located to one side of the *braced wall line*. *Braced wall panels* shall be permitted to be offset up to 4 feet (1219 mm) from the designated *braced wall line*. *Braced wall panels* parallel to a *braced wall line* shall be offset not more than 4 feet (1219 mm) from the designated *braced wall line* location as shown in Figure R602.10.1.1.

~~Exterior walls parallel to a *braced wall line* shall be offset not more than 4 feet (1219 mm) from the designated *braced wall line* location as shown in Figure R602.10.1.1.~~

~~Interior walls used as bracing shall be offset not more than 4 feet (1219 mm) from a *braced wall line* through the interior of the *building* as shown in Figure R602.10.1.1.~~





For SI: 1 foot = 304.8 mm.

FIGURE R602.10.1.1 BRACED WALL LINES

Reason: This code change proposal is restoring the explicit statement of a design provision that was inadvertently lost in the 2009 IRC provisions. The earlier IRC provisions were based on conventional construction provisions from the UBC which initially only required bracing at exterior walls and in 1994 added interior braced wall line requirements. 2006 IRC Section R602.10 wall bracing required "All exterior walls shall be braced in accordance with this section. In addition, interior braced wall lines shall be provided in accordance with Section R602.10.1.1…." Braced wall lines at exterior walls are illustrated in Figure R602.10.1.1, but they are no longer explicitly required by the code text. This code change proposal corrects this significant error by reestablishing text requiring braced wall lines at exterior walls.

The exception allows for jogging of the exterior wall, as is common in modern floor plans. Until the length of a jog exceeds eight feet, no bracing will be required within the jog.

Once the basic provisions make clear that braced wall lines are required at exterior walls and additional interior braced wall lines are required to meet spacing requirements, the final two sentences, which imply this in a more indirect fashion, become redundant and can be deleted.

From a technical standpoint, the wind and seismic bracing requirements of the IRC are intended to provide design and performance consistent with that provided for buildings engineered in accordance with the IBC. This has been achieved in the current and prior IRC bracing provisions by using pre-engineered example buildings to derive the wind and seismic bracing tables. Inherent in the pre-engineering is the assumption that exterior walls serve as braced wall lines. If this is not achieved, then the resulting dwellings are not likely to meet the performance targets that are intended. This is a very basic and important aspect of the wind and seismic bracing provisions that needs to be corrected. If this cannot be corrected then the IRC wind and seismic bracing provisions can no longer be relied on to be equivalent to the requirements of the IBC.

Further, spacing between braced wall lines is both regulated by the IRC and used in looking up the amount of bracing required in each braced wall line. The starting point for measuring braced wall line spacing is intended to be the exterior walls. If these are not set as the origin for braced wall line spacing, then braced wall line layout can no longer be consistently established, leading to inconsistent implementation and resulting inconsistent performance.

Note that where the IRC seismic provisions apply, this section is further restricted by Section R301.2.2.6, Item 2 would designate as irregular a dwelling that does not have wall bracing at all edges of the floor and roof, meaning that it is beyond the scope of the IRC. An exception allows a floor or roof cantilever of up to six feet past the braced wall line. For these dwellings the Section R602.10.1.2.1 are reiterating requirements that are already in place.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposal is entirely clarification and editorial to maintain past practice, with no substantive effect.

RB193-25

RB194-25

IRC: R602.10.2.2.1, R602.10.2.2.1 (New), FIGURE R602.10.7

Proponents: Chris Wong, SE, City of Hillsboro, representing Oregon Building Officials Association Codes Committee (chris.wong@hillsboro-oregon.gov); Paul Vinje, City of Hillsboro, representing Oregon Building Officials Codes Committee (paul.vinje@hillsboro-oregon.gov)

2024 International Residential Code

Revise as follows:

R602.10.2.2.1 Location of braced wall panels in Seismic Design Categories D_0, D_1 and D_2. *Braced wall panels* shall be located at each end of a *braced wall line*.

Exceptions~~s~~:

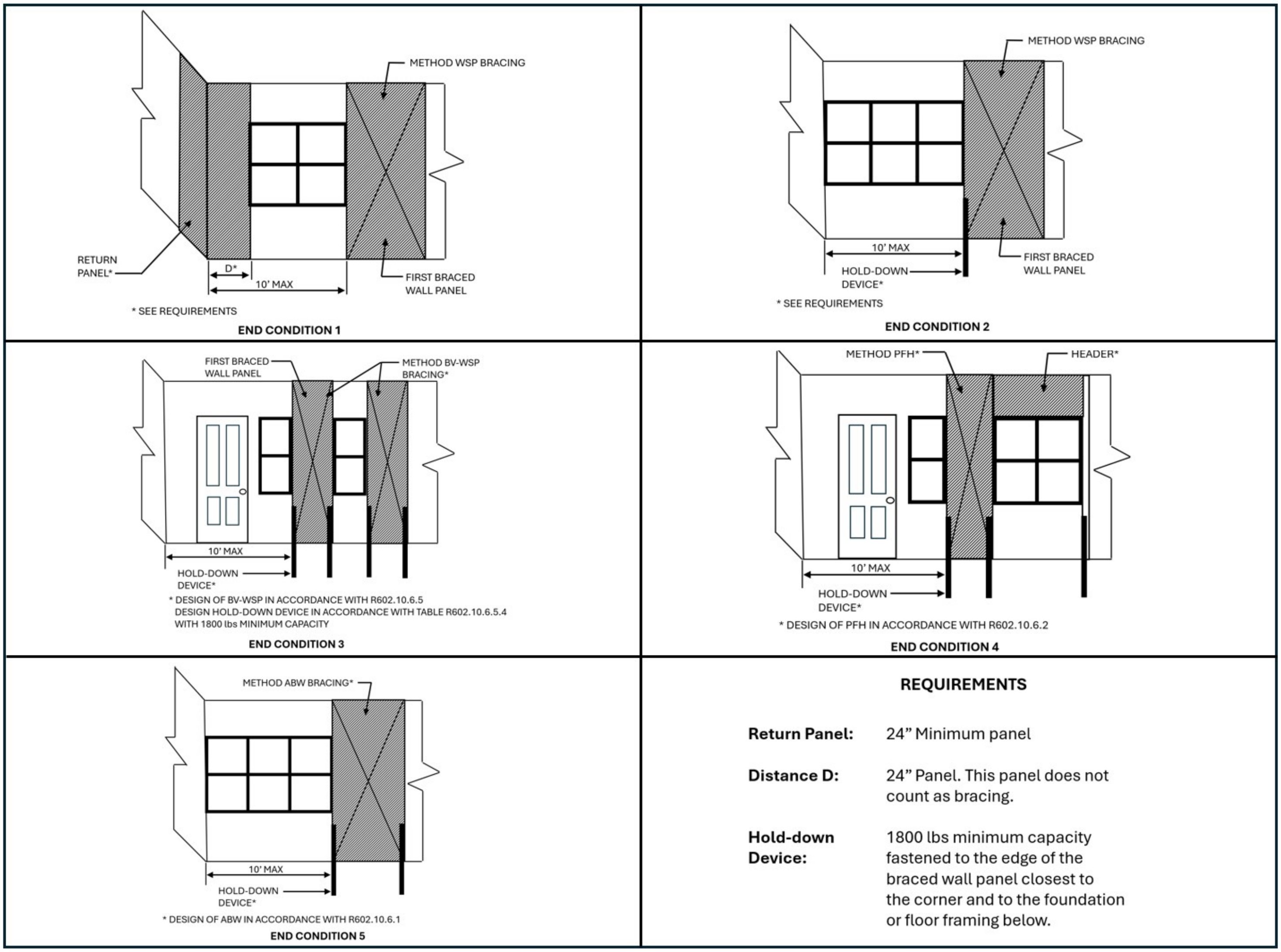
~~1.~~ *Braced wall panels* ~~constructed of Method WSP or BV-WSP and continuous sheathing methods as specified in Section R602.10.4~~ shall be permitted to begin not more than 10 feet (3048 mm) from each end of a *braced wall line* ~~provided that each end complies~~ in accordance with one of the following:

~~1.~~1. ~~A minimum 24-inch-wide (610 mm) panel for~~ Intermittent Braced Wall Method ~~s WSP, CS-WSP, CS-G and CS-PF is applied to each side of the building corner~~ shall have one of the conditions ~~as~~ shown in ~~End Condition 4 of~~ Figure ~~R602.10.7~~ R602.10.2.2.1.

~~1.~~2. ~~The end of each *braced wall panel* closest to the end of the *braced wall line* shall have an 1,800-pound (8 kN) hold-down device fastened to the stud at the edge of the *braced wall panel* closest to the corner and to the foundation or framing below as shown in End Condition 5 of Figure~~ R602.10.7 Continuous sheathing methods in accordance with Section R602.10.4.2.

~~2. *Braced wall panels* constructed of Method PFH or ABW, or of Method BV-WSP where a hold-down is provided in accordance with Table R602.10.6.5.4, shall be permitted to begin not more than 10 feet (3048 mm) from each end of a *braced wall line*.~~

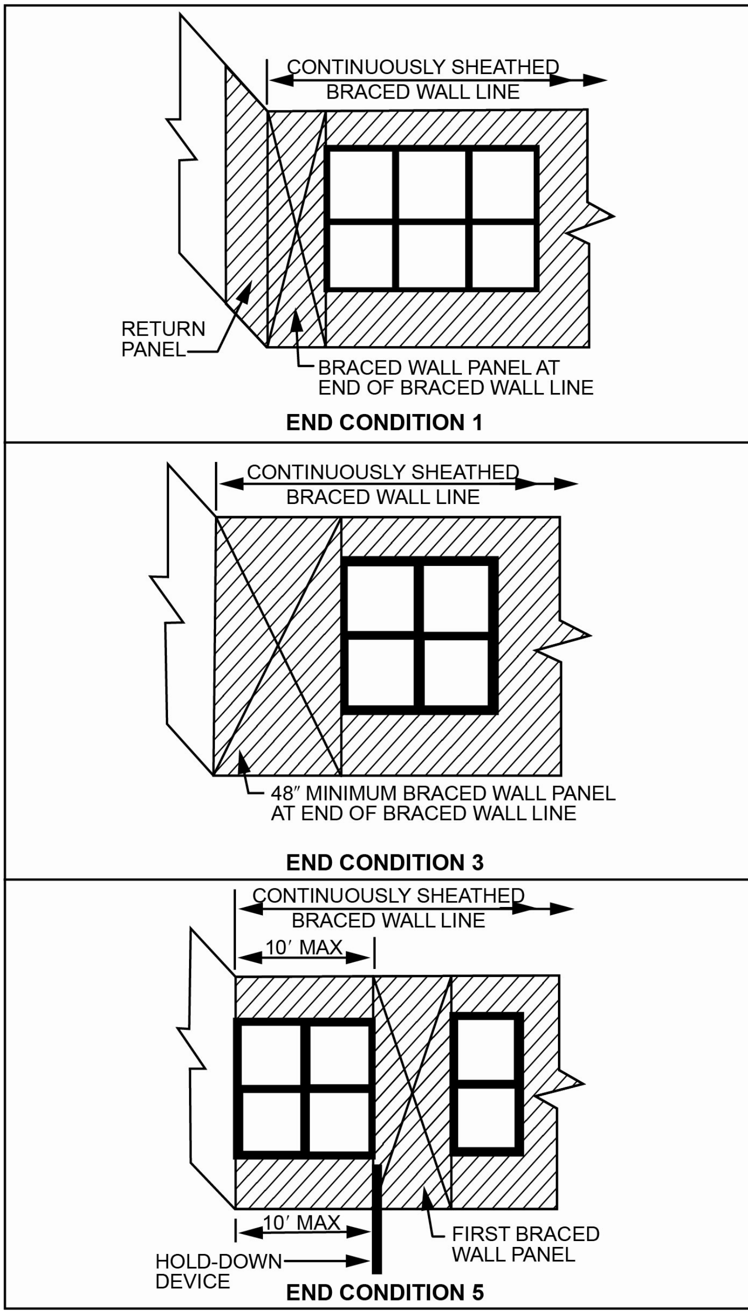
Add new text as follows:



<u>**R602.10.2.2.1**</u>

<u>**END CONDITIONS FOR BRACED WALL LINES FOR INTERMITTENT BRACED WALL METHODS IN SEISMIC DESIGN CATEGORIES D0, D1, AND D2**</u>

Revise as follows:



REQUIREMENTS

Return panel:	24″ for braced wall lines sheathed with wood structural panels 32″ for braced wall lines sheathed with structural fiberboard
Distance D:	24″ for braced wall lines sheathed with wood structural panels 32″ for braced wall lines sheathed with structural fiberboard
Hold-down device:	800 lbs capacity fastened to the edge of the braced wall panel closest to the corner and to the foundation or floor framing below

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.45 N.

a. In Seismic Design Categories D_0, D_1 and D_2, End Condition 4 applies to Methods CS-WSP, CS-G and CS-PF.

b. In Seismic Design Categories D_0, D_1 and D_2, the hold-down device for End Condition 5 shall have a 1,800lb minimum capacity.

FIGURE R602.10.7 END CONDITIONS FOR BRACED WALL LINES WITH CONTINUOUS SHEATHING a, b

Reason: The proposal is to help clarify the exceptions of Section R602.10.2.2.1. As currently written the exception allows for the location of the first braced wall panel of intermittent braced wall methods WSP and BV-WSP to be not more than 10 feet from each end of the braced wall line provided they comply with either End Condition 4 or End Condition 5 of Figure R602.10.7. This reference back to a figure that is specifically specified in the continuous sheathed braced wall method has caused a great deal of confusion to some designers and developers. To help clarify the use of the exception of Section R602.10.2.2.1 for intermittent braced wall methods, it is being proposed that a new figure be introduce to capture these exceptions similar to how the continuous sheathed braced wall methods are depicted in a figure and not specified in text. By providing this new figure, it helps to clearly identify how to achieve the end of braced wall line, braced wall panel offset for the intermittent braced wall methods, and making this more consistent with how the end of braced wall conditions are shown for the continuous sheathed method.

Lastly, because this code section applied to all braced wall methods in seismic design categories D0, D1, and D2, the requirements for the continuous sheathed braced wall methods are directed back to the appropriate section, Section R602.10.4.2, and the additional requirement of allowing the use of end condition 4 for CS-WSP, CS-G, and CS-PF; and the additional requirement of 1800 lb tie-down device for end condition 5 of Figure R602.10.7 has been added as a footnotes to the figure continuous sheathing end condition figure R602.10.7.

Bibliography: International Code Council, "A Guide to the 2018 IRC Wood Wall Bracing Provisions" , June 2018. [Online]. Available: ICC Digital Codes Premium Complete.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal is to simplify and graphically depict the requirements of R602.10.2.2.1.

RB194-25

RB195-25

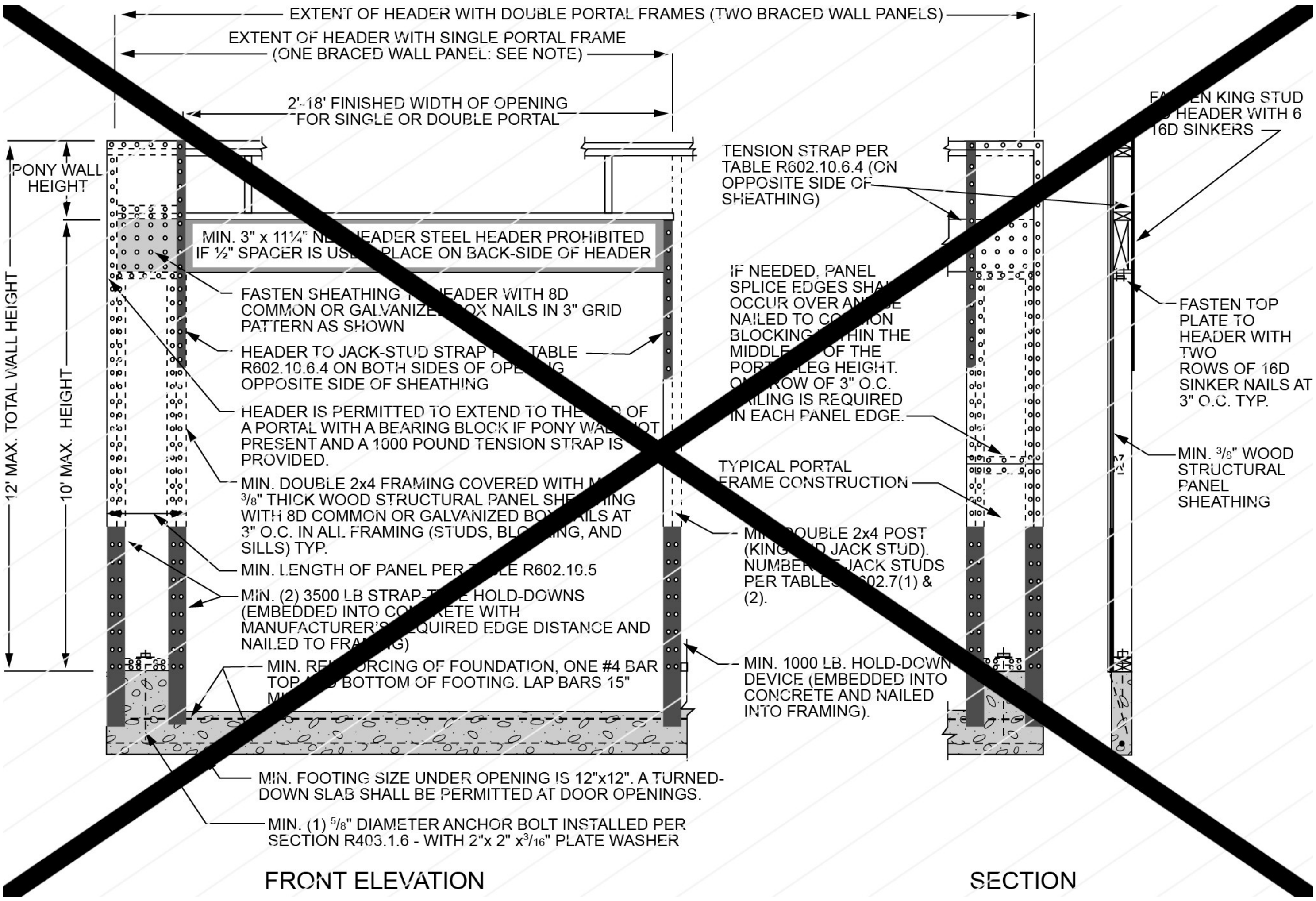
IRC: R602.10.6.2, FIGURE R602.10.6.2, R602.10.6.3, FIGURE R602.10.6.3, R602.10.6.4, FIGURE R602.10.6.4

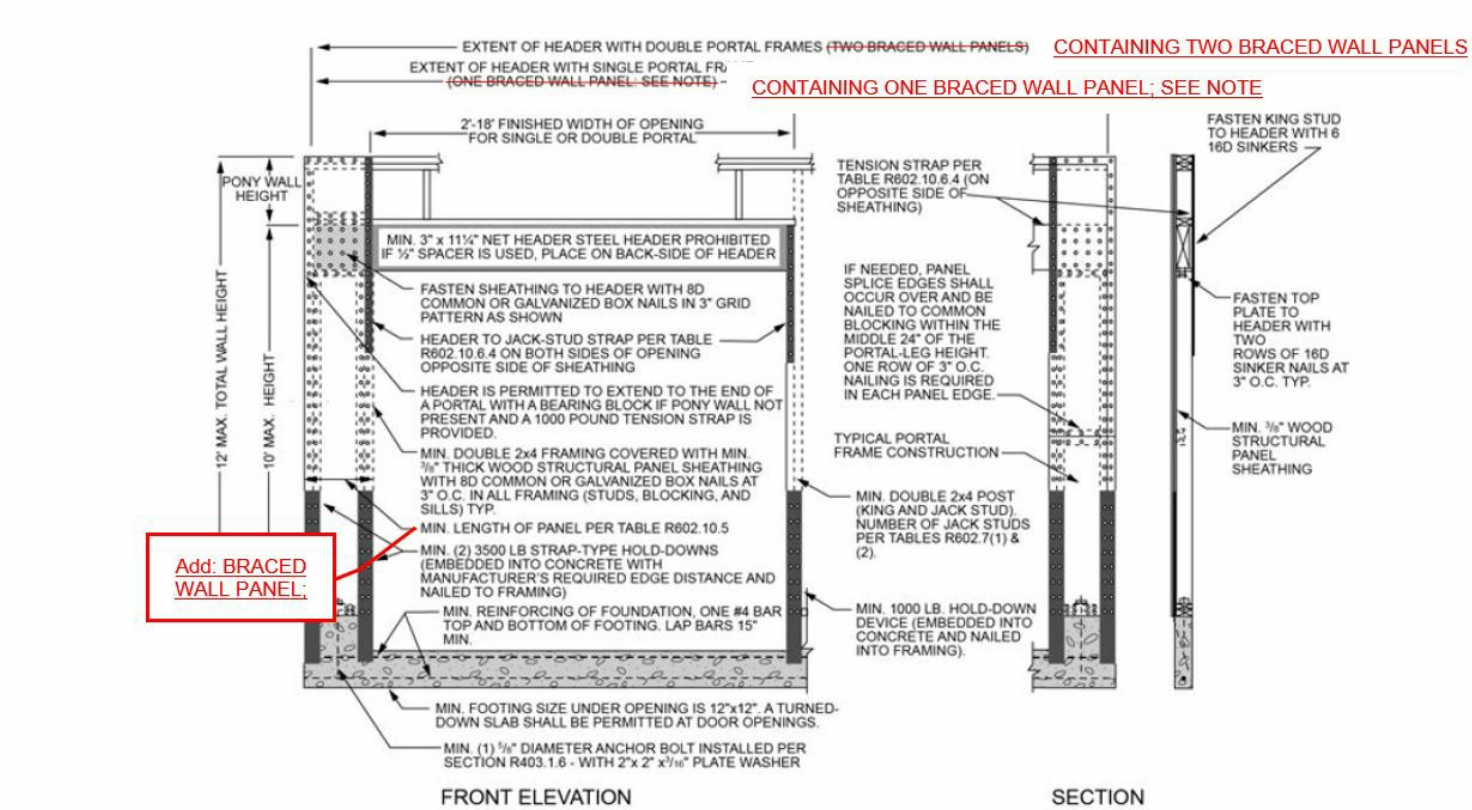
Proponents: Borjen Yeh, representing APA - The Engineered Wood Association (borjen.yeh@apawood.org)

2024 International Residential Code

R602.10.6.2 Method PFH: Portal frame with hold-downs. Method PFH *braced wall panels* shall be constructed in accordance with Figure R602.10.6.2.

Revise as follows:





For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

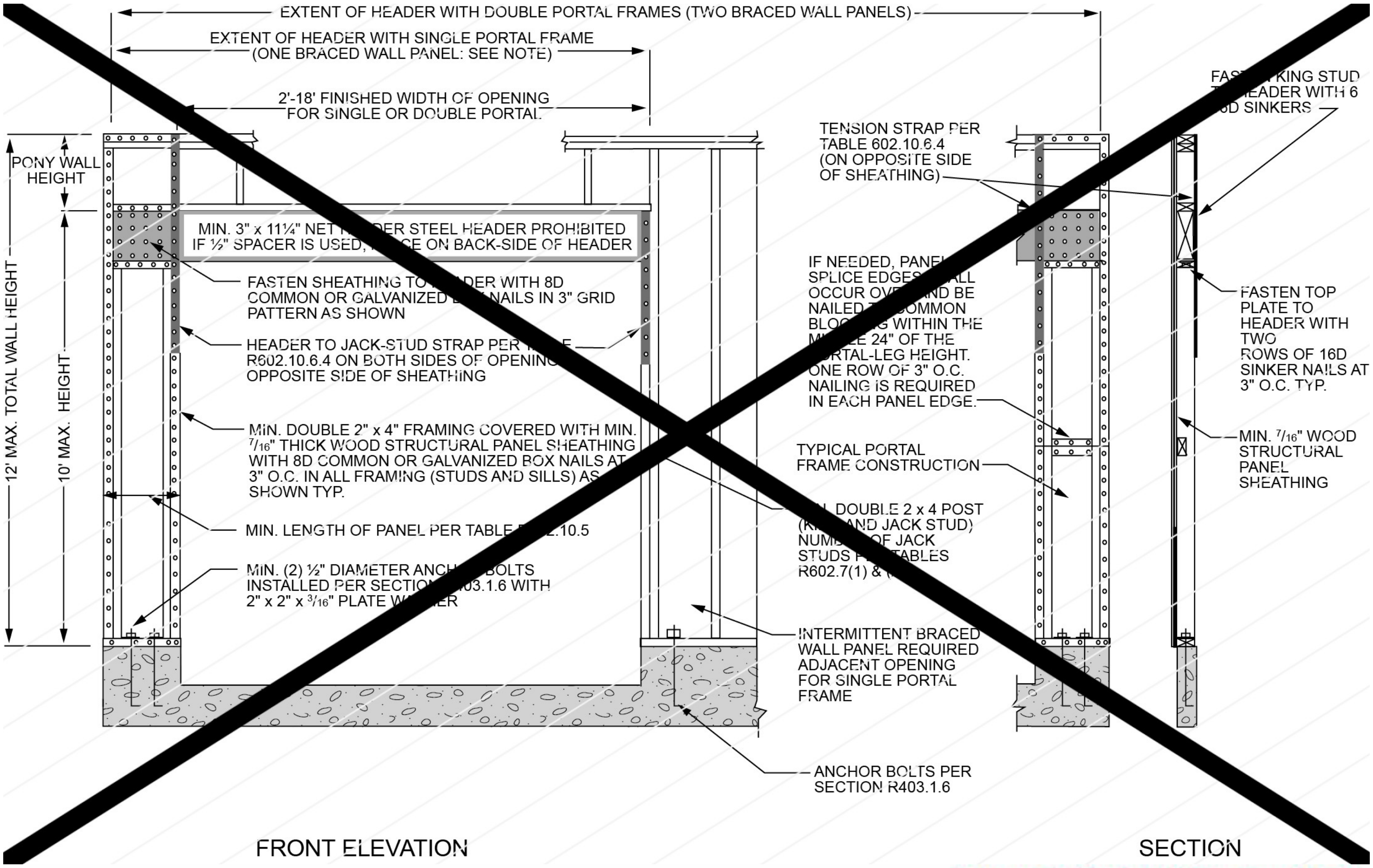
Note: Header shall not extend over more than one opening.

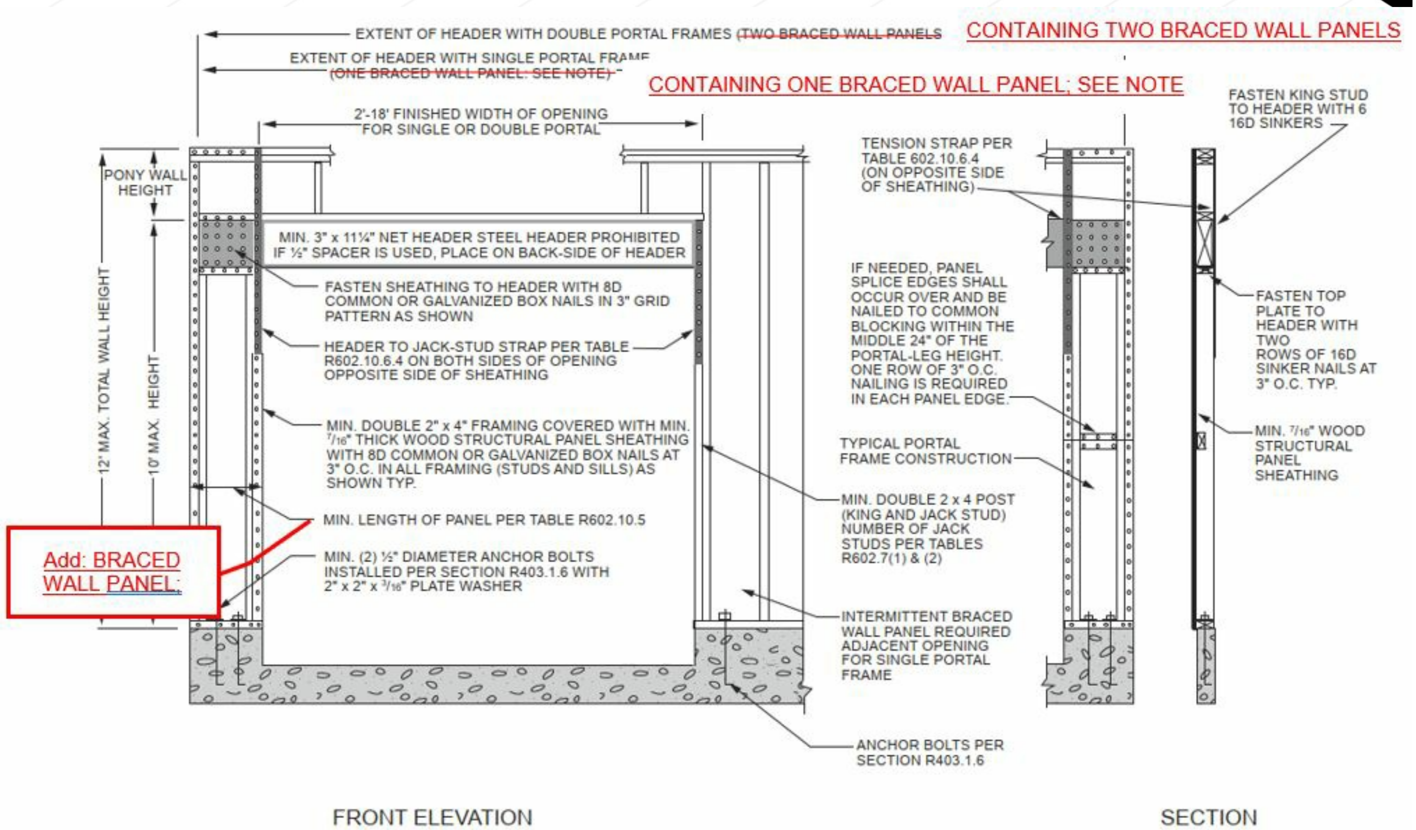
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Note: Header shall not extend over more than one opening.

FIGURE R602.10.6.2 METHOD PFH—PORTAL FRAME WITH HOLD-DOWNS

R602.10.6.3 Method PFG: Portal frame at garage door openings in Seismic Design Categories A, B and C. Where supporting a roof or one *story* and a roof, a Method PFG *braced wall panel* constructed in accordance with Figure R602.10.6.3 shall be permitted on either side of garage door openings.





For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

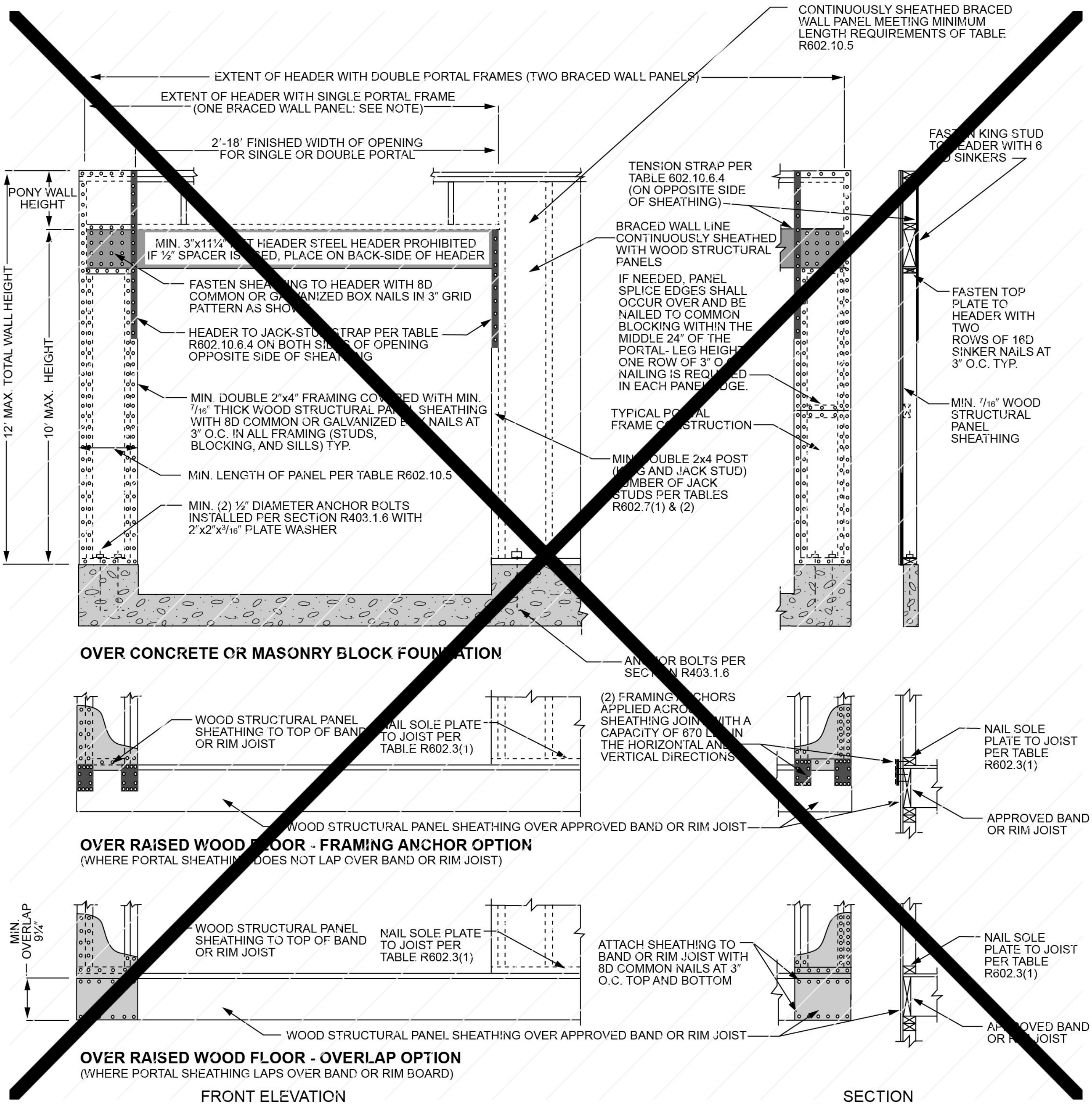
Note: Header shall not extend over more than one opening.

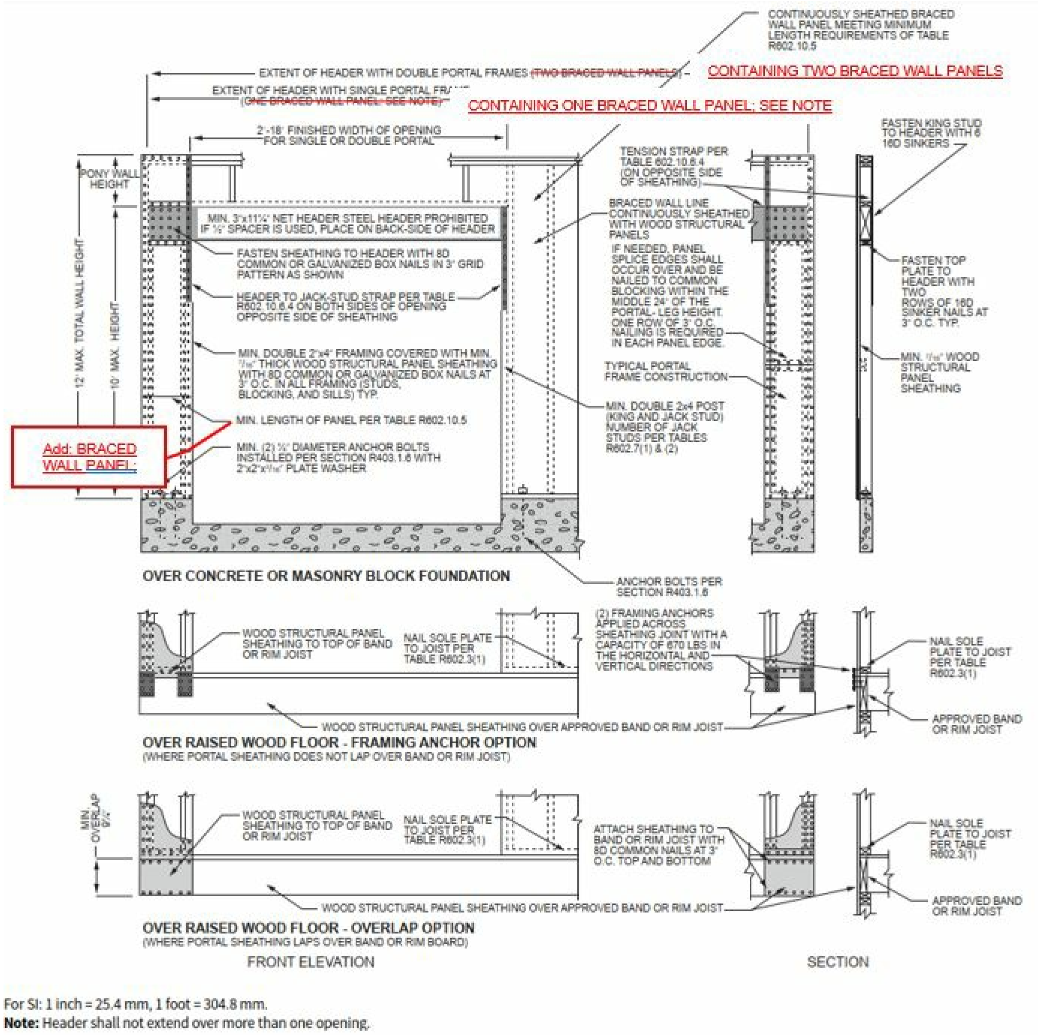
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Note: Header shall not extend over more than one opening.

FIGURE R602.10.6.3 METHOD PFG—PORTAL FRAME AT GARAGE DOOR OPENINGS IN SEISMIC DESIGN CATEGORIES A, B AND C

R602.10.6.4 Method CS-PF: Continuously sheathed portal frame. Continuously sheathed portal frame *braced wall panels* shall be constructed in accordance with Figure R602.10.6.4 and Table R602.10.6.4.





For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

Note: Header shall not extend over more than one opening.

FIGURE R602.10.6.4 METHOD CS-PF—CONTINUOUSLY SHEATHED PORTAL FRAME PANEL CONSTRUCTION

Reason: The intent of this change proposal is to clarify the "braced wall panel" in a portal frame. There has been misunderstanding in the field that the braced wall panel length in a portal frame is the length of the entire portal frame, which could affect the determination of the spacing between braced wall panels, especially for the portal frame containing only one leg segment (braced wall panel). This proposal is editorial in nature and is not intended for any technical changes.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal will not increase or decrease the cost of construction because the proposal is editorial to clarify the braced wall panel in a portal frame.

RB195-25

RB196-25

IRC: R602.10.10, R602.10.10.2

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

Revise as follows:

R602.10.10 Cripple wall bracing. *Cripple walls* shall be constructed in accordance with Section R602.9 and braced in accordance with this section. *Cripple walls* shall be braced with the length and method of bracing used for the wall above in accordance with Tables R602.10.3(1) and R602.10.3(3), and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4), respectively, except that the length of *cripple wall* bracing shall be multiplied by a factor of 1.15. Where gypsum wall board is not used on the inside of the *cripple wall* bracing, the length adjustments for the elimination of the *gypsum wallboard*, or equivalent, shall be applied as directed in Tables R602.10.3(2) and R602.10.3(4) to the length of *cripple wall* bracing required. This adjustment shall be taken in addition to the 1.15 increase.

Exception: Where the cripple walls use wood structural panel bracing methods, the method of bracing for the cripple walls is not required to match the method of bracing for the wall above.

R602.10.10.2 Cripple wall bracing for Seismic Design Category D_2. In *Seismic Design Category* D_2, the length of *cripple* *wall* ~~walls~~ bracing shall ~~be braced in accordance~~ comply with Table ~~Tables~~ R602.10.3(3) and be adjusted in accordance with Table R602.10.3(4).

Reason: This proposal includes two changes that are being provided for clarification purposes. The first is to add an exception to the main section on cripple walls noting that, if they choose to brace the cripple walls using wood structural panel methods, regardless of the Seismic Design Category, the cripple wall bracing does not have to match the method used above the cripple walls. IRC Section R602.10.4.1 allows the mixing of braced wall methods story-to-story, however cripple walls are most often not considered their own story. This exception recognizes the benefit of using wood structural panels to brace cripple walls and therefore allows a different bracing method to be used above.

The second change that is proposed is to clarify what is required for cripple walls in Seismic Design Category D2. The code intent is to require cripple walls in these seismic regions to only be checked for seismic wall bracing rather than both wind and seismic. The seismic tables for Seismic Design Category D2 note that only wood structural panel methods can be used for cripple walls. The proposed changes make the requirements for cripple walls in Seismic Design category D2 a bit clearer.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes proposed are for clarification purposes only.

RB196-25

RB197-25

IRC: R606.2, R606.3, R606.3.4, R606.3.4.1, TABLE R606.3.4.1

Proponents: Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org); Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2024 International Residential Code

Revise as follows:

R606.2 Masonry construction materials. Masonry construction materials shall conform to the requirements of this section.

R606.3 Construction requirements. Masonry construction shall conform to the requirements of this section.

R606.3.4 Protection for reinforcement. Bars shall be completely embedded in mortar or grout. Joint reinforcement and deformed wire embedded in horizontal mortar joints shall ~~not~~ have a minimum cover of ~~less than~~ $^5/_8$-inch (15.9 mm) where exposed to earth or weather and $^1/_2$-inch (12.7 mm) where not exposed to earth or weather. ~~mortar coverage from the exposed face. Other reinforcement shall have a minimum coverage of one bar diameter over all bars, but not less than $^3/_4$-inch (19 mm), except where exposed to weather or soil, in which case the minimum coverage shall be 2 inches (51 mm).~~ Reinforcement placed in grout shall have a masonry cover not less than the following:

1. Where the masonry face is exposed to earth or weather: minimum 2 inches (50.8 mm) for bars larger than No. 5 (M#16); and 1.5 inches (38.1 mm) for deformed wire, welded wire reinforcement, and No. 5 bars (M#16) or smaller.
2. Where the masonry is not exposed to earth or weather: minimum 1.5 inches (38.1 mm).

R606.3.4.1 Corrosion protection. Minimum corrosion protection of joint reinforcement, anchor ties and wire fabric for use in masonry wall construction shall conform to TMS 602 Article 2.4L. ~~Table R606.3.4.1.~~

Delete without substitution:

~~TABLE R606.3.4.1 MINIMUM CORROSION PROTECTION~~

~~MASONRY METAL ACCESSORY~~	~~STANDARD~~
~~Joint reinforcement, interior walls~~	~~ASTM A641, Class 1~~
~~Wire ties or anchors in exterior walls completely embedded in mortar or grout~~	~~ASTM A641, Class 3~~
~~Wire ties or anchors in exterior walls not completely embedded in mortar or grout~~	~~ASTM A153, Class B-2~~
~~Joint reinforcement in exterior walls or interior walls exposed to moist environment~~	~~ASTM A153, Class B-2~~
~~Sheet metal ties or anchors exposed to weather~~	~~ASTM A153, Class B-2~~
~~Sheet metal ties or anchors completely embedded in mortar or grout~~	~~ASTM A653, Coating Designation G60~~
~~Stainless-steel hardware for any exposure~~	~~ASTM A167, Type 304~~

Reason: Section R606.2.13 requires that metal reinforcement and accessories conform to Article 2.4 of The Masonry Society (TMS) 602. That article contains requirements for corrosion protection. Section R606.3.4 contains both requirements for cover of metal reinforcement an accessories, as well as a table for corrosion protection. **R606.2.13 Metal reinforcement and accessories.** Metal reinforcement and accessories shall conform to Article 2.4 of TMS 602.
The cover requirements and the corrosion protection requirements in the IRC are not consistent with that required in TMS 602. This change proposes to modify masonry reinforcement cover requirements to be consistent with TMS 602. It further proposes to remove the corrosion protection table, and replace it with a reference to the specific sub-section of TMS 602 that has corrosion protection requirements. Since that is a sub-section of Article 2.4 (already referenced in the IRC), this would make these sections consistent.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change simply aligns the requirements in two sections of the IRC for consistency.

RB197-25

RB198-25

IRC: R606.2.1, ASTM Chapter 44 (New)

Proponents: Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org)

2024 International Residential Code

Revise as follows:

R606.2.1 Concrete masonry units. *Concrete masonry units* shall conform to the following standards: ASTM C55 for concrete brick; ASTM C73 for calcium silicate face brick; ASTM C90 for load-bearing *concrete masonry units*; ASTM C744 for prefaced concrete and calcium silicate *masonry units*; ~~or~~ ASTM C1634 for concrete facing brick <u>and other concrete facing units; or ASTM C1877 for adhered concrete *masonry units*.</u>

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

<u>C1877-24</u> <u>Standard Specification for Adhered Concrete Masonry Units</u>

Reason: R606.2.1 lists acceptable concrete masonry units for masonry construction. This proposal includes two changes:

1. Modify the name of units covered by ASTM C1634 to 'concrete facing brick and other concrete masonry facing units'. The title of that standard was changed so that should be reflected in this section. Note that in Chapter 44 the reference to this standard already includes the updated nomenclature.

2. Add reference to units that comply with ASTM C1877 for adhered concrete masonry units. This standard was originally published in 2018, but has not been referenced in the IRC before now. These units are used commonly in adhered masonry applications, and should be on the list of allowable materials.

Adding ASTM C1877 to the list of reference standards is also included.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change will not increase or decrease cost. It is clarifying nomenclature for concrete masonry units and adding a new option for units based on a recently published ASTM specification.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTMC1877-24 Standard Specification for Adhered Concrete Masonry Units

RB198-25

RB199-25

IRC: R606.2.8, TABLE R606.2.8

Proponents: Shamim Rashid-Sumar, representing National Ready Mixed Concrete Association (ssumar@nrmca.org); Dr. Julian Mills-Beale, representing National Ready Mixed Concrete Association (jmills-beale@nrmca.org); James Farny, Portland Cement Association, representing US cement manufacturers (jfarny@cement.org)

2024 International Residential Code

R606.2.8 Mortar. Except for mortars listed in Sections R606.2.9, R606.2.10 and R606.2.11, mortar for use in masonry construction shall meet the proportion specifications of Table R606.2.8 or the property specifications of ASTM C270. The type of mortar shall be in accordance with Sections R606.2.8.1, R606.2.8.2 and R606.2.8.3.

Revise as follows:

TABLE R606.2.8 MORTAR PROPORTIONS[a, b]

MORTAR	TYPE	PROPORTIONS BY VOLUME (cementitious materials) Portland cement or blended cement	Mortar cement			Masonry cement			Hydrated lime[c] or lime putty	Aggregate ratio (measured in damp, loose conditions)
			M	S	N	M	S	N		
Cement-lime	M	1	—	—	—	—	—	—	$\frac{1}{4}$	Not less than $2\frac{1}{4}$ and not more than 3 times the sum of separate volumes of lime, if used, and cement
	S	1	—	—	—	—	—	—	over $\frac{1}{4}$ to $\frac{1}{2}$	
	N	1	—	—	—	—	—	—	over $\frac{1}{2}$ to $1\frac{1}{4}$	
	O	1	—	—	—	—	—	—	over $1\frac{1}{4}$ to $2\frac{1}{2}$	
Mortar cement	M	1	—	—	1	—	—	—	—	
	M	—	1	—	—	—	—	—		
	S	$\frac{1}{2}$	—	—	1	—	—	—		
	S	—	—	1	—	—	—	—		
	N	—	—	—	1	—	—	—		
	O	—	—	—	1	—	—	—		
Masonry cement	M	1	—	—	—	—	—	1	—	
	M	—	—	—	—	1	—	—		
	S	$\frac{1}{2}$	—	—	—	—	—	1		
	S	—	—	—	—	—	1	—		
	N	—	—	—	—	—	—	1		
	O	—	—	—	—	—	—	1		

For SI: 1 cubic foot = 0.0283 m^3, 1 pound = 0.454 kg.

a. For the purpose of these specifications, the weight of 1 cubic foot of the respective materials shall be considered to be as follows:

   Hydrated lime = 40 pounds

   Lime putty (Quicklime) = 80 pounds

   <u>Blended cement = Weight printed on bag</u>

   Masonry cement = Weight printed on bag

   Mortar cement = Weight printed on bag

   Portland cement = 94 pounds

   Sand, damp and loose = 80 pounds of dry sand

b. Two air-entraining materials shall not be combined in mortar.

c. Hydrated lime conforming to the requirements of ASTM C207.

Reason: This proposal is part of a series of proposals to the IBC and IRC to update cement terminology in the building codes.
The proposed revisions reflect current cement technology and market conditions, which can vary across regions. Nationally, the market is

no longer dominated by portland cement. More than sixty percent of the current cement market consists of blended cements , including portland-limestone cement (PLC) and other blended cements that meet the requirements of ASTM C595/C595M, Specification for Blended Hydraulic Cements (Portland Cement Association, 2025). ASTM C595/C595M is referenced in the International Building Code/ International Residential Code.

Bibliography: Portland Cement Association, 2025. Reducing Carbon at the Cement Plant. https://cementprogress.com/reducing-carbon-at-the-cement-plant/

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed change is editorial and will not impact the cost of construction.

RB199-25

RB200-25

IRC: R606.2.11, TCNA (New), TCN (New)

Proponents: Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org); Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org); Ryan Marino, representing Tile Council of North America (rmarino@tileusa.com)

2024 International Residential Code

Revise as follows:

R606.2.11 Mortar for adhered masonry veneer. Mortar for use with *adhered masonry veneer* shall conform to ~~ASTM C270 Type S or Type N or shall comply with~~ ANSI A118.4 (See TCNA) for ~~latex-modified Portland~~ modified dry-set cement mortar or ANSI A118.15 (See TCNA) for improved modified dry-set cement mortar.

Add new standard(s) as follows:

TCNA

Tile Council-North America Inc
100 Clemson Research Blvd
Anderson, SC 29625
USA

A118.15-23	American National Standard Specifications for Improved Modified Dry-Set Cement Mortar

Reason: In the 2022 version of The Masonry Society 402 (Building Code Requirements for Masonry Structures) and TMS 602 (Specification for Masonry Structures) prescriptive design, construction, and installation of adhered masonry veneer requires the use of two types of mortar for applying units - ANSI A118.4 or ANSI A118.15. Mortar complying with ASTM C270 Type N or S is no longer permitted for prescriptive design.

ANSI A118.4 is already included in R606.2.11 for mortars used for adhered masonry veneers, although the name of those mortars needs to be updated to reflect how they are referred to in that standard. This proposal updates that name, as well as adds reference to ANSI A118.15 mortars.

This change aligns R606.2.11 with the installation requirements in R703.12, which in turn provides reference to the 2022 TMS 402/602.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Clarification only and adding a new standard as an option.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:

ANSI /TCNA A118.15-23 American National Standard Specifications for Improved Modified Dry-Set Cement Mortar

RB200-25

RB201-25

IRC: R606.3.5, TABLE R606.3.5.1

Proponents: Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org); Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2024 International Residential Code

Revise as follows:

R606.3.5 Grouting requirements. Grouted masonry construction shall conform to the requirements of this section.

TABLE R606.3.5.1 GROUT SPACE DIMENSIONS AND POUR HEIGHTS

GROUT TYPE	GROUT POUR MAXIMUM HEIGHT (feet)	MINIMUM WIDTH OF GROUT SPACES[a, b] (inches)	MINIMUM GROUT[b, c] SPACE DIMENSIONS FOR GROUTING CELLS OF HOLLOW UNITS (inches × inches)
Fine	1	0.75	1.5 × 2
	~~5~~ 5.33	2	2 × 3
	~~12~~ 12.67	2.5	2.5 × 3
	24	3	3 × 3
Coarse	1	1.5	1.5 × 3
	~~5~~ 5.33	2	2.5 × 3
	~~12~~ 12.67	2.5	3 × 3
	24	3	3 × 4

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. For grouting between masonry wythes.

b. Grout space dimension is the clear dimension between any masonry protrusion and shall be increased by the horizontal projection of the diameters of the horizontal bars within the cross section of the grout space.

c. Area of vertical reinforcement shall not exceed 6 percent of the area of the grout space.

Reason: Table R606.3.5.1 lists grout pour heights and the required width and grout space dimensions for masonry construction. The included pour heights are not aligned with typical masonry modular dimensions (8 inches). In the 2022 version of TMS 602, *Specification for Masonry Structures*, a similar table was updated to provide modular dimension for the pour heights of 5 feet (changed to 5.33 feet) and 12 feet (changed to 12.67 feet). This proposal aligns Table R606.3.5.1 with that in TMS 602.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is aligning the current IRC table with provisions in the *Specification for Masonry Structures*. It has the potential to marginally increase allowable grout pour heights, which could lead to some economy in construction, but it expected to not be significant.

RB201-25

RB202-25

IRC: R606.11, FIGURE R606.11(1)

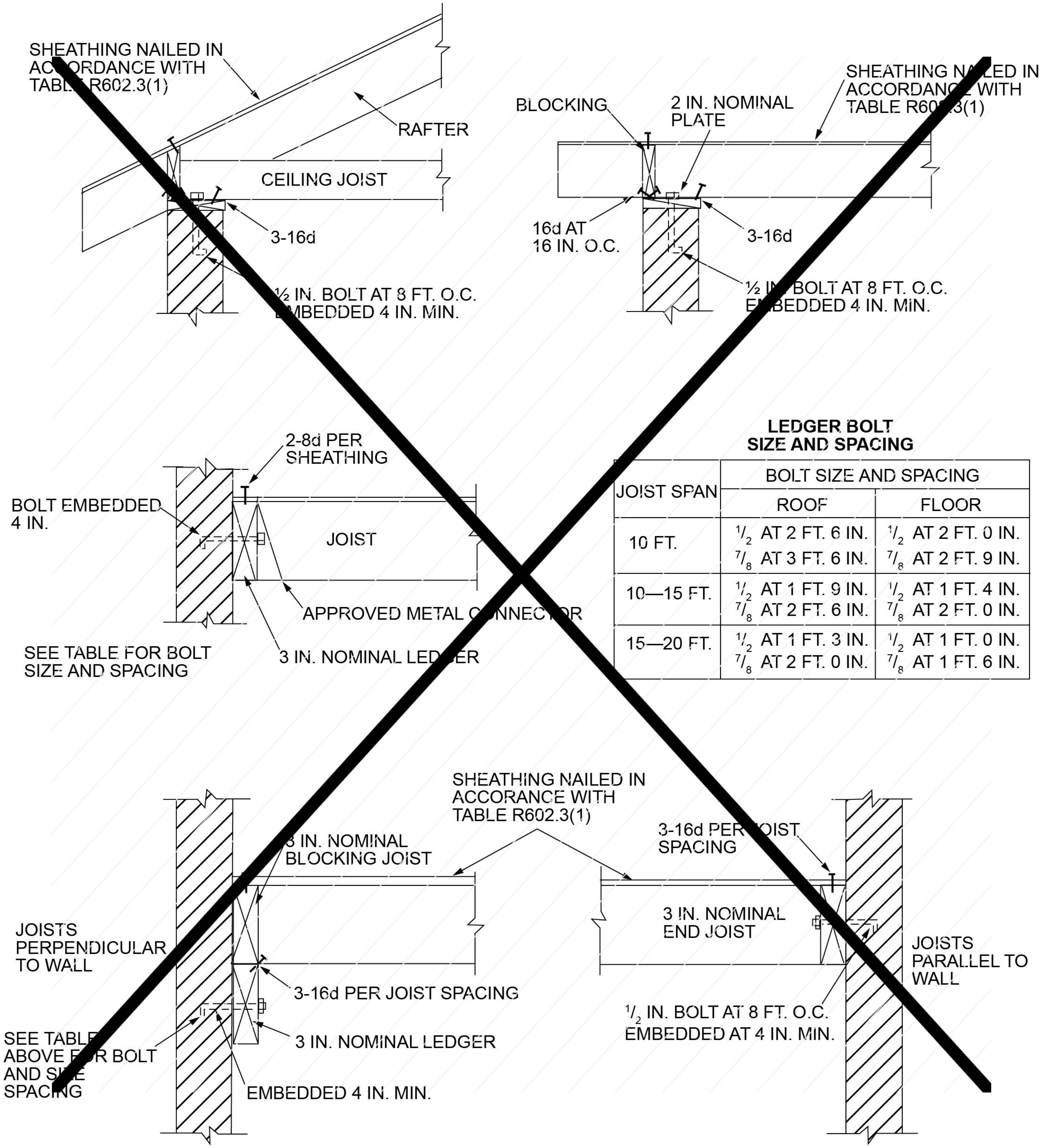
Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

R606.11 Anchorage. Masonry walls shall be anchored to floor and roof systems in accordance with the details shown in Figure R606.11(1), R606.11(2) or R606.11(3). Footings shall be permitted to be considered as points of lateral support. Wood structural panel sheathing and wood framing shall be fastened in accordance with Figure R606.11(1). Wood to wood connections shall be fastened in accordance with the more restrictive requirements of Table R602.3(1), Figure R606.11(1), Section R602, or Section R802. Roof tie uplift resistance shall be in accordance with Section R802.11.

Delete and substitute as follows:



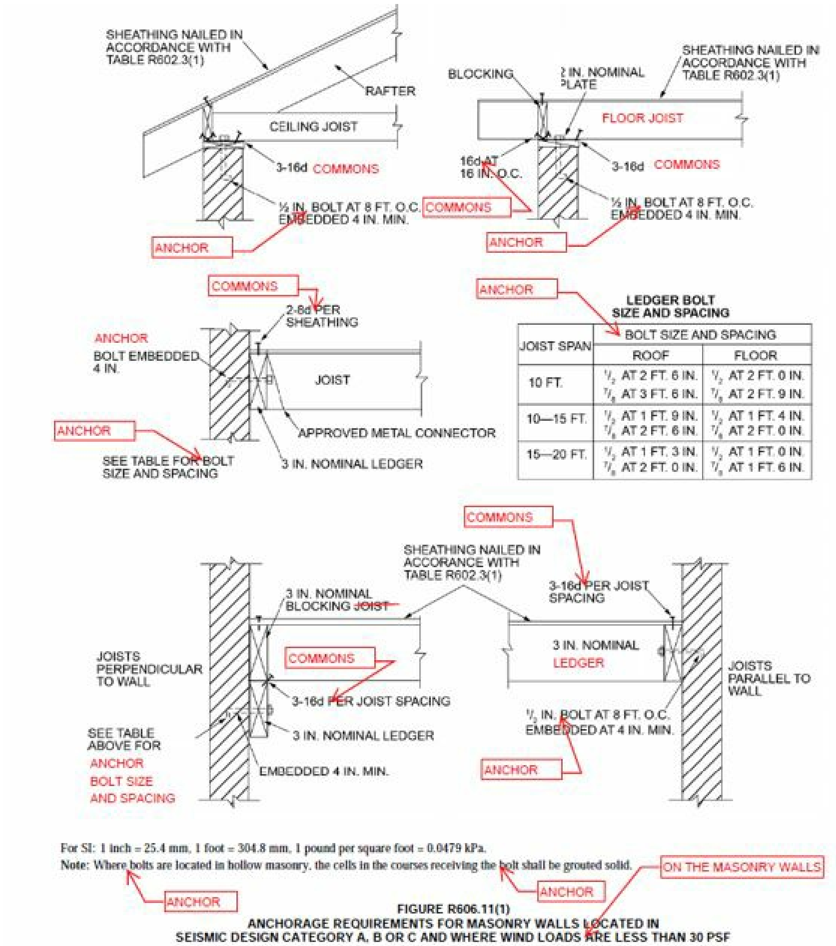
LEDGER BOLT SIZE AND SPACING

JOIST SPAN	BOLT SIZE AND SPACING	
	ROOF	FLOOR
10 FT.	$^1/_2$ AT 2 FT. 6 IN. $^7/_8$ AT 3 FT. 6 IN.	$^1/_2$ AT 2 FT. 0 IN. $^7/_8$ AT 2 FT. 9 IN.
10—15 FT.	$^1/_2$ AT 1 FT. 9 IN. $^7/_8$ AT 2 FT. 6 IN.	$^1/_2$ AT 1 FT. 4 IN. $^7/_8$ AT 2 FT. 0 IN.
15—20 FT.	$^1/_2$ AT 1 FT. 3 IN. $^7/_8$ AT 2 FT. 0 IN.	$^1/_2$ AT 1 FT. 0 IN. $^7/_8$ AT 1 FT. 6 IN.

~~For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.~~

~~**Note:** Where bolts are located in hollow masonry, the cells in the courses receiving the bolt shall be grouted solid.~~

~~**FIGURE R606.11(1) ANCHORAGE REQUIREMENTS FOR MASONRY WALLS LOCATED IN SEISMIC DESIGN CATEGORY A, B OR C AND WHERE WIND LOADS ARE LESS THAN 30 PSF**~~



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

Note: Where bolts are located in hollow masonry, the cells in the courses receiving the bolt shall be grouted solid.

FIGURE R606.11(1) ANCHORAGE REQUIREMENTS FOR MASONRY WALLS LOCATED IN SEISMIC DESIGN CATEGORY A, B OR C AND WHERE WIND LOADS ARE LESS THAN 30 PSF

Reason: The intent of this proposal is to clarify construction details for anchorage of masonry walls in SDC A, B or C to wood frame roofs and floors. As noted in the IRC Commentary, the intent of these provisions is as follows:

Masonry walls depend on floors and roofs for out-of-plane lateral support. Inadequate anchorage of masonry walls in areas of high, and even moderate, seismicity can be problematic. The referenced figures show anchorage requirements that vary based on seismic design category. They illustrate details that provide adequate load transfer under lateral loads.

The proposed revisions to Figure R606.11(1) do not change the lateral connection detailing. However, reference to Table R602.3(1) and Section R802.1,R602, or R802 _are to ensure that adequate detailing. Editorial changes to Figure R606.11(1) clarify that specified nails are “commons,” bolts embedded in masonry are “anchor bolts,”. The change to the figure title clarifies that the 30 psf wind load limit is the wind load on the masonry walls.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the existing code requirements for roofs without effecting the cost of construction.

RB203-25

IRC: R609.3.1, FGIA Chapter 44 (New)

Proponents: Jennifer Hatfield, J. Hatfield & Associates, representing Fenestration & Glazing Industry Alliance (formerly AAMA) (jen@jhatfieldandassociates.com)

2024 International Residential Code

Revise as follows:

R609.3.1 Comparative analysis. Structural wind load design pressures for window and door units different than the size tested in accordance with Section R609.3 shall be permitted to be different than the design value of the tested unit where determined in accordance with ~~one of~~ the following comparative analysis method~~s~~:

1. Structural wind load design pressures for window or door assemblies other ~~and door units smaller~~ than the size tested in accordance with Section R609.3 shall be permitted to be different ~~higher~~ than the design value of the tested assembly ~~unit~~ provided such ~~higher~~ pressures are determined by accepted engineering analysis or validated by an additional test of the window or door assembly to the alternative allowable design pressure in accordance with Section R609.3. Components of the alternate size assembly ~~smaller unit~~ shall be the same as ~~those of~~ the tested or labeled assembly ~~unit~~. Where engineering analysis is used, it shall be performed in accordance with the analysis procedures of AAMA 2502 or WDMA I.S.11 ~~such calculated design pressures are used, they shall be validated by an additional test of the window or door unit having the highest allowable design pressure~~.
2. ~~In accordance with WDMA I.S.11.~~

Add new standard(s) as follows:

FGIA

Fenestration & Glazing Industry Alliance
1900 E. Golf Road, Suite 1250
Schaumburg, IL 60173

AAMA 2502-24 Comparative Analysis Procedure for Window and Door Products

Reason: In 2019, proposal S108-19 was adopted As Submitted into what became the 2021 IBC. That proposal cleaned up the existing exception language in the corresponding IBC section and added in what at the time was the new AAMA 2502 Comparative Analysis Procedure for Window and Door Products as another option to use. This proposal seeks to align the IRC with those IBC changes.

The proposal cleans up the language for how to address comparative analysis and adds in the AAMA 2502, as one of two standards that can be used to perform the engineering analysis. The AAMA 2502 is not a new standard to the I-codes, as the 2019 edition is in the IBC, but this proposal adds it in as a new standard for the IRC using the latest 2024 edition. It is important to note the omnibus ADM standard update proposal updates to the 2024 edition in the IBC as well.

Bibliography: Proposal S108-19 by Jennifer Hatfield, American Architectural Manufacturers Association (now known as FGIA) that was adopted AS for the 2021 IBC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is clarifying the current requirements by aligning language with the corresponding IBC language. By doing so, it provides an additional way to comply, but with a standard that is already being used in the IBC and compares with the current standard already listed in the IRC.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
AAMA 2502-24 Comparative Analysis Procedure for Window and Door Products

RB204-25

IRC: TABLE R702.7(3)

Proponents: Theresa Weston, The Holt Weston Consultancy, representing Rainscreen Association in North America (holtweston88@gmail.com)

2024 International Residential Code

Revise as follows:

TABLE R702.7(3) CLASS III VAPOR RETARDERS

CLIMATE ZONE	CLASS III VAPOR RETARDERS PERMITTED FOR:[a, b]
Marine 4	Vented or ventilated cladding over wood structural panels.
	Vented or ventilated cladding over fiberboard.
	Vented or ventilated cladding over gypsum.
	Continuous insulation with *R*-value ≥ 2.5 over 2 × 4 wall.
	Continuous insulation with *R*-value ≥ 3.75 over 2 × 6 wall.
5	Vented or ventilated cladding over wood structural panels.
	Vented or ventilated cladding over fiberboard.
	Vented or ventilated cladding over gypsum.
	Continuous insulation with *R*-value ≥ 5 over 2 × 4 wall.
	Continuous insulation with *R*-value ≥ 7.5 over 2 × 6 wall.
6	Vented or ventilated cladding over fiberboard.
	Vented or ventilated cladding over gypsum.
	Continuous insulation with *R*-value ≥ 7.5 over 2 × 4 wall.
	Continuous insulation with *R*-value ≥ 11.25 over 2 × 6 wall.
7	Continuous insulation with *R*-value ≥ 10 over 2 × 4 wall.
	Continuous insulation with *R*-value ≥ 15 over 2 × 6 wall.
8	Continuous insulation with *R*-value ≥ 12.5 over 2 × 4 wall.
	Continuous insulation with *R*-value ≥ 20 over 2 × 6 wall.

a. Vented cladding shall include vinyl, polypropylene, or horizontal aluminum siding, brick veneer with a clear airspace as specified in Table R703.8.4(1), rainscreen systems and other approved vented claddings.

b. The requirements in this table apply only to insulation used to control moisture in order to permit the use of Class III vapor retarders. The insulation materials used to satisfy this option also contribute to but do not supersede the thermal envelope requirements of Chapter 11.

Reason: This proposal adds "ventilated cladding" as an option along the current "vented cladding". Standardized industry definitions to distinguish between "vented" and "ventilated" are still under development but revolve around the number of vents the level of uniformity of the airflow behind the cladding. Both vented and ventilated claddings provide the moisture vapor transfer which allow for the use of vapor retarders as specified in this table. This change will allow for all claddings along the vented - ventilation spectrum to be used under these code provisions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal provides clarification but does not change any technical requirements.

RB204-25

RB205-25

IRC: R609.3.2 (New), FIGURE R609.3.2 (New)

Proponents: Craig Drumheller, representing WDMA (cdrumheller@wdma.com)

2024 International Residential Code

Add new text as follows:

R609.3.2 Door systems with a Limited Water (LW) Rating.. Door systems *labeled* with a Limited Water (LW) rating as specified in AAMA/WDMA/CSA 101/I.S.2/A440 shall require additional water exposure protection by an overhang with an OH Ratio greater than or equal to 1.0, approval by a *registered design professional*, or by other *approved* methods. The OH Ratio, as depicted in Figure R609.3, shall be determined in accordance with the following equation:

$$\text{OH Ratio} = \text{OH Length}/\text{OH Height} \quad \textbf{(Equation 1)}$$

where:OH Length = The minimum horizontal projection of the permanent overhang measured from the nearest portion of the door face. OH Height = The maximum vertical distance from the elevation of the bottom of the door to the underside of the outer edge of the permanent overhang over the door.

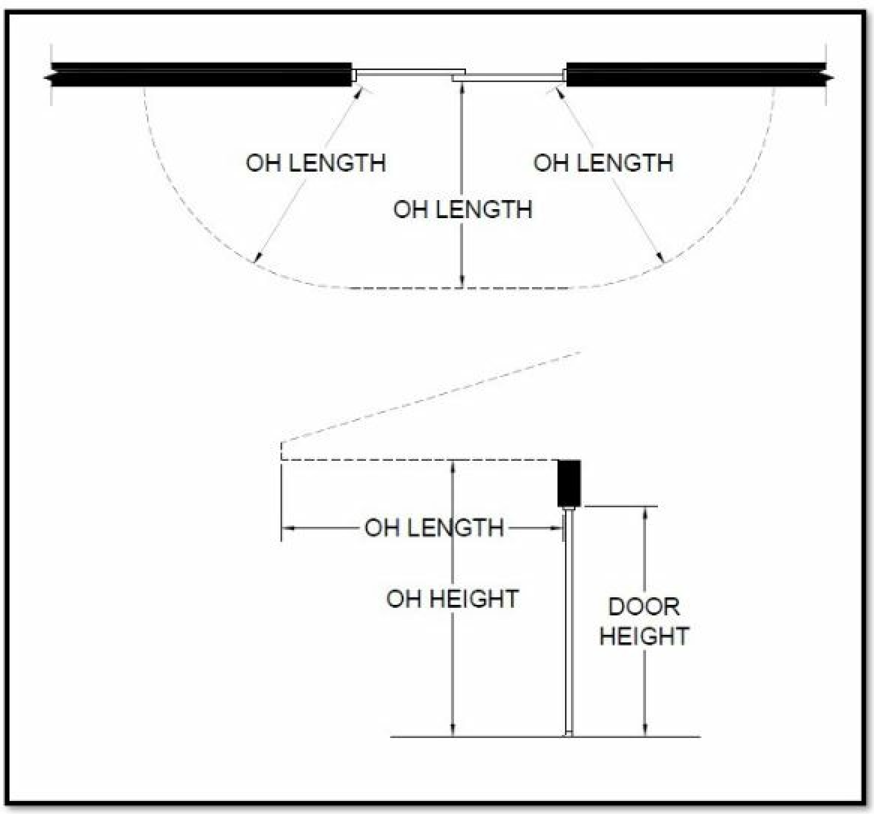


FIGURE R609.3.2 OVERHANG RATIO

Reason: The proposed code change introduces a requirement for doors labeled with a Limited Water (LW) rating under standard AAMA/WDMA/CSA 101/I.S.2/A440 (NAFS). The Limited Water (LW) designation specifies products intended for use in locations where adequate protection from water exposure is provided. Currently, the code has no additional requirements for LW-rated windows as the NAFS standard recommends. This proposal seeks to integrate this designation into the building code with clear door overhang criteria, thereby reducing the ambiguity of the LW designation and ensuring consistency with industry intent.

WDMA members have determined that an overhang-to-height ratio of 1.0 offers adequate protection against wind-driven rain for LW-rated doors. This criterion is practical and measurable, ensuring that doors installed in such configurations meet the LW designation's intent without requiring additional water infiltration testing or increasing the exposure risk. By adopting this requirement, the building code will reflect current industry standards, support effective design practices, and streamline compliance for projects with adequate water infiltration protection for doors. A provision for a registered design professional and other approved methods is included to allow for alternate solutions that provide adequate water protection.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Using overhangs for additional weather protection is already a compliance approach intended for LW-rated doors in the referenced standard. This proposal may reduce the cost of construction for doors installed over large overhangs.

RB205-25

RB206-25

IRC: R609.3.2 (New)

Proponents: Cesar Lujan, representing Window & Door Manufacturers Association (clujan@wdma.com)

2024 International Residential Code

Add new text as follows:

R609.3.2 Door systems with a Limited Water (LW) Rating. Door systems labeled with a Limited Water (LW) rating as specified in AAMA/WDMA/CSA 101/I.S.2/A440 shall be adequately protected from water exposure as determined by a *registered design professional* or other *approved* method.

Reason: The proposed code change introduces a requirement for doors labeled with a Limited Water (LW) rating, as defined under the AAMA/WDMA/CSA 101/I.S.2/A440 (NAFS) standard. This requirement aligns with the referenced NAFS standard and will help ensure that the LW designation is applied appropriately. The LW designation identifies products intended for use in locations where adequate protection from water exposure is provided.

Currently, the building code does not include any reference or requirements for LW-rated doors, as recommended by the NAFS standard. This lack of oversight could result in improper installations that fail to meet the intended water protection criteria. By requiring additional review and approval by a registered design professional or code official, this proposal will help prevent the misapplication of products with an LW designation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Since the NAFS standard already requires additional protection for LW-rated doors, this proposal does not increase the cost of construction for doors conforming to the NAFS standard.

RB206-25

RB207-25

IRC: R702.2.2, R703.7, R703.7.1, R703.7.2.1, ASTM Chapter 44 (New)

Proponents: Jeff Bowlsby, representing Self

2024 International Residential Code

Revise as follows:

R702.2.2 Cement plaster. *Cement plaster* materials shall conform to ASTM C91 (Type M, S or N), C150 (Types I, II and III), C595 [Types IP, I (PM), IS and I (SM)], C847, C897, C933, C1032, C1047~~, and~~ C1328, and C1861 and shall be installed or applied in compliance with ASTM C926 and C1063. Gypsum lath shall conform to ASTM C1396. Plaster shall be not less than three coats where applied over metal lath and not less than two coats where applied over other bases permitted by this section.

R703.7 Exterior plaster (stucco). Installation of exterior plaster shall be in compliance with ASTM C926, ASTM C1063, ASTM C1861 and the provisions of this code.

R703.7.1 Lath. Lath and lath attachments shall be of corrosion-resistant materials in accordance with ASTM C1063 and C1861 . Expanded metal, welded wire, or woven wire lath shall be attached to wood framing members or furring. Where the exterior plaster is serving as wall bracing in accordance with Table R602.10.4, the lath shall be attached directly to framing. The lath shall be attached with $1^1/_2$-inch-long (38 mm), 0.120-inch-diameter (3 mm), 11-gage nails having a $^7/_{16}$-inch (11.1 mm) head, or $^7/_8$-inch-long (22.2 mm), 16-gage staples, spaced not more than 7 inches (178 mm) on center along framing members or furring and not more than 24 inches (610 mm) on center between framing members or furring, or as otherwise *approved*. Additional fastening between wood framing members shall not be prohibited. Lath attachments to cold-formed steel framing or to masonry, stone, or concrete substrates shall be in accordance with ASTM C1063. Where lath is installed directly over foam sheathing, lath connections shall also be in accordance with Section R703.15, R703.16 or R703.17. Where lath is attached to furring installed over foam sheathing, the furring connections shall be in accordance with Section R703.15, R703.16 or R703.17.

> **Exception:** Lath is not required over masonry, cast-in-place concrete, *precast concrete* or stone substrates prepared in accordance with ASTM C1063.

R703.7.2.1 Weep screeds. A minimum 0.019-inch (0.5 mm) (No. 26 galvanized sheet gage), corrosion-resistant weep screed or plastic weep screed, with a minimum vertical attachment flange of $3^1/_2$ inches (89 mm), shall be provided at or below the foundation plate line on exterior stud walls in accordance with ASTM C926 and C1861. The weep screed shall be placed not less than 4 inches (102 mm) above the earth or 2 inches (51 mm) above paved areas and shall be of a type that will allow trapped water to drain to the exterior of the *building*. The weather-resistant barrier shall lap the attachment flange. The exterior lath shall cover and terminate on the attachment flange of the weep screed.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

C1861-23a	Standard Specification for Lathing and Furring Accessories, and Fasteners, for Interior and Exterior Portland Cement-Based Plaster

Reason:

1. ASTM C1861 has been a reference standard in ASTM C1063, the metal lathing installation standard, since 2017. ASTM C1861 is a product standard for lathing accessories, furring accessories and fasteners where their installation is specified in ASTM C1063.
2. Lathing accessory product manufacturers and project architectural specifications have been referencing ASTM C1861 for several years.
3. ASTM C1861 meets CP-28-05, Sections 4.4 and 4.6 requirements. 4
4. ASTM C1861 meets the requirements in the ICC References Standards Guide as a second tier reference standard and as such is currently enforceable by building code officials.

5. The ASTM C1861 task group members have expressed full support of an application to ICC for IRC for considering ASTM C1861 as a reference standard.
6. ASTM C1861 has been balloted for inclusion as a reference standard into ASTM E2128 Standard Guide for Evaluating Water Leakage of Buildings

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed referenced standard is already being used in industry for many years.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTMC1861-23a Standard Specification for Lathing and Furring Accessories, and Fasteners, for Interior and Exterior Portland Cement-Based Plaster

RB207-25

RB208-25

IRC: R702.3.1

Proponents: Tim Earl, GBH International, representing the Gypsum Association (tearl@gbhint.com)

2024 International Residential Code

Revise as follows:

R702.3.1 Materials. *Gypsum board* and *gypsum panel product* materials and accessories shall conform to ASTM C22, C475, C514, <u>C954, </u>C1002, C1047, C1177, C1178, C1278, C1396, C1658 or C1766 and shall be installed in accordance with the provisions of this section. Adhesives for the installation of *gypsum board* and *gypsum panel products* shall conform to ASTM C557.

Reason: ASTM C954 (Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in (0.84 mm) or to 0.112 in. (2.84 mm) in Thickness) should also be part of this list. It is already referenced elsewhere in the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

None. This adds an additional ASTM specification which was missing from the list.

RB208-25

RB209-25

IRC: R702.3.3, ASTM Chapter 44 (New)

Proponents: Tim Earl, GBH International, representing the Gypsum Association (tearl@gbhint.com)

2024 International Residential Code

Revise as follows:

R702.3.3 Cold-formed steel framing. Cold-formed steel framing supporting *gypsum board* and *gypsum panel products* shall be not less than $1^{1}/_{4}$ inches (32 mm) wide in the least dimension. Nonload-bearing cold-formed steel framing shall comply with AISI S220 or ASTM C645. Load-bearing cold-formed steel framing shall comply with AISI S240 or ASTM C955.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

C955-24	Standard Specification for Cold-Formed Steel Structural Framing Members

Reason: This change adds the equivalent ASTM standards, which were removed from this section in the 2018 codes. Some users prefer to use ASTM standards. C955 was removed from Chapter 44 in the 2018 codes, so this proposal brings it back. C645 was not removed from Chapter 44.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This simply adds another option for a standard, with no cost impact.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTMC955-24 Standard Specification for Cold-Formed Steel Structural Framing Members

RB209-25

RB210-25

IRC: TABLE R702.3.5

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

TABLE R702.3.5 MINIMUM THICKNESS AND APPLICATION OF GYPSUM BOARD AND GYPSUM PANEL PRODUCTS

Portions of table not shown remain unchanged.

THICKNESS OF GYPSUM BOARD OR GYPSUM PANEL PRODUCTS (inches)	APPLICATION	ORIENTATION OF GYPSUM BOARD OR GYPSUM PANEL PRODUCTS TO FRAMING	MAXIMUM SPACING OF FRAMING MEMBERS (inches o.c.)	MAXIMUM SPACING OF FASTENERS (inches)		SIZE OF NAILS FOR APPLICATION TO WOOD FRAMING[c]
				Nails[a]	Screws[b]	
Application without adhesive						
$^{3}/_{8}$	Ceiling[d]	Perpendicular	16	7	12	13 gage, $1^{1}/_{4}''$ long, $^{19}/_{64}''$ head; 0.098″ diameter, $1^{1}/_{4}''$ long, ring shank; or 4d cooler nail, 0.080″ diameter, $1^{3}/_{8}''$ long, $^{7}/_{32}''$ head.
	Wall	Either direction	16	8	16	
$^{1}/_{2}$	Ceiling	Either direction	16	7	12	13 gage, $1^{3}/_{8}''$ long, $^{19}/_{64}''$ head; 0.098″ diameter, $1^{1}/_{4}''$ long, ring shank; 5d cooler nail, 0.086″ diameter, $1^{5}/_{8}''$ long, $^{15}/_{64}''$ head; or gypsum board nail, 0.086″ diameter, $1^{5}/_{8}''$ long, $^{9}/_{32}''$ head.
	Ceiling[d]	Perpendicular	24	7	12	
	Wall	Either direction	24	8	12	
	Wall	Either direction	16	8	16	
$^{5}/_{8}$	Ceiling	Either direction	16	7	12	13 gage, $1^{5}/_{8}''$ long, $^{19}/_{64}''$ head; 0.098″ diameter, $1^{3}/_{8}''$ long, ring shank; 6d cooler nail, 0.092″ diameter, $1^{7}/_{8}''$ long, $^{1}/_{4}''$ head; or gypsum board nail, 0.0915″ diameter, $1^{7}/_{8}''$ long, $^{19}/_{64}''$ head.
	Ceiling	Perpendicular	24	7	12	
	Type X at garage ceiling beneath habitable rooms	Perpendicular	24	6	6	$1^{7}/_{8}''$ long 0.099″ diameter galvanized nails ~~or equivalent drywall screws~~ or drywall screws with corrosion resistance in accordance with ASTM C1002 . Screws shall comply with Section R702.3.5.1.
	Wall	Either direction	24	8	12	13 gage, $1^{5}/_{8}''$ long, $^{19}/_{64}''$ head; 0.098″ diameter, $1^{3}/_{8}''$ long, ring shank; 6d cooler nail, 0.092″ diameter, $1^{7}/_{8}''$ long, $^{1}/_{4}''$ head; or gypsum board nail, 0.0915″ diameter, $1^{7}/_{8}''$ long, $^{19}/_{64}''$ head.
	Wall	Either direction	16	8	16	
Application with adhesive						
$^{3}/_{8}$	Ceiling[d]	Perpendicular	16	16	16	Same as above for $^{3}/_{8}''$ gypsum board and gypsum panel products.
	Wall	Either direction	16	16	24	
$^{1}/_{2}$ or $^{5}/_{8}$	Ceiling	Either direction	16	16	16	Same as above for $^{1}/_{2}''$ and $^{5}/_{8}''$ gypsum board and gypsum panel products, respectively.
	Ceiling[d]	Perpendicular	24	12	16	
	Wall	Either direction	24	16	24	
Two $^{3}/_{8}$ layers	Ceiling	Perpendicular	16	16	16	Base ply nailed as above for $^{1}/_{2}''$ gypsum board and gypsum panel products; face ply installed with adhesive.
	Wall	Either direction	24	24	24	

For SI: 1 inch = 25.4 mm.

a. For application without adhesive, a pair of nails spaced not less than 2 inches apart or more than $2^{1}/_{2}$ inches apart shall be permitted to be used with the pair of nails spaced 12 inches on center.

b. Screws shall be in accordance with Section R702.3.5.1. Screws for attaching gypsum board or gypsum panel products to structural insulated panels shall penetrate the wood structural panel facing not less than $^{7}/_{16}$ inch.

c. Where cold-formed steel framing is used with a clinching design to receive nails by two edges of metal, the nails shall be not less than $^{5}/_{8}$ inch longer than the gypsum board or gypsum panel product thickness and shall have ringed shanks. Where the cold-formed steel framing has a nailing groove formed to receive the nails, the nails shall have barbed shanks or be 0.086-inch diameter, $1^{5}/_{8}$ inches long, $^{15}/_{64}$-inch head for $^{1}/_{2}$-inch gypsum board or gypsum panel product; and 0.099-inch diameter, $1^{7}/_{8}$ inches long, $^{15}/_{64}$-inch head for $^{5}/_{8}$-inch gypsum board or gypsum panel product.

d. Three-eighths-inch-thick single-ply gypsum board or gypsum panel product shall not be used on a ceiling where a water-based textured finish is to be applied, or where it will be required to support insulation above a ceiling. On ceiling applications to receive a water-based texture material, either hand or spray applied, the gypsum board or gypsum panel product shall be applied perpendicular to framing. Where applying a water-based texture material, the minimum gypsum board thickness shall be increased from $^3/_8$ inch to $^1/_2$ inch for 16-inch on center framing, and from $^1/_2$ inch to $^5/_8$ inch for 24-inch on center framing or $^1/_2$-inch sag-resistant gypsum ceiling board shall be used.

Reason: This proposal clarifies the use of "galvanized nails or equivalent drywall screws" in the table since regular black drywall screws are not galvanized. This proposal resolves the confusion of when the table says galvanized nails or equivalent, does that mean the screws are also required to be galvanized. Regular black drywall screws have a rust-resistant oily coating and use a different requirement to comply with corrosion-resistant drywall screws in accordance with ASTM C1002.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies the existing requirements only.

RB210-25

RB211-25

IRC: R702.7

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R702.7 Vapor retarders. Vapor retarder materials shall be classified in accordance with Table R702.7(1). A vapor retarder shall be provided on the interior side of frame walls of the class indicated in Table R702.7(2), including compliance with Table R702.7(3) or R702.7(4) where applicable. An *approved* design using accepted engineering practice for hygrothermal analysis shall be permitted as an alternative. Vapor retarders shall be installed in accordance with Section R702.7.2.

The *climate zone* shall be determined in accordance with Section N1101.7.

Exceptions:

~~1.~~ ~~*Basement walls.*~~

~~2.~~ 1. Below-grade portion of any wall.

~~3.~~ 2. Construction where accumulation, condensation or freezing of moisture will not damage the materials.

~~4.~~ 3. A vapor retarder shall not be required in *Climate Zones* 1, 2 and 3.

~~5.~~ 4. In *Climate Zones* 4 through 8, a vapor retarder shall not be required where the assembly complies with Table R702.7(5).

Reason: Use of the term "basement walls" for the sake of vapor management in framed walls is not appropriate in the IRC as currently written. A basement wall could be below grade, above grade, or both. A basement wall could be a full-height wood framed wall identical to a first floor wall directly above it. There is no difference in vapor movement or condensation in those two walls, yet one of them is currently an exception for vapor retarders. A basement wall could have earth on the exterior side or it could have open air. These differences greatly affect the vapor management design approach. There are currently two definitions in the IRC for "basement wall". One is in chapter two and is specifically for the purpose of interpreting a story above grade plane for egress fire safety. The second is in the energy code and related to how much insulation R-value is required in the assembly for the purpose of energy code compliance. Neither of these definitions are intended or appropriate for the subject of vapor management. Note, this section is only in regard to "framed walls". This makes the reference to "basement walls" more confusing than useful.

For reference, the current definitions for "basement" and "basement wall" are provided:

Chapter 2: BASEMENT. A story that is not a story above grade plane (see Story above grade plane)

Chapter 2: BASEMENT WALL. For the definition applicable to Chapter 11, see Section N1101.6

Chapter 11: BASEMENT WALL. A wall 50 percent or more below grade and enclosing conditioned space.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal attempts to clarify a section for more consistent interpretation. Depending on the different users of the code and how they interpret this section, this change could decrease or increase the cost of construction. In general, this is not a proposed change that directly increases or decreases the cost of construction.

RB211-25

RB212-25

IRC: R702.7

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Residential Code

Revise as follows:

R702.7 Vapor retarders. Vapor retarder materials shall be classified in accordance with Table R702.7(1). A vapor retarder shall be provided on the interior side of frame walls of the class indicated in Table R702.7(2), including compliance with Table R702.7(3) or R702.7(4) where applicable. An *approved* design using accepted engineering practice for hygrothermal analysis shall be permitted as an alternative. Vapor retarders shall be installed in accordance with Section R702.7.2.

The *climate zone* shall be determined in accordance with Section N1101.7.

Exceptions:

1. *Basement walls*.
2. Below-grade portion of any wall.
3. Construction where accumulation, condensation or freezing of moisture will not damage the materials.
4. A vapor retarder shall not be required in *Climate Zones* 1, 2 and 3.
5. In *Climate Zones* 4 through 8, a vapor retarder shall not be required where the assembly complies with Table R702.7(5).
6. <u>Vapor control design in accordance with ANSI/ABTG FS200.1.</u>

Reason: This proposal adds a reference to the ANSI/ABTG FS200.1 standard (see Bibliography) as an option for complying with the intent of Section R702.7. Sections 3.4 and 3.5 of the ANSI/ABTG FS200.1 standard provide more complete criteria and options for evaluating moisture control and vapor retarder requirements than are included in Section R702.7. The criteria in FS200.1 are based on the same research (see Bibliography) and rely on the same criteria used as the basis for development of the limited prescriptive solutions now included in Section R702.7 for walls with foam plastic insulating sheathing on the exterior. Finally, this proposal coordinates with an identical proposal, FS114-24, that in Group A was approved for the 2027 IBC and is on the consent agenda for public hearing in 2026.

Bibliography: ANSI/ABTG FS200.1 – 2022, Standard for the Use of Foam Plastic Insulating Sheathing (FPIS) in Building Envelopes: Above-grade Walls, Applied Building Technology Group, LLC, Madison, WI. https://www.appliedbuildingtech.com/standards

ABTG (2015). Assessment of Water Vapor Control Methods for Modern Insulated Light-Frame Wall Assemblies, ABTG Research Report No. 1410-03, Applied Building Technology Group, LLC, Madison, WI. https://www.appliedbuildingtech.com/rr/1410-03

Crandell, J. H., "Assessment of Hygrothermal Performance and Design Guidance for Modern Light-Frame Wall Assemblies," Advances in Hygrothermal Performance of Building Envelopes: Materials, Systems and Simulations, ASTM STP1599, P. Mukhopadhyaya and D. Fisler, Eds., ASTM International, West Conshohocken, PA, 2017, pp. 362–394, http://dx.doi.org/10.1520/STP159920160097

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds a reference standard that provides additional solution options that are equivalent to current code. Therefore, there are no cost impacts. However, the added flexibility could result in cost reductions in some cases particularly in coordinating with energy code requirements that may differ from the limited vapor control prescriptive solutions currently provided in Section R702.7

Staff Analysis: FS115-24 was AS and is now on the consent agenda. That proposal included the new standard ANSI/ABTG FS200.1 –

2022

RB212-25

RB213-25

IRC: TABLE R702.7(1), TABLE R702.7(3), TABLE R702.7(4), TABLE R702.7(5), R702.7.1, R702.7.2

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

TABLE R702.7(1) VAPOR RETARDER MATERIALS AND CLASSES

CLASS	ACCEPTABLE MATERIALS
I	Sheet polyethylene, nonperforated aluminum foil or other approved materials installed in accordance with the *manufacturer's installation instructions* for ~~with~~ a perm rating less than or equal to 0.1.
II	Kraft-faced fiberglass batts, vapor retarder paint or other approved materials installed ~~applied~~ in accordance with the manufacturer's installation instructions for a perm rating greater than 0.1 and less than or equal to 1.0.
III	Latex paint, enamel paint or other approved materials installed ~~applied~~ in accordance with the manufacturer's installation instructions for a perm rating greater than 1.0 and less than or equal to 10.0.

TABLE R702.7(3) CLASS III VAPOR RETARDERS

CLIMATE ZONE	CLASS III VAPOR RETARDERS PERMITTED FOR:[a, b]
Marine 4	Vented cladding over exterior *wood structural panel* sheathing ~~wood structural panels~~. Vented cladding over exterior fiberboard sheathing. Vented cladding over exterior *gypsum sheathing* ~~gypsum~~. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 2.5 over 2 × 4 wall. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 3.75 over 2 × 6 wall.
5	Vented cladding over exterior wood structural panel sheathing ~~wood structural panels~~. Vented cladding over exterior fiberboard sheathing. Vented cladding over exterior gypsum sheathing ~~gypsum~~. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 5 over 2 × 4 wall. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 7.5 over 2 × 6 wall.
6	Vented cladding over exterior fiberboard sheathing. Vented cladding over exterior *gypsum sheathing* ~~gypsum~~. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 7.5 over 2 × 4 wall. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 11.25 over 2 × 6 wall.
7	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 10 over 2 × 4 wall. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 15 over 2 × 6 wall.
8	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 12.5 over 2 × 4 wall. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 20 over 2 × 6 wall.

a. Vented cladding shall include vinyl, polypropylene, or horizontal aluminum siding, anchored stone or masonry veneer ~~brick veneer~~ with a clear airspace in accordance with ~~as specified in~~ Table R703.8.4(1), rainscreen systems and other approved vented claddings.

b. The requirements in this table ~~apply only to~~ applicable to exterior continuous insulation are ~~insulation~~ used to control moisture in order to permit the use of interior Class III vapor retarders. The insulation materials used to satisfy this option also contribute to but do not supersede the thermal envelope requirements of Chapter 11.

TABLE R702.7(4) EXTERIOR CONTINUOUS INSULATION WITH INTERIOR CLASS I OR II RESPONSIVE VAPOR RETARDER

CLIMATE ZONE	PERMITTED CONDITIONS[a]
3	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 2.
4, 5 and 6	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 3 over 2 × 4 wall. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 5 over 2 × 6 wall.
7	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 5 over 2 × 4 wall. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 7.5 over 2 × 6 wall.
8	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 7.5 over 2 × 4 wall. Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 10 over 2 × 6 wall.

a. The requirements in this table apply only to exterior continuous insulation used to control moisture in order to permit the use of interior Class I, or II responsive vapor retarders ~~Class II vapor retarders~~. The insulation materials used to satisfy this option also contribute to but do not supersede the thermal envelope requirements of Chapter 11.

TABLE R702.7(5) EXTERIOR CONTINUOUS INSULATION ON WALLS WITHOUT A CLASS I, II OR III INTERIOR VAPOR RETARDER[a]

CLIMATE ZONE	PERMITTED CONDITIONS[b, c]
4	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 4.5
5	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 6.5
6	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 8.5
7	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 11.5
8	Exterior ~~Continuous~~ continuous insulation with *R*-value ≥ 14

a. The total insulating value of materials to the interior side of the exterior continuous insulation, including any cavity insulation, shall not exceed R-5. Where the *R*-value of materials to the interior side of the exterior continuous insulation exceeds R-5, an approved design shall be required.

b. ~~A water vapor control material layer having a permeance not greater than 1 perm in accordance with ASTM E96 Procedure A (dry cup)~~ A Class I or II vapor retarder shall be placed on the exterior side of the wall and to the interior side of the exterior continuous insulation. The exterior continuous insulation shall be permitted to serve as the vapor retarder ~~control layer~~ where, at its installed thickness or with a facer on its interior face, the exterior continuous insulation is a

Class I or II vapor retarder.

c. The requirements in this table apply only to exterior continuous insulation ~~insulation~~ used to control moisture in order to ~~allow~~ permit walls without an interior

Class I, II, or III vapor retarder.
~~a Class I, II or III interior vapor retarder.~~ The insulation materials used to satisfy this option also contribute to but do not supersede the thermal envelope requirements of Chapter 11 ~~the *International Energy Conservation Code.*~~

R702.7.1 Spray foam plastic insulation for moisture control with Class II and III vapor retarders. For purposes of compliance with Tables R702.7(3) and R702.7(4), spray ~~foam~~ *foam plastic insulation* with a maximum permeance of 1.5 perms at the installed thickness applied to the interior side of *wood structural panels*, fiberboard, *insulating sheathing* or ~~gypsum~~ *gypsum sheathing* shall be deemed to meet the *continuous insulation* moisture control requirement in accordance with one of the following conditions:

1. The spray *foam plastic insulation* ~~foam~~ *R-value* is equal to or greater than the specified *continuous insulation* ~~continuous insulation~~ *R-value*.
2. The combined *R*-value of the spray ~~foam~~ *foam plastic insulation* and *continuous insulation* is equal to or greater than the specified *continuous insulation R-value*.

R702.7.2 Vapor retarder installation. Vapor retarders shall be installed in accordance with the *manufacturer's installation instructions* ~~manufacturer's instructions~~, ~~accepted~~ *approved* installation methods or an *approved* design. Where a vapor retarder also functions as a component of a *continuous air barrier*, the vapor retarder shall be installed as an *air barrier* in accordance with Section N1102.5.1.1.

Reason: Vapor management provisions for walls have been heavily developed over the last few code cycles, thanks to the work of others. In teaching these new provisions, I noticed some things from an outside perspective that I think could be cleaned up a little.

1) I have replaced defined terms with the same terms but in italics to signify to the reader that they are defined.

2) I added the term "exterior" to the continuous insulation. By definition, the IRC allows continuous insulation on the inside or outside of the wall. There are many different wall assembly designs and the IRC supports many of them. For that reason it seems worthwhile to clarify that the condensation control use of continuous insulation is only for exterior installations.

3) In table R702.7(1) only class II and III make reference to installation instructions. Why not class I also?

4) I replaced "gypsum" with "gypsum sheathing". We have a definition for gypsum sheathing, so why not use the term.

5) Table R702.7(4) is for using a Class I or II responsive vapor retarder (see table title). However, footnote a only refers to a Class II vapor retarder.

6) In table R702.7(5) footnote b refers to the description of a "responsive vapor retarder" in the manner prior to having a definition. With a definition, we can now use the defined term.

7) In Table R702.7(5) footnote c there is no need to reference the IECC when we have Chapter 11. Keep people in the IRC when building under the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only aims to clarify the existing intent of these provisions.

RB213-25

RB214-25

IRC: TABLE R702.7(4)

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Residential Code

Revise as follows:

TABLE R702.7(4) CONTINUOUS INSULATION WITH CLASS I OR II RESPONSIVE VAPOR RETARDER

CLIMATE ZONE	PERMITTED CONDITIONS [a]
3	Continuous insulation with *R*-value ≥ 2.
4, 5 and 6	Continuous insulation with *R*-value ≥ 3 over 2 × 4 wall. Continuous insulation with *R*-value ≥ 5 over 2 × 6 wall.
7	Continuous insulation with *R*-value ≥ 5 over 2 × 4 wall. Continuous insulation with *R*-value ≥ 7.5 over 2 × 6 wall.
8	Continuous insulation with *R*-value ≥ 7.5 over 2 × 4 wall. Continuous insulation with *R*-value ≥ 10 over 2 × 6 wall.

a. The requirements in this table apply only to insulation used to control moisture in order to permit the use of Class I or II *responsive vapor retarders* ~~vapor retarders~~. The insulation materials used to satisfy this option also contribute to but do not supersede the thermal envelope requirements of Chapter 11.

Reason: This change is proposed to correct a missed change to footnote ‘a’ of Table R702.7(4) as a result of proposal RB209-22 which added responsive vapor retarders to Section R702.7 and the inclusion of Class I and II responsive vapor retarders in Table R702.7(4). Responsive vapor retarders is also now a defined term so it is italicized in this proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies and footnote and makes a correction to align it with the title and intent of the table. So, there is no cost impact.

RB214-25

RB215-25

IRC: R703.1.2

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

2024 International Residential Code

Revise as follows:

R703.1.2 Wind resistance. Wall coverings, backing materials and their attachments shall be capable of resisting wind loads in accordance with Tables R301.2.1(1) and R301.2.1(2). Wind-pressure resistance of the siding~~, exterior soffit~~ and backing materials shall be determined by ASTM E330 or other applicable standard test methods. Where wind-pressure resistance is determined by design analysis, data from *approved* design standards and analysis conforming to generally accepted engineering practice shall be used to evaluate the siding, *exterior soffit* and backing material and its fastening. All applicable failure modes including bending rupture of siding, fastener withdrawal and fastener head pull-through shall be considered in the testing or design analysis. Where the wall covering~~, *exterior soffit*~~ and backing material resist wind load as an assembly, use of the design capacity of the assembly shall be permitted.

Reason: This is an editorial change since R704 now covers exterior soffits and not R703.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

It is removing legacy references before the addition of R704, requirements are already in place in this section.

RB215-25

RB216-25

IRC: R703.2

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Residential Code

Revise as follows:

R703.2 Water-resistive barrier. Not fewer than one layer of *water-resistive barrier* shall be applied over studs or sheathing of all exterior walls with flashing as indicated in Section R703.4, in such a manner as to provide a continuous *water-resistive barrier* behind the exterior wall veneer and behind deck ledgers. The *water-resistive barrier* material shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to meet the requirements of the exterior wall envelope as described in Section R703.1. Where the *water-resistive barrier* also functions as a component of a continuous *air barrier,* the *water-resistive barrier* shall be installed as an *air barrier* in accordance with Section N1102.5.1.1. *Water-resistive barrier* materials shall comply with one of the following:

1. No. 15 felt complying with ASTM D226, Type 1.
2. ASTM E2556, Type 1 or 2.
3. Foam plastic *insulating sheathing* water-resistive barrier systems complying with <u>ANSI/ABTG FS200.1 or</u> Section R703.1.1 and installed in accordance with the manufacturer's installation instructions.
4. ASTM E331 in accordance with Section R703.1.1.
5. Other *approved* materials in accordance with the manufacturer's installation instructions.

No.15 asphalt felt and *water-resistive barriers* complying with ASTM E2556 shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm), and where joints occur, shall be lapped not less than 6 inches (152 mm).

Exception: A *water-resistive barrier* shall not be required in unconditioned detached tool sheds, storage sheds, playhouses, and other similar *accessory structures* provided all of the following requirements are met:

1. *Exterior wall covering* is limited to siding that is attached direct to studs.
2. Exterior walls are uninsulated.
3. Interior side of exterior walls has no wall covering or wall finishes.

Reason: The ANSI/ABTG FS200.1 standard (see Bibliography) provides a complete set of performance testing requirements and criteria for FPIS WRB systems. The water-resistance testing and criteria of R703.1.1 are consistent with that required by the FS200.1 standard. In addition to installed system water-resistance testing, the FS200.1 standard addresses material properties and durability for various WRB system components, requires installation instructions to be consistent with the systems as tested, and also addresses manufacturer and third-party quality control and labeling. Finally, the proposal coordinates with an identical proposal, FS109-24, that in Group A was approved for the 2027 IBC and is on the consent agenda for public hearing in 2026.

Bibliography: ANSI/ABTG FS200.1 – 2022, Standard for the Use of Foam Plastic Insulating Sheathing (FPIS) in Building Envelopes: Above-grade Walls, Applied Building Technology Group, LLC, Madison, WI. https://www.appliedbuildingtech.com/standards

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds a code-reference standard for FPIS WRB systems that is consistent with evaluation and performance criteria currently applied by the industry. Thus, there is no cost impact.

Staff Analysis: FS115-24 was AS and is now on the consent agenda. That proposal included the new standard ANSI/ABTG FS200.1 –

2022

RB216-25

RB217-25

IRC: R703.3, TABLE R703.3(1)

Proponents: Sara Krompholz, representing Polymeric Exterior Products Association (skrompholz@vinylsiding.org)

2024 International Residential Code

Revise as follows:

R703.3 Wall covering nominal thickness and attachments. The nominal thickness and attachment of *exterior wall coverings* shall be in accordance ~~with Table R703.3(1),~~ the wall covering material requirements of this section, and the wall covering manufacturer's installation instructions. Cladding attachment over foam sheathing shall comply with the additional requirements and limitations of Sections R703.15 through R703.17. ~~Nominal material thicknesses in Table R703.3(1) are based on a maximum stud spacing of 16 inches (406 mm) on center.~~ Where specified by the siding manufacturer's instructions and supported by a test report or other documentation, attachment to studs with greater spacing is permitted. Fasteners for *exterior wall coverings* attached to wood framing shall be in accordance with Section R703.3.3~~ and Table R703.3(1)~~. *Exterior wall coverings* shall be attached to cold-formed steel *light frame construction* in accordance with the cladding manufacturer's installation instructions~~, the requirements of Table R703.3(1) using screw fasteners substituted for the nails specified in accordance with Table R703.3(2),~~ or an *approved* design.

Delete without substitution:

~~**TABLE R703.3(1) SIDING MINIMUM ATTACHMENT AND MINIMUM THICKNESS**~~

~~SIDING MATERIAL~~		~~NOMINAL THICKNESS (inches)~~	~~JOINT TREATMENT~~	~~TYPE OF SUPPORTS FOR THE SIDING MATERIAL AND FASTENERS~~					
				~~Wood or wood structural panel sheathing into stud~~	~~Fiberboard sheathing into stud~~	~~Gypsum sheathing into stud~~	~~Foam plastic sheathing into stud~~[l]	~~Direct to studs~~	~~Number or spacing of fasteners~~
~~Anchored veneer: brick, concrete, masonry or stone (see Section R703.8)~~		~~2~~	~~Section R703.8~~	~~Section R703.8~~					
~~Adhered veneer: concrete, stone or masonry (see Section R703.12)~~		—	~~Section R703.12~~	~~Section R703.12~~					
~~Fiber cement siding~~	~~Panel siding (see Section R703.10.1)~~	~~5/16~~	~~Section R703.10.1~~	~~6d common (2″ × 0.113″)~~	~~6d common (2″ × 0.113″)~~	~~6d common (2″ × 0.113″)~~	~~6d common (2″ × 0.113″)~~	~~4d common (1 1/2″ × 0.099″)~~	~~6″ panel edges 12″ inter. sup.~~
	~~Lap siding (see Section R703.10.2)~~	~~5/16~~	~~Section R703.10.2~~	~~6d common (2″ × 0.113″)~~	~~6d common (2″ × 0.113″)~~	~~6d common (2″ × 0.113″)~~	~~6d common (2″ × 0.113″)~~	~~6d common (2″ × 0.113″) or 0.120″ dia. (11 gage) roofing nail~~	~~Note f~~
~~Hardboard panel siding (see Section R703.5)~~		~~7/16~~	—	~~0.120″ nail (shank) with 0.225″ head~~	~~0.120″ nail (shank) with 0.225″ head~~	~~0.120″ nail (shank) with 0.225″ head~~	~~0.120″ nail (shank) with 0.225″ head~~	~~0.120″ nail (shank) with 0.225″ head~~	~~6″ panel edges 12″ inter. sup.~~[d]
~~Hardboard lap siding (see Section R703.5)~~		~~7/16~~	~~Note e~~	~~0.099″ nail (shank) with 0.240″ head~~	~~0.099″ nail (shank) with 0.240″ head~~	~~0.099″ nail (shank) with 0.240″ head~~	~~0.099″ nail (shank) with 0.240″ head~~	~~0.099″ nail (shank) with 0.240″ head~~	~~Same as stud spacing 2 per bearing~~
~~Horizontal aluminum~~[a]	~~Without insulation~~	~~0.019~~[b]	~~Lap~~	~~Siding nail 1 1/2″ × 0.120″~~	~~Siding nail 2″ × 0.120″~~	~~Siding nail 2″ × 0.120″~~	~~Siding nail~~[h] ~~1 1/2″ × 0.120″~~	~~Not allowed~~	~~Same as stud spacing~~
		~~0.024~~	~~Lap~~	~~Siding nail 1 1/2″ × 0.120″~~	~~Siding nail 2″ × 0.120″~~	~~Siding nail 2″ × 0.120″~~	~~Siding nail~~[h] ~~1 1/2″ × 0.120″~~	~~Not allowed~~	
	~~With insulation~~	~~0.019~~	~~Lap~~	~~Siding nail 1 1/2″ × 0.120″~~	~~Siding nail 2 1/2″ × 0.120″~~	~~Siding nail 2 1/2″ × 0.120″~~	~~Siding nail~~[h] ~~1 1/2″ × 0.120″~~	~~Siding nail 1 1/2″ × 0.120″~~	
~~Insulated vinyl siding~~[j]		~~0.035 (vinyl siding layer only)~~	~~Lap~~	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with 3/8″ to 1/2″ crown~~[h, i]	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with 3/8″ to 1/2″ crown~~[h]	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with 3/8″ to 1/2″ crown~~[h]	~~0.120″ nail (shank) with a 0.313″ head Section R703.11.2~~	~~Not allowed~~	~~16 inches on center or specified by manufacturer instructions, test report or other sections of this code~~
~~Particleboard panels~~		~~3/8~~	—	~~6d box nail (2″ × 0.099″)~~	~~6d box nail (2″ × 0.099″)~~	~~6d box nail (2″ × 0.099″)~~	~~6d box nail (2″ × 0.099″)~~	~~Not allowed~~	~~6″ panel edges 12″ inter. sup.~~
		~~1/2~~	—	~~6d box nail (2″ × 0.099″)~~	~~6d box nail (2″ × 0.099″)~~	~~6d box nail (2″ × 0.099″)~~	~~6d box nail (2″ × 0.099″)~~	~~6d box nail (2″ × 0.099″)~~	
		~~5/8~~	—	~~6d box nail (2″ × 0.099″)~~	~~8d box nail (2 1/2″ × 0.113″)~~	~~8d box nail (2 1/2″ × 0.113″)~~	~~6d box nail (2″ × 0.099″)~~	~~6d box nail (2″ × 0.099″)~~	
~~Polypropylene siding~~[k]		~~Not applicable~~	~~Lap~~	~~Section R703.14.1~~	~~Section R703.14.1~~	~~Section R703.14.1~~	~~Section R703.14.1~~	~~Not allowed~~	~~As specified by the manufacturer instructions, test report or other sections of this code~~

~~SIDING MATERIAL~~		~~NOMINAL THICKNESS (inches)~~	~~JOINT TREATMENT~~	~~TYPE OF SUPPORTS FOR THE SIDING MATERIAL AND FASTENERS~~					
				~~Wood or wood structural panel sheathing into stud~~	~~Fiberboard sheathing into stud~~	~~Gypsum sheathing into stud~~	~~Foam plastic sheathing into stud~~	~~Direct to studs~~	~~Number or spacing of fasteners~~
~~Steel~~[e]		~~29 ga.~~	~~Lap~~	~~Siding nail (1 3/4″ × 0.113″) Staple 1 3/4~~	~~Siding nail (2 3/4″ × 0.113″) Staple 2 1/2~~	~~Siding nail (2 1/2″ × 0.113″) Staple 2 1/4~~	~~Siding nail (1 3/4″ × 0.113″) Staple 1 3/4~~	~~Not allowed~~	~~Same as stud spacing~~
~~Vinyl siding (see Section R703.11)~~		~~0.035~~	~~Lap~~	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with 3/8 to 1/2 inch crown~~[h, i]	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with 3/8″ to 1/2″ crown~~[h]	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with 3/8″ to 1/2″ crown~~[h]	~~0.120″ nail (shank) with a 0.313" head Section R703.11.2~~	~~Not allowed~~	~~16 inches on center or as specified by the manufacturer instructions or test report~~
~~Wood siding (see Section R703.5)~~	~~Wood rustic, drop~~	~~3/8 min.~~	~~Lap~~						
	~~Shiplap~~	~~19/32 average~~	~~Lap~~	~~6d box or siding nail (2″ × 0.099″)~~	~~6d box or siding nail (2″ × 0.099″)~~	~~6d box or siding nail (2″ × 0.099″)~~	~~6d box or siding nail (2″ × 0.099″)~~	~~8d box or siding nail (2 1/2″ × 0.113″) Staple 2″~~	~~Face nailing up to 6″ widths, 1 nail per bearing; 8″ width sand over, 2 nails per bearing~~
	~~Bevel~~	~~7/16~~							
	~~Butt tip~~	~~3/16~~	~~Lap~~						
~~Wood structural panel ANSI/APA PRP-210 siding (exterior grade) (see Section R703.5)~~		~~3/8—1/2~~	~~Note e~~	~~2″ × 0.099″ siding nail~~	~~2 1/2″ × 0.113″ siding nail~~	~~2 1/2″ × 0.113″ siding nail~~	~~2 1/2″ × 0.113″ siding nail~~	~~2″ × 0.099″ siding nail~~	~~6″ panel edges 12″ inter. sup.~~
~~Wood structural panel lap siding (see Section R703.5)~~		~~3/8—1/2~~	~~Note e Note g~~	~~2″ × 0.099″ siding nail~~	~~2 1/2″ × 0.113″ siding nail~~	~~2 1/2″ × 0.113″ siding nail~~	~~2 1/2″ × 0.113″ siding nail~~	~~2″ × 0.099″ siding nail~~	~~8″ along bottom edge~~

~~For SI: 1 inch = 25.4 mm.~~

- ~~l. Cladding attachment over foam sheathing shall comply with the additional requirements and limitations of Sections R703.15, R703.16 and R703.17.~~
- ~~k. Polypropylene siding shall comply with ASTM D7254.~~
- ~~j. Insulated vinyl siding shall comply with ASTM D7793.~~
- ~~i. Where specified by the manufacturer's instructions and supported by a test report, fasteners are permitted to penetrate into or fully through nailable sheathing or other nailable substrate of minimum thickness specified by the instructions or test report, without penetrating into framing.~~
- ~~h. Minimum fastener length must be sufficient to penetrate sheathing other nailable substrate and framing a total of a minimum of 1 1/4 inches or in accordance with the manufacturer's installation instructions.~~
- ~~g. Vertical joints, if staggered, shall be permitted to be away from studs if applied over wood structural panel sheathing.~~
- ~~f. Face nailing: one 6d common nail through the overlapping planks at each stud. Concealed nailing: one 0.120-inch diameter (11 gage) 1 1/2-inch-long galvanized roofing nail through the top edge of each plank at each stud in accordance with the manufacturer's installation instructions.~~
- ~~e. Vertical end joints shall occur at studs and shall be covered with a joint cover or shall be caulked.~~
- ~~d. Where used to resist shear forces, the spacing must be 4 inches at panel edges and 8 inches on interior supports.~~
- ~~c. Shall be of approved type.~~
- ~~b. Aluminum (0.019 inch) shall be unbacked only where the maximum panel width is 10 inches and the maximum flat area is 8 inches. The tolerance for aluminum siding shall be +0.002 inch of the nominal dimension.~~
- ~~a. Aluminum nails shall be used to attach aluminum siding.~~

Reason: This change is largely editorial as this table is replicated in specific material sections of the code. The Table is not used typically for regulatory purposes based on educational seminar surveys at building official events.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change removes a table that is redundant and make no changes to the current code requirements.

RB217-25

RB218-25

IRC: TABLE R703.3(1)

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

2024 International Residential Code

Revise as follows:

TABLE R703.3(1) SIDING MINIMUM ATTACHMENT AND MINIMUM THICKNESS

SIDING MATERIAL		NOMINAL THICKNESS (inches)	JOINT TREATMENT	TYPE OF SUPPORTS FOR THE SIDING MATERIAL AND FASTENERS					
				Wood or wood structural panel sheathing into stud	Fiberboard sheathing into stud	Gypsum sheathing into stud	Foam plastic sheathing into stud[l]	Direct to studs	Number or spacing of fasteners
Anchored veneer: brick, concrete, masonry or stone (see Section R703.8)		2	Section R703.8	Section R703.8					
Adhered veneer: concrete, stone or masonry (see Section R703.12)		—	Section R703.12	Section R703.12					
Fiber cement siding	Panel siding (see Section R703.10.1)	$^{5}/_{16}$	Section R703.10.1	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	4d common ($1^{1}/_{2}$″ × 0.099″)	6″ panel edges 12″ inter. sup.
	Lap siding (see Section R703.10.2)	$^{5}/_{16}$	Section R703.10.2	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″) or 0.120″ dia. (11 gage) roofing nail	Note f
Hardboard panel siding (see Section R703.5)		$^{7}/_{16}$	—	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	6″ panel edges 12″ inter. sup.[d]
Hardboard lap siding (see Section R703.5)		$^{7}/_{16}$	Note e	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	Same as stud spacing 2 per bearing
Horizontal aluminum[a]	Without insulation	0.019[b]	Lap	Siding nail $1^{1}/_{2}$″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail[h] $1^{1}/_{2}$″ × 0.120″	Not allowed	Same as stud spacing
		0.024	Lap	Siding nail $1^{1}/_{2}$″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail[h] $1^{1}/_{2}$″ × 0.120″	Not allowed	
	With insulation	0.019	Lap	Siding nail $1^{1}/_{2}$″ × 0.120″	Siding nail $2^{1}/_{2}$″ × 0.120″	Siding nail $2^{1}/_{2}$″ × 0.120″	Siding nail[h] $1^{1}/_{2}$″ × 0.120″	Siding nail $1^{1}/_{2}$″ × 0.120″	
~~Insulated vinyl siding~~[j]		~~0.035 (vinyl siding layer only)~~	~~Lap~~	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown~~[h, i]	~~0.120" nail (shank) with a 0.313″ head or 16 gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown~~[h]	~~0.120" nail (shank) with a 0.313″ head or 16 gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown~~[h]	~~0.120" nail (shank) with a 0.313" head Section R703.11.2~~	~~Not allowed~~	~~16 inches on center or specified by manufacturer instructions, test report or other sections of this code~~
Particleboard panels		$^{3}/_{8}$	—	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	Not allowed	6″ panel edges 12″ inter. sup.
		$^{1}/_{2}$	—	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	
		$^{5}/_{8}$	—	6d box nail (2″ × 0.099″)	8d box nail ($2^{1}/_{2}$″ × 0.113″)	8d box nail ($2^{1}/_{2}$″ × 0.113″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	
~~Polypropylene siding~~[k]		~~Not applicable~~	~~Lap~~	~~Section R703.14.1~~	~~Section R703.14.1~~	~~Section R703.14.1~~	~~Section R703.14.1~~	~~Not allowed~~	~~As specified by the manufacturer instructions, test report or other sections of this code~~
Steel[c]		29 ga.	Lap	Siding nail ($1^{3}/_{4}$″ × 0.113″) Staple–$1^{3}/_{4}$	Siding nail ($2^{3}/_{4}$″ × 0.113″) Staple–$2^{1}/_{2}$	Siding nail ($2^{1}/_{2}$″ × 0.113″) Staple–$2^{1}/_{4}$	Siding nail ($1^{3}/_{4}$″ × 0.113″) Staple–$1^{3}/_{4}$	Not allowed	Same as stud spacing
~~Vinyl siding (see Section R703.11)~~		~~0.035~~	~~Lap~~	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with $^{3}/_{8}$ to $^{1}/_{2}$ inch crown~~[h, i]	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown~~[h]	~~0.120″ nail (shank) with a 0.313″ head or 16 gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown~~[h]	~~0.120″ nail (shank) with a 0.313" head Section R703.11.2~~	~~Not allowed~~	~~16 inches on center or as specified by the manufacturer instructions or test report~~
Wood siding (see Section R703.5)	Wood rustic, drop	$^{3}/_{8}$ min.	Lap	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ ×0.099″)	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ × 0.099″)	8d box or siding nail ($2^{1}/_{2}$″ × 0.113″) Staple–2″	Face nailing up to 6″ widths, 1 nail per bearing; 8″ width sand over, 2 nails per bearing
	Shiplap	$^{19}/_{32}$ average	Lap						
	Bevel	$^{7}/_{16}$							
	Butt tip	$^{3}/_{16}$	Lap						
Wood structural panel ANSI/APA PRP-210 siding (exterior grade) (see Section R703.5)		$^{3}/_{8}$ – $^{1}/_{2}$	Note e	2″ × 0.099″ siding nail	$2^{1}/_{2}$″ × 0.113″ siding nail	$2^{1}/_{2}$″ × 0.113″ siding nail	$2^{1}/_{2}$″ × 0.113″ siding nail	2″ × 0.099″ siding nail	6″ panel edges 12″ inter. sup.
Wood structural panel lap siding (see Section R703.5)		$^{3}/_{8}$ – $^{1}/_{2}$	Note e Note g	2″ × 0.099″ siding nail	$2^{1}/_{2}$″ × 0.113″ siding nail	$2^{1}/_{2}$″ × 0.113″ siding nail	$2^{1}/_{2}$″ × 0.113″ siding nail	2″ × 0.099″ siding nail	8″ along bottom edge

For SI: 1 inch = 25.4 mm.

a. Aluminum nails shall be used to attach aluminum siding.

b. Aluminum (0.019 inch) shall be unbacked only where the maximum panel width is 10 inches and the maximum flat area is 8 inches. The tolerance for aluminum siding shall be +0.002 inch of the nominal dimension.

c. Shall be of approved type.

d. Where used to resist shear forces, the spacing must be 4 inches at panel edges and 8 inches on interior supports.

e. Vertical end joints shall occur at studs and shall be covered with a joint cover or shall be caulked.

f. Face nailing: one 6d common nail through the overlapping planks at each stud. Concealed nailing: one 0.120-inch diameter (11-gage) $1^{1}/_{2}$-inch-long galvanized roofing nail through the top edge of each plank at each stud in accordance with the manufacturer’s installation instructions.

g. Vertical joints, if staggered, shall be permitted to be away from studs if applied over wood structural panel sheathing.

~~h. Minimum fastener length must be sufficient to penetrate sheathing other nailable substrate and framing a total of a minimum of~~ $\cancel{1^{1}/_{4}}$ ~~inches or in accordance with the manufacturer’s installation instructions.~~

i. ~~Where specified by the manufacturer’s instructions and supported by a test report, fasteners are permitted to penetrate into or fully through nailable sheathing or other nailable substrate of minimum thickness specified by the instructions or test report, without penetrating into framing.~~

j. ~~Insulated vinyl siding shall comply with ASTM D7793.~~

k. ~~Polypropylene siding shall comply with ASTM D7254.~~

l. Cladding attachment over foam sheathing shall comply with the additional requirements and limitations of Sections R703.15, R703.16 and R703.17.

Reason: This change removes redundant information that is contained in the specific material section of the code. It is partially complimentary to a companion code change for vinyl siding and insulated vinyl siding. In addition the change removes the provisions for polypropylene siding which are largely dependent on the manufacturer's installation instructions anyway, so the prescriptive table has no utility anyway it's simply a pointer.

It is worth noting in trainings provided to building officials, there have been no building officials who have indicated they even reference this table, it's entire deletion may be worth considering, which is offered in another proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

We are removing redundant information especially related to the creation of a material specific table vs. the elimination of a broad unused table in the code.

RB218-25

RB219-25

IRC: TABLE R703.3(1)

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

2024 International Residential Code

Revise as follows:

TABLE R703.3(1) SIDING MINIMUM ATTACHMENT AND MINIMUM THICKNESS

SIDING MATERIAL		NOMINAL THICKNESS (inches)	JOINT TREATMENT	TYPE OF SUPPORTS FOR THE SIDING MATERIAL AND FASTENERS					
				Wood or wood structural panel sheathing into stud	Fiberboard sheathing into stud	Gypsum sheathing into stud	Foam plastic sheathing into stud[l]	Direct to studs	Number or spacing of fasteners
Anchored veneer: brick, concrete, masonry or stone (see Section R703.8)		2	Section R703.8	Section R703.8					
Adhered veneer: concrete, stone or masonry (see Section R703.12)		—	Section R703.12	Section R703.12					
Fiber cement siding	Panel siding (see Section R703.10.1)	5/16[m]	Section R703.10.1	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	4d common (1 1/2″ × 0.099″)	6″ panel edges 12″ inter. sup.
	Lap siding (see Section R703.10.2)	5/16[m]	Section R703.10.2	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″) or 0.120″ dia. (11 gage) roofing nail	Note f
Hardboard panel siding (see Section R703.5)		7/16	—	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	6″ panel edges 12″ inter. sup.[d]
Hardboard lap siding (see Section R703.5)		7/16	Note e	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	Same as stud spacing 2 per bearing
Horizontal aluminum[a]	Without insulation	0.019[b]	Lap	Siding nail 1 1/2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail[h] 1 1/2″ × 0.120″	Not allowed	Same as stud spacing
		0.024	Lap	Siding nail 1 1/2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail[h] 1 1/2″ × 0.120″	Not allowed	
	With insulation	0.019	Lap	Siding nail 1 1/2″ × 0.120″	Siding nail 2 1/2″ × 0.120″	Siding nail 2 1/2″ × 0.120″	Siding nail[h] 1 1/2″ × 0.120″	Siding nail 1 1/2″ × 0.120″	
Insulated vinyl siding[j]		0.035 (vinyl siding layer only)	Lap	0.120″ nail (shank) with a 0.313″ head or 16-gage staple with 3/8″ to 1/2″ crown[h, i]	0.120" nail (shank) with a 0.313″ head or 16-gage staple with 3/8″ to 1/2″ crown[h]	0.120" nail (shank) with a 0.313″ head or 16-gage staple with 3/8″ to 1/2″ crown[h]	0.120" nail (shank) with a 0.313" head Section R703.11.2	Not allowed	16 inches on center or specified by manufacturer instructions, test report or other sections of this code
Particleboard panels		3/8	—	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	Not allowed	6″ panel edges 12″ inter. sup.
		1/2	—	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	
		5/8	—	6d box nail (2″ × 0.099″)	8d box nail (2 1/2″ × 0.113″)	8d box nail (2 1/2″ × 0.113″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	
Polypropylene siding[k]		Not applicable	Lap	Section R703.14.1	Section R703.14.1	Section R703.14.1	Section R703.14.1	Not allowed	As specified by the manufacturer instructions, test report or other sections of this code
Steel[c]		29 ga.	Lap	Siding nail (1 3/4″ × 0.113″) Staple–1 3/4	Siding nail (2 3/4″ × 0.113″) Staple–2 1/2	Siding nail (2 1/2″ × 0.113″) Staple–2 1/4	Siding nail (1 3/4″ × 0.113″) Staple–1 3/4	Not allowed	Same as stud spacing
Vinyl siding (see Section R703.11)		0.035	Lap	0.120″ nail (shank) with a 0.313″ head or 16-gage staple with 3/8- to 1/2-inch crown[h, i]	0.120″ nail (shank) with a 0.313″ head or 16-gage staple with 3/8″ to 1/2″ crown[h]	0.120″ nail (shank) with a 0.313″ head or 16- gage staple with 3/8″ to 1/2″ crown[h]	0.120″ nail (shank) with a 0.313" head Section R703.11.2	Not allowed	16 inches on center or as specified by the manufacturer instructions or test report
Wood siding (see Section R703.5)	Wood rustic, drop	3/8 min.	Lap	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ ×0.099″)	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ × 0.099″)	8d box or siding nail (2 1/2″ × 0.113″) Staple–2″	Face nailing up to 6″ widths, 1 nail per bearing; 8″ width sand over, 2 nails per bearing
	Shiplap	19/32 average	Lap						
	Bevel	7/16							
	Butt tip	3/16	Lap						
Wood structural panel ANSI/APA PRP-210 siding (exterior grade) (see Section R703.5)		3/8 – 1/2	Note e	2″ × 0.099″ siding nail	2 1/2″ × 0.113″ siding nail	2 1/2″ × 0.113″ siding nail	2 1/2″ × 0.113″ siding nail	2″ × 0.099″ siding nail	6″ panel edges 12″ inter. sup.
Wood structural panel lap siding (see Section R703.5)		3/8 – 1/2	Note e Note g	2″ × 0.099″ siding nail	2 1/2″ × 0.113″ siding nail	2 1/2″ × 0.113″ siding nail	2 1/2″ × 0.113″ siding nail	2″ × 0.099″ siding nail	8″ along bottom edge

For SI: 1 inch = 25.4 mm.

a. Aluminum nails shall be used to attach aluminum siding.

b. Aluminum (0.019 inch) shall be unbacked only where the maximum panel width is 10 inches and the maximum flat area is 8 inches. The tolerance for aluminum siding shall be +0.002 inch of the nominal dimension.

c. Shall be of approved type.

d. Where used to resist shear forces, the spacing must be 4 inches at panel edges and 8 inches on interior supports.

e. Vertical end joints shall occur at studs and shall be covered with a joint cover or shall be caulked.

f. Face nailing: one 6d common nail through the overlapping planks at each stud. Concealed nailing: one 0.120-inch diameter (11-gage) $1^1/_2$-inch-long galvanized roofing nail through the top edge of each plank at each stud in accordance with the manufacturer's installation instructions.

g. Vertical joints, if staggered, shall be permitted to be away from studs if applied over wood structural panel sheathing.

h. Minimum fastener length must be sufficient to penetrate sheathing other nailable substrate and framing a total of a minimum of $1^1/_4$ inches or in accordance with the manufacturer's installation instructions.

i. Where specified by the manufacturer's instructions and supported by a test report, fasteners are permitted to penetrate into or fully through nailable sheathing or other nailable substrate of minimum thickness specified by the instructions or test report, without penetrating into framing.

j. Insulated vinyl siding shall comply with ASTM D7793.

k. Polypropylene siding shall comply with ASTM D7254.

l. Cladding attachment over foam sheathing shall comply with the additional requirements and limitations of Sections R703.15, R703.16 and R703.17.

m. Nominal thickness less than 5/16" is permitted when installed in accordance with the manufacturer's instructions and is supported by a test report or other documentation showing compliant performance.

Reason: Nominal thickness of fiber-cement less than 5/16" (e.g. minimum 1/4") is not uncommon for these products and is already mentioned in codes (see IRC Section R704.2.2 - Fiber-cement exterior soffit panels, and IBC Table 1404.2 - Minimum Thickness of Weather Coverings.)

While R703.3 allows for stud spacing greater than 16 inches (e.g. 24 inches) where "*specified by the siding manufacturer's instructions and supported by a test report or other documentation*", similarly, highlighting that minimum allowable material thickness using performance-based evidence to show compliance with this code should be included so as to not stifle innovation and increase choices for consumers.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0. Dependent on material availability.
The cost differences between 5/16" panel and 1/4" panel (for example) would be a cost savings of approximately 10-20% .

The decrease in material thickness equates to less raw-materials required (reducing cost to some degree) and also allows for additional sqft per truckload (reducing shipping costs per sqft)

Estimated Immediate Cost Impact Justification (methodology and variables):

performance-based allowance of thinner materials allows innovation of products compliant with this code, and generally (usually) less material used costs less overall.

RB220-25

IRC: SECTION 202 (New), R703.3.1, R703.3.4, R703.11.1, R703.11.2, R703.13, R703.13.1

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

2024 International Residential Code

Add new definition as follows:

<u>**BACKED VINYL SIDING.** A cladding product with manufacturer-installed foam plastic backing material as an integral part of the cladding product, where used as insulation refer to *insulated vinyl siding.*</u>

Revise as follows:

R703.3.1 Siding clearance at wall and adjacent surfaces. Unless otherwise specified by the cladding manufacturer or this code, polypropylene, insulated vinyl, <u>backed vinyl,</u> and vinyl *claddings* shall have clearance of not less than 6 inches (152 mm) from the ground and not less than $^1/_2$ inch (13 mm) from other adjacent surfaces (decks, roofs, slabs).

R703.3.4 Minimum fastener length and penetration. Fasteners shall have the greater of the minimum length specified in Table R703.3(1) or as required to provide a minimum penetration into framing as follows:

6. Fasteners for siding material installed over foam plastic sheathing shall have sufficient length to accommodate foam plastic sheathing thickness and to penetrate framing or sheathing and framing combined, as specified in Items 1 through 5.
5. Fasteners for vertical or horizontal wood siding shall penetrate not less than 1$^1/_2$ inches (38 mm) into studs, studs and wood sheathing combined, or blocking.
4. Fasteners for *polypropylene siding* shall be installed in accordance with Section R703.14.
3. Fasteners for *vinyl siding,* <u>*backed vinyl siding,*</u>and *insulated vinyl siding* shall be installed in accordance with Section R703.11 or R703.13.
2. Fasteners for hardboard panel and lap siding shall penetrate not less than 1$^1/_2$ inches (38 mm) into framing.
1. Fasteners for horizontal aluminum siding, steel siding, particleboard panel siding, *wood structural panel* siding in accordance with ANSI/APA-PRP 210, *fiber-cement* panel siding and *fiber-cement* lap siding installed over foam plastic sheathing shall penetrate not less than 1$^1/_2$ inches (38 mm) into framing or shall be in accordance with the manufacturer's installation instructions.

R703.11.1 Installation. *Vinyl siding,* <u>*backed vinyl siding,*</u> *insulated vinyl siding* and compatible accessories shall be installed in accordance with the manufacturer's installation instructions.

R703.11.2 Installation over foam plastic sheathing. Where *vinyl siding,* <u>*backed vinyl siding,*</u>or *insulated vinyl siding* is installed over foam plastic sheathing, the ~~*vinyl*~~ siding shall comply with Section R703.11 and shall have a wind load design pressure rating in accordance with Table R703.11.2.

Exceptions:

3. Where the foam plastic sheathing and its attachment have a design wind pressure resistance complying with Sections R303.8 and R301.2.1, the ~~vinyl~~ siding shall be installed in accordance with Sections R703.3.3 and R703.11.1.
2. Where the ~~*vinyl*~~ *siding* manufacturer's product specifications provide an *approved* wind load design pressure rating for installation over foam plastic sheathing, use of this wind load design pressure rating shall be permitted and the siding shall be installed in accordance with the *manufacturer's installation instructions*.
1. Where the foam plastic sheathing is applied directly over *wood structural panels*, fiberboard, *gypsum sheathing* or other *approved* backing capable of independently resisting the design wind pressure, the ~~vinyl~~ siding shall be installed in accordance with Sections R703.3.3 and R703.11.1.

R703.13 Insulated vinyl siding <u>and backed vinyl siding</u>. *Insulated vinyl siding* <u>and *backed vinyl siding*</u> shall be certified and *labeled* as conforming to the requirements of ASTM D7793 <u>and D7445, respectively,</u> by an *approved* agency.

R703.13.1 Insulated vinyl siding, <u>backed vinyl siding,</u> and accessories. *Insulated vinyl siding,* <u>*backed vinyl siding,*</u>
and compatible accessories shall be installed in accordance with Sections R703.11.1 and R703.11.2 ~~and the~~ <u>or shall be installed in in accordance with</u>
manufacturer's installation instructions.

Reason: This change brings in a new product category, backed siding. This product, which has been standardized, is essentially a laminated board product, vinyl and EPS foam. The foam is required to meet the requirements of the IRC.

This change has been accepted into the International Building Code during Group A cycle.

It's a product which claims no R-value but still offers a rigid product that enhance performance including higher impact resistance.

Products are being commercialize and certified by a third party at this point.

Cost Impact: Increase

Estimated Immediate Cost Impact:

On an average single family home, if you installed this product instead of standard vinyl siding, you could expect to see an increase of $500 - $1500 dollars. This is based on industry information. Although this product is an option not a requirement, if it were chosen instead of vinyl siding, it would be an increase in cost. Although this product is typically less costly than other alternative clapboard styled products and other more massive cladding.

Estimated Immediate Cost Impact Justification (methodology and variables):

Backed siding is fairly new the market, but generally speaking the material costs are 20%-30% more than traditional vinyl siding.

Estimated Life Cycle Cost Impact:

Life cycle of product is at least 50 years and this type of products requires minimal maintenance, typically just water and brush every few years depending on the location of the structure.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Life cycle data is based on NIST's (Federal Government) Building forEnvironmental and Economic Sustainability software.

Staff Analysis: FS111-24 was AMC1 and is now on the consent agenda. That proposal included the new standard ASTM D7445-24

RB220-25

RB221-25

IRC: R703.4.1

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Residential Code

Revise as follows:

R703.4.1 Flashing installation at exterior window and door openings. . Flashing at exterior window and door openings shall extend to the surface of the exterior wall finish or to a *water-resistive barrier* complying with Section R703.2 for subsequent drainage. Air sealing shall be installed around all window and door openings on the interior side of the rough opening gap. Mechanically attached flexible flashings shall comply with AAMA 712. Flashing at exterior window and door openings shall be installed in accordance with <u>the fenestration manufacturer's installation and flashing instructions. For applications not addressed in the fenestration manufacturer's instructions, flashing shall be installed in accordance with</u> one or more of the following:

1. ~~The fenestration manufacturer's installation and flashing instructions, or for applications not addressed in the fenestration manufacturer's instructions, in~~ <u>In</u> accordance with the flashing or *water-resistive barrier* manufacturer's instructions. ~~Where flashing instructions or details are not provided, *pan flashing* shall be installed at the sill of exterior window and door openings. *Pan flashing* shall be sealed or sloped in such a manner as to direct water to the surface of the exterior wall finish or to the *water-resistive barrier* for subsequent drainage. Openings using *pan flashing* shall incorporate flashing or protection at the head and sides.~~
2. <u>In accordance with the fenestration flashing methods included in FMA/AAMA/WDMA 500.</u>
3. <u>In accordance with the fenestration flashing methods included in ANSI/ABTG FS200.1.</u>
4. ~~2.~~ In accordance with the flashing design or method of a *registered design professional*.
5. ~~3.~~ In accordance with other *approved* methods.

<u>**Exception:** Where flashing instructions or details are not provided, *pan flashing* shall be installed at the sill of exterior window and door openings. *Pan flashing* shall be sealed or sloped in such a manner as to direct water to the surface of the exterior wall finish or to the *water-resistive barrier* for subsequent drainage. Openings using *pan flashing* shall incorporate flashing or protection at the head and sides.</u>

Reason: This proposal is consistent with a Group A IBC proposal, FS115-24, which was approved by committee and is on the consent agenda for public hearing in 2026. This version of the proposal for the IRC reformats Section R703.4.1 by moving the fenestration manufacturer's instructions from Item 1 into the charging language as consistent with the IBC Section 1404.4.1. Also, the pan flashing approach (in the absence of instructions which this section deals with) is moved to an exception to address the case where no source of instruction is provided. Finally, two standards addressing fenestration flashing are added in items 2 and 3. The flashing methods included in the FMA/AAMA/WDMA 500 standard (see Bibliography) provides for flashing of windows installed using a window buck on walls with foam sheathing and a separate WRB material. The ANSI/ABTG FS200.1 standard (see Bibliography) provides for flashing of windows on walls with foam sheathing used as the WRB in its Section 3.6, including with or without a window buck (it also references the FMA/AAMA/WDMA 500 standard as well as performance testing of installation methods in accordance with AAMA 504). Both of these standards are compatible and thoroughly vetted through field experience and laboratory testing (see Bibliography).

Bibliography: FMA/AAMA/WDMA 500-16: Standard Practice for the Installation of Mounting Flange Windows into Walls Utilizing Foam Plastic Insulating Sheathing (FPIS) with a Separate Water-Resistive Barrier, https://store.fgiaonline.org/pubstore/ProductResults.asp?cat=0&src=500

ABTG (2021). Installation and Performance of Flanged Fenestration Units Mounted on Walls with Foam Plastic Insulating Sheathing, ABTG Research Report No. 2104-01, Applied Building Technology Group, LLC, Madison, WI, https://www.appliedbuildingtech.com/rr/2104-01 (free download)

ANSI/ABTG FS200.1 – 2022, Standard for the Use of Foam Plastic Insulating Sheathing (FPIS) in Building Envelopes: Above-grade

Walls, Applied Building Technology Group, LLC, Madison, WI. https://www.appliedbuildingtech.com/standards (free download)

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal reformats the provisions with no cost impact. Two standards are added to the list of options and therefore have no cost impact as they are adding options and not changing existing requirements or options.

Staff analysis: FS115-24 was AS and is now on the consent agenda. That proposal included the new standard ANSI/ABTG FS200.1 – 2022 and FMA/AAMA/WDMA 500-16

RB221-25

RB222-25

IRC: SECTION 202 (New), R703.7.3, R703.7.3.1, R703.7.3.2, TABLE 703.7.3 (New)

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Residential Code

Add new definition as follows:

STUCCO BOND BREAK. A substantially nonwater-absorbing layer placed directly behind the stucco to prevent adhesion of the stucco to the surface of the *water-resistive barrier*.

Delete and substitute as follows:

~~**R703.7.3 Water-resistive barriers.** Water-resistive barriers shall be installed as required in Section R703.2 and shall comply with Section R703.7.3.1 or R703.7.3.2.~~

~~**Exception:** Sections R703.7.3.1 and R703.7.3.2 shall not apply to construction where accumulation, condensation or freezing of moisture will not damage the materials.~~

R703.7.3 Weather protection. A *water-resistive barrier*, *stucco bond break*, means of drainage, and flashing shall be provided in accordance with Section R703.1.1 and one of the methods in Table R703.7.3.

Exceptions:

1. The requirement for a means of drainage shall not apply to construction where accumulation, condensation or freezing of moisture will not damage the materials.
2. Masonry or concrete wall construction in accordance with exception 1 of Section R703.1.1.
3. An *approved* design complying with exception 2 of Section R703.1.1.

~~**R703.7.3.1 Dry climates.** . In Dry (B) *climate zones* indicated in Figure N1101.7, *water-resistive barriers* shall comply with one of the following:~~

1. ~~The *water-resistive barrier* shall be two layers of 10-minute Grade D paper or have a water resistance equal to or greater than two layers of a *water-resistive barrier* complying with ASTM E2556, Type I. The individual layers shall be installed independently such that each layer provides a separate continuous plane. Flashing installed in accordance with Section R703.4 and intended to drain to the *water-resistive barrier* shall be directed between the layers.~~
2. ~~The *water-resistive barrier* shall be 60-minute Grade D paper or have a water resistance equal to or greater than one layer of a *water-resistive barrier* complying with ASTM E2556, Type II. The *water-resistive barrier* shall be separated from the stucco by a layer of foam plastic *insulating sheathing,* other non-water-absorbing layer, a drainage space or means of drainage complying with Section R703.7.3.2. Flashing installed in accordance with Section 703.4 and intended to drain to the *water-resistive barrier* shall be directed to the exterior side of the *water-resistive barrier.*~~

R703.7.3.1 Installation. The continuous *water-resistive barrier* shall be installed in accordance with Section R703.2. The *water-resistive barrier*, *stucco bond break*, and means of drainage shall be installed in accordance with Table R703.7.3. Water shall be directed to the exterior at the base of the stucco application and at any transition between building stories or other conditions where the means of drainage terminates.

~~**R703.7.3.2 Moist or marine climates.** In the Moist (A) or Marine (C) *climate zones* indicated in Figure N1101.7, *water-resistive barriers* shall comply with one of the following:~~

1. ~~In addition to complying with Section R703.7.3.1, a space or drainage material not less than $^{3}/_{16}$ inch (5 mm) in depth shall be added to the exterior side of the *water-resistive barrier*.~~
2. ~~In addition to complying with Section R703.7.3.1, Item 2, drainage on the exterior of the *water-resistive barrier* shall have a drainage efficiency of not less than 90 percent, as measured in accordance with ASTM E2273 or Annex A2 of ASTM E2925.~~

<u>**R703.7.3.2** **Flashing.** Flashing installed in accordance with Section R703.4 and intended to drain to the *water-resistive barrier* shall be directed to the exterior side of the *water-resistive barrier*.</u>

Add new text as follows:

<u>**TABLE 703.7.3 WEATHER PROTECTION REQUIREMENTS FOR EXTERIOR PLASTER (STUCCO)**</u>

<table>
<tr><th>Method</th><th>Moisture Regime[a]</th><th>Water-Resistive Barrier (WRB)</th><th>Stucco Bond Break (SBB)</th><th>Means of Drainage</th></tr>
<tr><td>1</td><td rowspan="3">Moist (A), Dry (B), or Marine (C) (any moisture regime)</td><td>10-minute Grade D paper or WRB with water resistance equal to or greater than one layer of ASTM E2556, Type I</td><td>10-minute Grade D paper or WRB with water resistance equal to or greater than one layer of ASTM E2556, Type I</td><td rowspan="2">Drainage cavity with min. 3/16-inch (4.6 mm) depth between WRB and SBB layers</td></tr>
<tr><td>2</td><td rowspan="2">60-minute Grade D paper or WRB with water resistance equal to or greater than one layer of ASTM E2556, Type II</td><td>Foam plastic insulating sheathing or other stucco bond break</td></tr>
<tr><td>3</td><td>Foam plastic insulating sheathing or other stucco bond break</td><td>Drainage between WRB and SBB layers with drainage efficiency of at least 90% per ASTM E2273 or Annex A2 of ASTM E2925</td></tr>
<tr><td>4</td><td rowspan="3">Dry (B)</td><td>10-minute Grade D paper or WRB with water resistance equal to or greater than one layer of ASTM E2556, Type I</td><td>10-minute Grade D paper or WRB with water resistance equal to or greater than one layer of ASTM E2556, Type I</td><td rowspan="2">Drainage is between WRB and SBB layers</td></tr>
<tr><td>5</td><td rowspan="2">60-minute Grade D paper or WRB with water resistance equal to or greater than one layer of ASTM E2556, Type II</td><td>Foam plastic insulating sheathing or other stucco bond break</td></tr>
<tr><td>6</td><td>Not Required</td><td>Means of drainage in accordance with Method 1, 2 or 3 with means to separate stucco from direct contact with WRB</td></tr>
</table>

a. <u>The appropriate moisture regime shall be selected in accordance with Chapter 3 of the *International Energy Conservation Code* commercial or residential provisions.</u>

Reason: This proposal coordinates the IRC with an identical Group A proposal, S9-24, approved by the IBC FS committee and on the consent agenda for public hearing in 2026. This proposal represents a collaborative effort supported by a broad group of stakeholders. The previous two code cycles resulted in technical improvements to Section R703.7.3 to address water management of conventional 3-coat stucco installations in moist (A) and marine (C) climate regimes. However, these changes brought about increased complexity of the provisions that vary based on wall assembly conditions and climate conditions with options and requirements that are cross-referenced between the two subsections (existing R703.7.3.1 and R703.7.3.2 shown as deleted and replaced). This formatting approach made determining a particular solution difficult and confusing. Therefore, this proposal clarifies the existing technical requirements and options by making them more "visual" in a table format without changing the technical intent of the code. The multiple requirements and interrelated options of Sections R703.7.3.1 and R703.7.3.2 (deleted) are now incorporated in Table R703.7.3 in a straightforward manner. Also, a definition for "STUCCO BOND BREAK" is provided to facilitate clarity and accuracy in code reading and understanding of different components (and their functions) currently required for 3-coat stucco applications but vaguely described within the code text.

Beyond the overall formatting changes and new definition described above, some specific clarifications addressed by this proposal are as follows:

Section 2510.6 Weather Protection. This section is retitled to better address the scope that goes beyond just water-resistive barriers. New Table R703.7.3 is referenced for requirements instead of the existing two subsections (proposed for deletion and replacement). The ability to use an approved design is also provided as a clarification that other solutions than identified in this section and Table R703.7.3 are possible.

Section R703.7.3.1 Installation. This new subsection consolidates installation requirements that were not addressed consistently across the existing code subsections R703.7.3.1 and R703.7.3.2. Also, a sentence is added to require drainage to the exterior at the base of the stucco application and at transitions between stories or other conditions where the drainage plane or drainage space terminates. This was based on stucco performance field research in Florida (see Bibliography).

Section R703.7.3.2 Flashing. This new subsection simply captures existing code content related to installation of flashing and its integration with the water-resistive barrier.

Table R703.7.3. This new table replaces the inter-twined and cross-referenced requirements of existing subsections R703.7.3.1 and R703.7.3.2 (shown as deleted). The requirements of these subsections are now mapped into Table R703.7.3 as distinctly different solutions or methods for combining the various required components and options for those components (one combination of components is shown for each row of the table). Therefore, the user simply determines the correct climate “moisture regime” (see footnote a) and then selects an appropriate (or preferred) method and follows the required combination of components in that row of the table. This eliminates the need for a user to decipher the existing code text and cross-referenced requirements between different subsections of code to determine what is required.

Bibliography: Lstiburek, J.W. (2005). Rainwater Management Performance of Newly Constructed Residential Building Enclosures During August and Septemeber 2004. Prepared for Home Builders Association of Metro Orlando and the Florida Home Builders Association by: Building Science Corporation, Westord, MA. January 11, 2005

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal strives to make no technical changes to the requirements in 2510.6 and focuses on formatting improvements and clarifications to better convey the various inter-related requirements and options in Section R703.7.3 and particularly the cross-referenced requirements in existing subsections R703.7.3.1 and R703.7.3.2 for dry and moist/marine climates. The primary change is to reformat the subsections to address topics that apply regardless of the climate moisture regime and to place specific climate-dependent requirements and options (methods) in a table format where they can be easily visualized and selected without having to decipher the logic of the current code language.

RB222-25

RB223-25

IRC: R703.8.4.2

Proponents: Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org); Nicholas Lang, Concrete Masonry & Hardscapes Association, representing Masonry Alliance for Codes & Standards (nlang@masonryandhardscapes.org)

2024 International Residential Code

Delete without substitution:

~~**R703.8.4.2 Grout fill.** As an alternative to the airspace required by Table R703.8.4(1), grout shall be permitted to fill the airspace. Where the airspace is filled with grout, a *water-resistive barrier* is required over studs or sheathing. Where the airspace is filled, replacing the sheathing and *water-resistive barrier* with a wire mesh and *approved water-resistive barrier* or an *approved water-resistive barrier*-backed reinforcement attached directly to the studs is permitted.~~

Reason: In almost all residential construction, the airspace is 1 inch wide. If an airspace this size is grouted, the grout must be poured in 1-foot lifts to achieve proper construction. In practice, this is impractical, and higher lifts increase the potential for air pockets to form. These air pockets can trap moisture and increase the potential for efflorescence on the surface of the veneer. The alterative to fill the airspace with grout describes a type of construction that was used in the mid-20th century. This alternative has not been used for over 30 years and is not recommended detailing for anchored masonry veneer.

Contemporary detailing for anchored masonry veneer incorporates an airspace behind the veneer to provide drainage and air flow which improves the performance of the assembly. Allowing grout fill does not permit this to occur. In fact, in some cases, a grouted airspace could transmit moisture into the backing due to direct, sustained contact with the water resistive barrier. This is especially true when the grout is wet prior to curing or when air pockets are present against the backing.

Permitting this grout-filled alternative implies that it provides equivalent performance to anchored masonry veneer with an airspace/drainage space behind it when it does not. As a result, we recommend removing this alternative from the IRC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposed change will not result in a cost difference in nearly all cases since this grout-filled system is rarely, if ever, used. In the rare case where the grout-filled alternative would have been used, this proposed change results in no cost change or reduces the cost of construction as no grout and no wire mesh are needed behind the veneer.

RB223-25

RB224-25

IRC: R703.10.1

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

2024 International Residential Code

Revise as follows:

R703.10.1 Panel siding. *Fiber-cement* panels shall comply with the requirements of ASTM C1186, Type A, minimum Grade II or ISO 8336, Category A, minimum Class 2. Panels shall be installed with the long dimension either parallel or perpendicular to framing. Vertical and horizontal joints shall occur over framing members<u>, furring, *wood structural panel* or other *approved* supporting material</u> and shall be protected with caulking, or with battens or flashing, or be vertical or horizontal shiplap, or otherwise designed to comply with Section R703.1. Panel siding shall be installed with fasteners in accordance with Table R703.3(1) or the *approved* manufacturer's instructions.

Reason: This proposal clarifies that attachment/support of fiber-cement edges/joints can be achieved by multiple methods, and is not limited to just framing members.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial in nature, and provides clarification that fiber-cement panel joints may be supported and attached using methods/materials more than *just* framing members.

RB224-25

RB225-25

IRC: R703.10.2

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

2024 International Residential Code

Revise as follows:

R703.10.2 Lap siding. *Fiber-cement* lap siding having a maximum width of 12 inches (305 mm) shall comply with the requirements of ASTM C1186, Type A, minimum Grade II or ISO 8336, Category A, minimum Class 2. Lap siding shall be lapped a minimum of $1^1/_4$ inches (32 mm) and lap siding not having tongue-and-groove end joints shall have the ends protected with caulking, covered with an H-section joint cover, located over a strip of <u>metal or non-metal</u> flashing, or shall be designed to comply with Section R703.1. Lap siding courses shall be installed with the fastener heads exposed or concealed, in accordance with Table R703.3(1) or *approved* manufacturer's instructions.

Reason: This proposal provides clarification that flashing materials may be made of metal or non-metal and fulfil the intent of this section (H-section cover, flashing, compliance with 703.1); which is to prevent the accumulation of water and provide a means for draining water to the exterior.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial, and clarifies that both metal and non-metal flashing materials satisfy the intent of this code section.

RB225-25

RB226-25

IRC: R703.11.1, TABLE R703.11.1 (New), R703.11.1.3, R703.11.1.4, R703.11.1.5, ASTM Chapter 44 (New)

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

2024 International Residential Code

Revise as follows:

R703.11.1 Installation. *Vinyl siding, insulated vinyl siding* and compatible accessories shall be installed in accordance with the *manufacturer's installation instructions*. For *vinyl siding* and *insulated vinyl siding* applied in accordance with the wind speed and exposure limits of Table R703.3.2 and rated for minimum wind load design pressure rating of 30 psf or greater in accordance with ASTM D3679 or ASTM D7793, respectively, the prescriptive fastening requirements of Table R703.11.1 shall be permitted as an alternative to the manufacturer's installation instructions.

Add new text as follows:

TABLE R703.11.1 PRESCRIPTIVE FASTENER REQUIREMENTS FOR VINYL AND INSULATED VINYL SIDING

Fastener[a]	**Substrate**[b]	**Penetration Depth**[c]	**Spacing**
Smooth shank nail, not less than 0.120" nail shank with 0.313(5/16)" head or 16 gage staple with 3/8- to 1/2- inch crown	Nailable substrate	Not less than 1-1/4"	Horizontal siding - not greater than 16-inches on center
Ring shank nail, not less than 0.120" nail shank with 0.313(5/16)" head	min. 7/16" nailable substrate	Through substrate a minimum of 1/4"	Horizontal siding - not greater than 12-inches on center
Ring shank nail, not less than 0.120" nail shank with 0.313(5/16)" head	> 15/32" thick nailable subtrate	Through substrate a minimum of 1/4"	Horizontal siding - Not greater than-16 inches on center
Either smooth shank or ring shank (a specified above)	min. 7/16" nailable subtrate	Through substrate a minimum of 1/4"	Vertical siding - Not greater than 12-inches on center each way
Ring shank nail, not less than 0.120" nail shank with 0.313(5/16)" head or screw not less than 0.138 screw shank with a .423" truss or pan head	min. 3/4" thick wood furring	Into furring 3/4"	Horizontal sidng - Not greater than 12-inches on center
24" o.c. framing (For 20 psf or less design wind pressure)[d]			
All fastener types	Nailable substrate	Not less than 1-1/4"	Horizontal siding - Not greater than 24-inches on center

a. Smooth and ring shank roofing nails shall comply with ASTM F1667.

b. Wood framing and furring shall have a minimum specific gravity of 0.42. Other *nailable* substrates with equal or greater fastener withdrawal performance shall also be permitted. Where fiberboard, gypsum, foam plastic or other non-nailable substrate is used, fasteners must penetrate studs or other form of *nailable substrate.*

c. The total thickness of *wood structural panel*, wood furring, wood framing, and other *nailable substrates* shall satisfying the required penetration depth.

d. 24" o.c. fastener spacing for horizontal siding shall be permitted where design wind pressure is 20 psf or less in accordance with Tables R301.2.1(1) and (2) for 10 ft^2 tributary area and wall zone 5. Alternatively, it shall be permitted where the mean roof height of the building is 30 feet (9.1 m) or less and the design wind speed does not exceed 115 mph for Exposure B or 110 mph Exposure C.

Delete without substitution:

~~**R703.11.1.3 Fasteners.** Unless specified otherwise by the manufacturer's instructions, fasteners for *vinyl siding* shall be 0.120-inch (3 mm) shank diameter nails with a 0.313-inch (8 mm) head, 16-gage staples with a 3/8-inch (9.5 mm) to 1/2-inch (12.7 mm) crown or in accordance with Table R703.3(1).~~

~~**R703.11.1.4 Penetration depth.** Unless specified otherwise by the manufacturer's instructions or in accordance with Table R703.3(1), fasteners shall penetrate into building framing. The total penetration into sheathing, furring framing or other *nailable substrate* shall be a minimum 1 $^{1}/_{4}$ inches (32 mm).~~

~~**R703.11.1.5 Spacing.** Unless specified otherwise by the manufacturer's instructions, the maximum spacing between fasteners shall be 16 inches (406 mm) for horizontal siding and 12 inches (305 mm) for vertical siding. Where specified by the manufacturer's instructions and supported by a test report, alternative fastener spacing such as 24 inches (610 mm) is permitted.~~

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

F1667-21a Specification of Driven Fasteners: Nails, Spikes and Staples.

Reason: This change moves away from the long-standing "standard" installation prescription of 16" oc into the stud to a prescriptive table that offers practical fastener alternatives to installation depending the framing and sheathing patterns. It is based on industry testing using ASTM D5206 and engineering calculations and in short it requires the use of ring shank nails where it's more difficult to hit the stud framing.

In addition in "low wind" areas (a good portion of the country), 20 psf or less where 24" oc framing is used and nailable sheathing is not being used, it provides and allowance for this construction method.

We will remove references to installation practices in the code in Table R703.3(1) as the table is redundant and not used in an additional proposal.

This change will offer options of installation while addressing trends in construction related to energy efficiency and alternative framing concepts.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Estimated additional cost for and average 20 square home is between $50-$150.

Estimated Immediate Cost Impact Justification (methodology and variables):

This change offers alternatives to installation which will add additional fasteners and ring shank nails vs. smooth shank nails which are more expensive.
5lbs of 1 1/4" Roofing Smooth Shank Nails $19

5lb of 1 1/4" Roofing Ring Shank Nails $25

Adds about 25% in material costs, and potential additional labor costs.

Estimated Life Cycle Cost Impact:

Life cycle costs it not relevant here as the change in fastener type will not impact this issue.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

NA

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTMF1667-21a Specification of Driven Fasteners: Nails, Spikes and Staples.

RB226-25

RB227-25

IRC: R703.11.1.2

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

2024 International Residential Code

Revise as follows:

R703.11.1.2 Utility trim and snap locks. Utility trim and snap locks shall be installed in accordance with the following:~~Where horizontal siding has to be cut or trimmed below windows and at the top of walls, the top edge of the siding shall be secured with utility *trim* and snap locks or as specified by the manufacturer's installation instructions. See Figures R703.11.1.2(1) and R703.11.1.2(2).~~

1. Where horizontal siding has to be cut or trimmed below windows and at the top of walls, the top edge of the siding shall be secured with utility *trim* and snap locks or as specified by the manufacturer's installation instructions. See Figures R703.11.1.2(1) and R703.11.1.2(2).
2. Where there are openings greater than 4 feet (1219 mm) in width, and the bottom of the siding panel has been trimmed, utility trim and snap locks shall be used above the opening. Utility trim shall be applied upside down.

Reason: This change adds to the recently added requirements with vinyl siding and the importance of starter strip and utility trim. Larger opening need additional connection points for the siding over the top, as this increases the performance of the siding system.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This change would add about $5 per opening that it impacts. So an average house might have 3-4 applications, resulting in $15-$20 per house addition.

Estimated Immediate Cost Impact Justification (methodology and variables):

Based on manufacturer and installer estimates.

Estimated Life Cycle Cost Impact:

This will help to increase the durability of the structure by adding another connection point for the system.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

NA

RB227-25

RB228-25

IRC: R703.12, ASTM Chapter 44 (New)

Proponents: Nicholas Lang, representing Concrete Masonry & Hardscapes Association (nlang@masonryandhardscapes.org); Charles Clark Jr, representing Brick Industry Association (cclark@bia.org)

2024 International Residential Code

Revise as follows:

R703.12 Adhered masonry veneer installation. *Adhered masonry veneer* shall comply with the requirements of Section R703.7.3 and the requirements in Sections 13.1 and 13.3 of TMS 402. *Adhered masonry veneer* shall be installed in accordance with one of the following: ~~Section R703.7.1, Article 3.3D of TMS 602 or the manufacturer's instructions.~~

1. Article 3.3D of TMS 602
2. For concrete masonry or manufactured stone veneer units, ASTM C1780
3. For clay or shale masonry units, ASTM C1935.
4. Manufacturer's instructions.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

C1780-24	Standard Practice for Installation Methods for Cement-based Adhered Masonry Veneer
C1935-24	Standard Practice for Installation Methods for Adhered Veneer Systems Using Thin Brick Units Made from Clay or Shale

Reason: This ballot proposes to add new options for installation of adhered masonry veneer. The first of the proposed changes is to remove reference to R703.7.1. That section only deals with attachment of lath, which is covered by the other options provided in this proposal.

The first proposed option is Article 3.3D of TMS 602. This option currently exists, as such, no change is proposed. This option is applicable to all types of masonry units. The second option is ASTM C1780, which is a consensus standard for installation of adhered masonry veneers where the units are cement based. In particular, this option is applicable to concrete masonry and manufactured stone veneer masonry units. The third option is ASTM C1935, which is a consensus standard for installation of adhered masonry veneers where the units are made of clay or shale. The fourth option is manufacturer's instructions. This option currently exists, as such, no change is proposed.

ASTM C1780 and ASTM C1935 have been developed by ASTM Committee C15 on Masonry. They include specific sets of installation information for the applicable units, and are valuable resources to installers. The addition of these standards will improve the quality of adhered masonry veneer installations, and provide important information to installers of adhered masonry veneers. These standards have also been aligned with requirements of TMS 602 to provide consistency across standards.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This change provides additional options for the installer. The requirements of both new reference standards are aligned with the IRC and TMS 602, so application of those would not impact construction cost.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ASTMC1780-24 Standard Practice for Installation Methods for Cement-based Adhered Masonry Veneer
ASTMC1935-24 Standard Practice for Installation Methods for Adhered Veneer Systems Using Thin Brick Units Made from Clay or

Shale

RB228-25

RB229-25

IRC: R703.14.1.3 (New)

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Residential Code

Add new text as follows:

R703.14.1.3 Installation over foam plastic sheathing. *Polypropylene siding* shall be installed over foam plastic sheathing in accordance with the manufacturer's installation instructions or an *approved* design. Unless otherwise specified in the manufacturer's instructions, the siding shall be permitted to be attached through maximum 2 inch (51 mm) thick foam sheathing and fastened to minimum 7/16 inch (11.1 mm) wood structural panel in accordance with Table R703.3.3. In no case shall the fastener head size, shank diameter, and spacing be less stringent than that required by the manufacturer's installation instructions.

Reason: Guidance for installation of polypropylene siding over foam plastic insulating sheathing is needed to help ensure proper installation and attachment. Currently, this information exists for vinyl siding in Section R703.11.2, but not for polypropylene siding in Section R703.14. This proposal addresses this need by requiring installation in accordance with the manufacturer's installation instructions or an approved design. As an alternative to and if not otherwise specified in the manufacturer's instructions, the proposal also permits siding attachment through foam sheathing and to underlying wood structural panels in accordance with the existing provisions for this practice in Section R703.3.3 (particularly Table R703.3.3). This proposal has been vetted through the Polymeric Exterior Products Association (formerly Vinyl Siding Institute) to ensure consistency with industry accepted practice and coordination with manufacturer installation instructions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is a clarification of requirements to ensure appropriate installation of polypropylene siding over foam sheathing. It does not present new requirements and instead affirms reliance on manufacturer instructions and existing provisions for this purpose in other parts of the code. It also may be considered as a clarification of options for installation and therefore does not change current minimum requirements. Therefore, the proposal is considered to have no cost impact.

RB229-25

RB230-25

IRC: R703.15, R703.16, R703.17

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Residential Code

Revise as follows:

R703.15 Cladding attachment over foam sheathing to wood framing. *Cladding* shall be specified and installed in accordance with Section R703, the cladding manufacturer's *approved* instructions, including any limitations for use over foam plastic sheathing, or an *approved* design. In addition, the *cladding* or furring attachments through foam sheathing to framing shall meet or exceed the minimum fastening requirements of Section R703.15.1, Section R703.15.2, <u>Chapter 4 of ANSI/ABTG FS200.1,</u> or an *approved* design for support of cladding weight.

Exceptions:

1. Where the cladding manufacturer has provided *approved* installation instructions for application over foam sheathing, those requirements shall apply.
2. For *exterior insulation and finish systems*, refer to Section R703.9.
3. For anchored masonry or stone veneer installed over foam sheathing, refer to Section R703.8.

R703.16 Cladding attachment over foam sheathing to cold-formed steel framing. *Cladding* shall be specified and installed in accordance with Section R703, the cladding manufacturer's *approved* instructions, including any limitations for use over foam plastic sheathing, or an *approved* design. In addition, the *cladding* or furring attachments through foam sheathing to framing shall meet or exceed the minimum fastening requirements of Section R703.16.1, Section R703.16.2<u>, Chapter 4 of ANSI/ABTG FS200.1,</u> or an *approved* design for support of cladding weight.

Exceptions:

1. Where the cladding manufacturer has provided *approved* installation instructions for application over foam sheathing, those requirements shall apply.
2. For *exterior insulation and finish systems*, refer to Section R703.9.
3. For anchored masonry or stone veneer installed over foam sheathing, refer to Section R703.8.

R703.17 Cladding attachment over foam sheathing to masonry or concrete wall construction. *Cladding* shall be specified and installed in accordance with Section R703.3 and the cladding manufacturer's instructions or an *approved* design <u>complying with Chapter 4 of ANSI/ABTG FS200.1</u>. Foam sheathing shall be attached to masonry or concrete construction in accordance with the insulation manufacturer's installation instructions or an *approved* design. Furring and furring attachments through foam sheathing into concrete or masonry substrate shall be designed to resist design loads determined in accordance with Section R301, including support of cladding weight as applicable. Fasteners used to attach *cladding* or furring through foam sheathing to masonry or concrete substrates shall be *approved* for application into masonry or concrete material and shall be installed in accordance with the fastener manufacturer's instructions.

Exceptions:

1. Where the cladding manufacturer has provided *approved* installation instructions for application over foam sheathing and connection to a masonry or concrete substrate, those requirements shall apply.
2. For *exterior insulation and finish systems*, refer to Section R703.9.
3. For anchored masonry or stone veneer installed over foam sheathing, refer to Section R703.8.

Reason: This proposal adds an ANSI consensus standard, FS200.1, which includes design, testing, and prescriptive requirements for attachment of cladding through foam plastic insulating sheathing. It is the basis for the prescriptive fastening provisions that are currently in Sections R703.15, R703.16, and R703.17. It provides additional options that can be used by designers and manufacturers to properly evaluate or design attachment solutions consistent with the provisions in the code. The standard is available as a free download at: https://www.appliedbuildingtech.com/standards

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0 (see Justification)

Estimated Immediate Cost Impact Justification (methodology and variables):

By adding this standard as an option, additional equivalent design and testing (performance based) solutions will be made more accessible which generally have a tendency to promote flexibility and innovation and reduced cost. However, it is not possible to quantify those cost benefits because of the unknown variation in possible solutions that may be considered or developed.

Estimated Life Cycle Cost Impact:

Life cycle cost is not applicable to this proposal because this proposal is merely adding options. However, it is expected that this proposal would have no change to the life-cycle cost in comparison to the equivalent solutions currently in the code.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Life cycle cost is not applicable to this proposal because this proposal is merely adding options. However, it is expected that this proposal would have no change to the life-cycle cost in comparison to the equivalent solutions currently in the code.

Staff Analysis: Staff analysis: FS115-24 was AS and is now on the consent agenda. That proposal included the new standard ANSI/ABTG FS200.1 – 2022

RB230-25

RB231-25

IRC: FIGURE R704.2.1(1), FIGURE R704.2.1(2)

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

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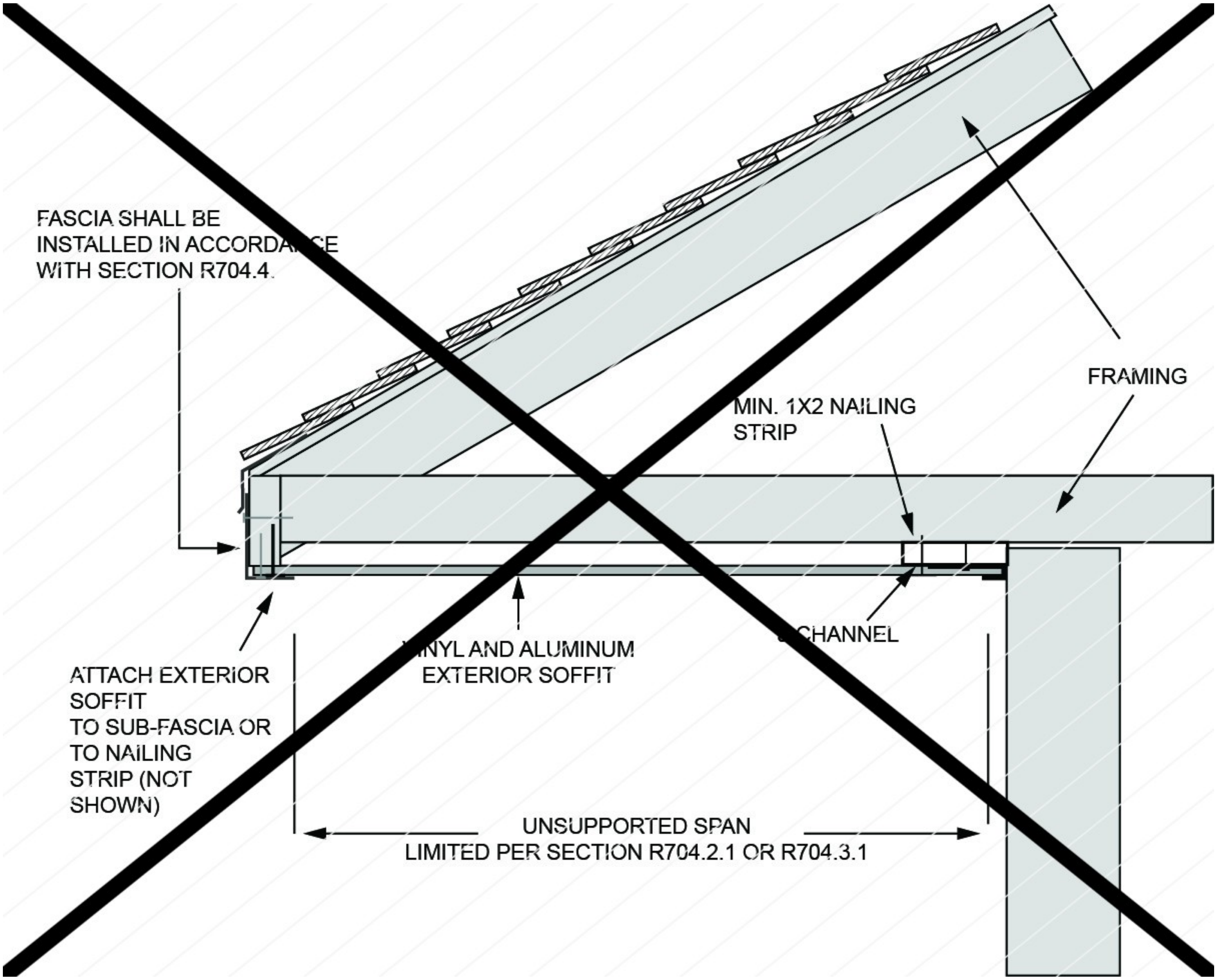
Delete and substitute as follows:



~~**FIGURE R704.2.1(1) TYPICAL SINGLE-SPAN VINYL AND ALUMINUM EXTERIOR SOFFIT PANEL SUPPORT**~~

IRC Drawing 1 – will replace Figure R704.2.1(1) Single Span

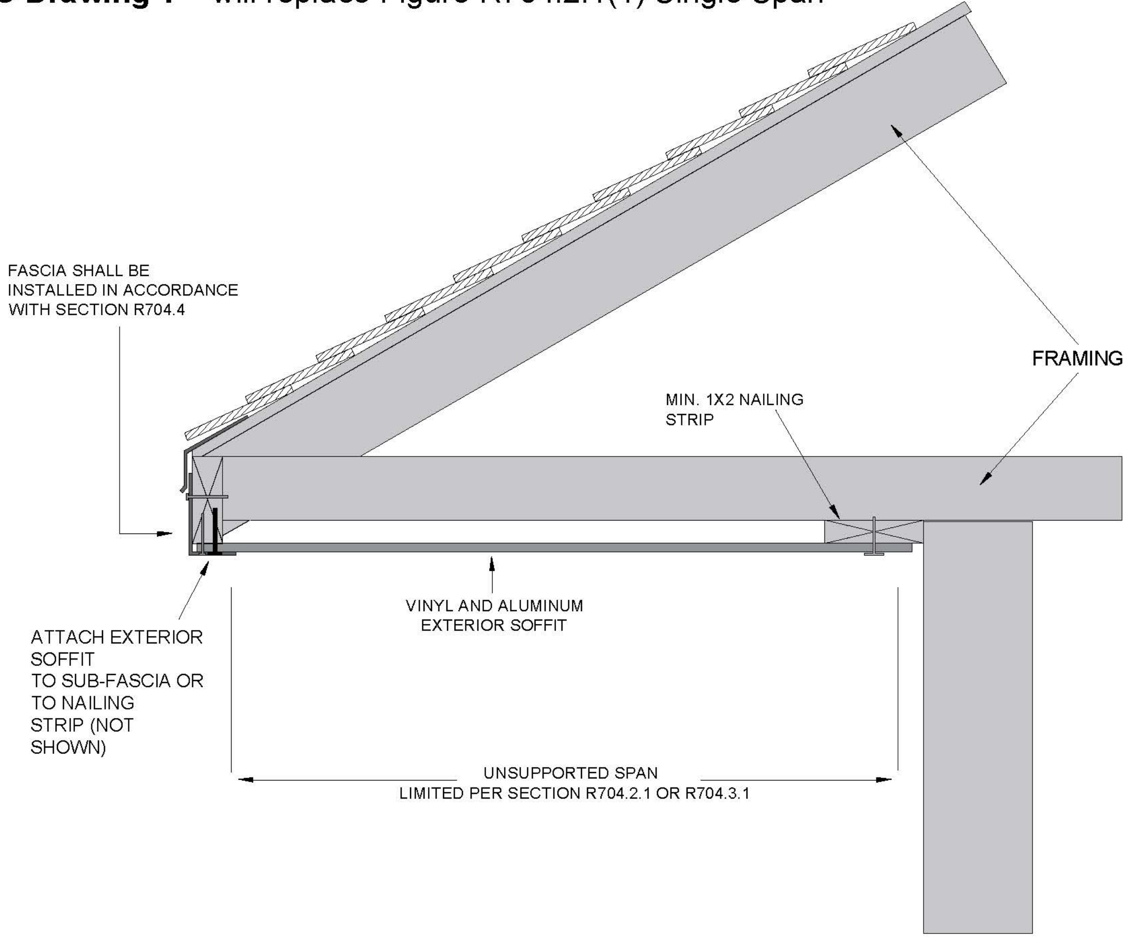
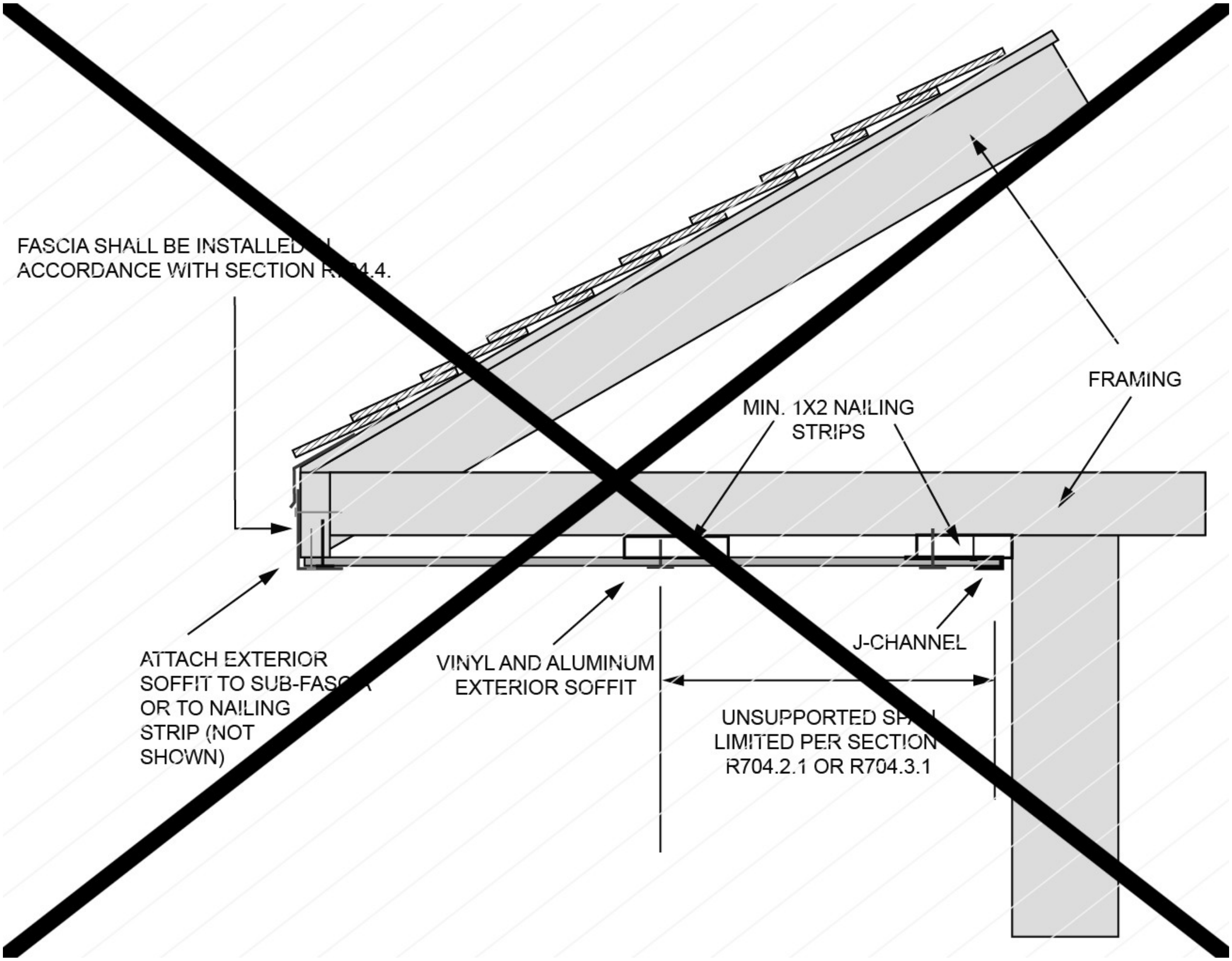


FIGURE R704.2.1 (1)
TYPICAL SINGLE-SPAN VINYL AND ALUMINUM EXTERIOR SOFFIT PANEL SUPPORT

FIGURE R704.2.1(1) TYPICAL SINGLE-SPAN VINYL AND ALUMINUM EXTERIOR SOFFIT PANEL SUPPORT



~~FIGURE R704.2.1(2) TYPICAL DOUBLE-SPAN VINYL AND ALUMINUM EXTERIOR SOFFIT PANEL SUPPORT~~

IRC Drawing 2 – will replace Figure R704.2.1(2) Typical Double-Span Vinyl and Alum....

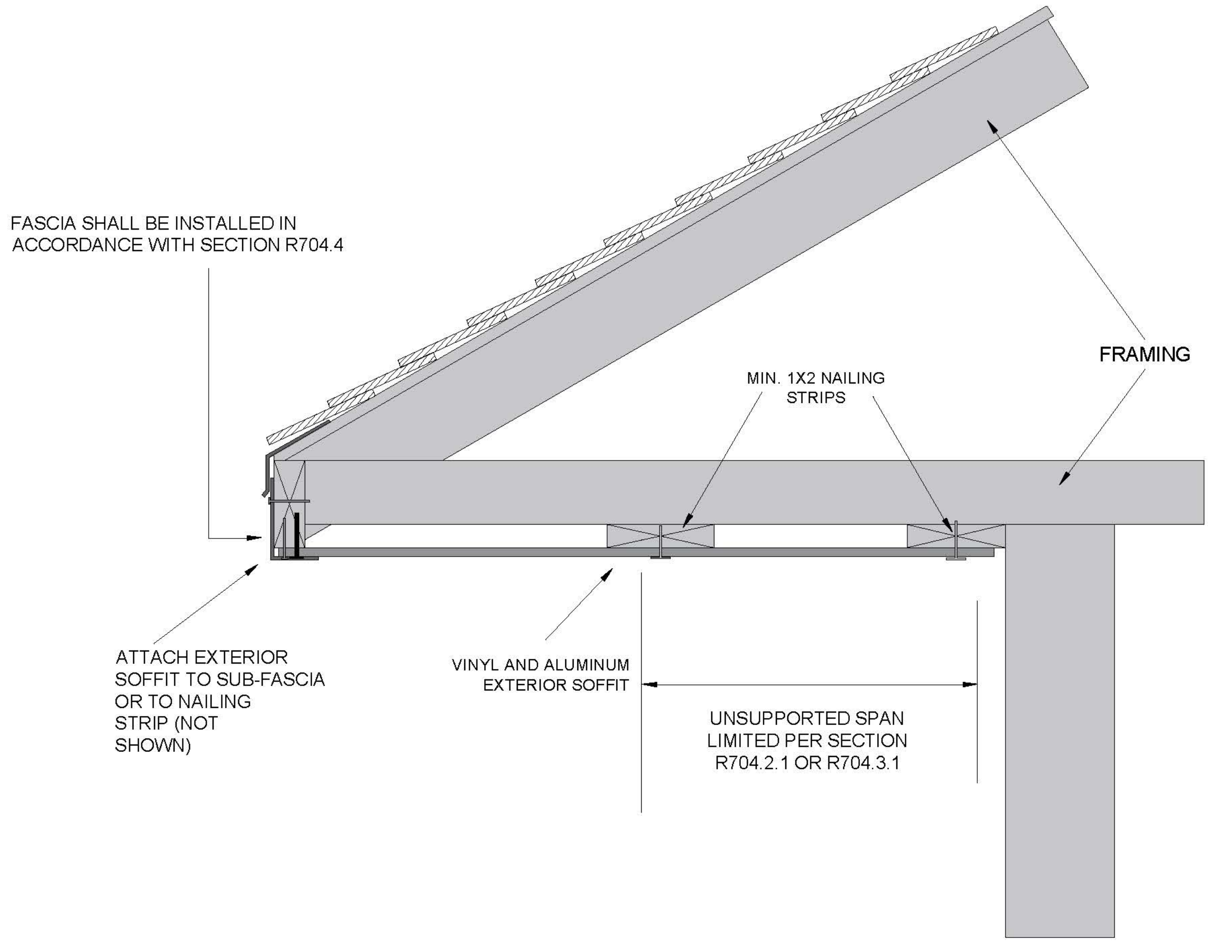


FIGURE R704.2.1 (2)
TYPICAL DOUBLE-SPAN VINYL AND ALUMINUM EXTERIOR SOFFIT PANEL SUPPORT

FIGURE R704.2.1(2) TYPICAL DOUBLE-SPAN VINYL AND ALUMINUM EXTERIOR SOFFIT PANEL SUPPORT

Reason: The change simply upgrades the soffit drawing by removing the J-channel as a requirement, which in not necessary as there are several ways to construct this connection and adding Xing to the framing members.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is simple changes to the drawing and removes a small component from being a requirement but will have no impact on cost.

RB231-25

RB232-25

IRC: R704.2.2

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

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Revise as follows:

R704.2.2 Fiber-cement exterior soffit panels. *Fiber-cement* exterior soffit panels shall be a minimum of $^{1}/_{4}$ inch (6.4 mm) in thickness and shall comply with the requirements of ASTM C1186, Type A, minimum Grade II, or ISO 8336, Category A, minimum Class 2. Panel joints shall occur over framing, furring, ~~or over~~ *wood structural panel* sheathing or other *approved* supporting material. *Exterior soffit* panels shall be installed with spans and fasteners in accordance with the manufacturer's installation instructions.

Reason: This proposal clarifies that *approved* attachment/joint support of fiber-cement exterior soffit panels may be achieved through means/materials more than just framing or wood structural panel.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial in nature, and clarifies that joints may be supported via mean/methods more than ONLY framing members or wood structural panels.

RB232-25

RB233-25

IRC: R704.3.1

Proponents: Matthew Dobson, representing Polymeric Exterior Products Association (mdobson@vinylsiding.org)

2024 International Residential Code

Revise as follows:

R704.3.1 Vinyl and <u>aluminum</u> exterior soffit panels. Vinyl <u>and aluminum</u> *exterior soffit* panels and their attachments shall be capable of resisting wind loads specified in Table R301.2.1(1) for walls using an effective wind area of 10 square feet (0.929 m^2) and adjusted for height and exposure in accordance with Table R301.2.1(2) . Vinyl <u>and aluminum</u> *exterior soffit* panels shall be installed using fasteners specified by the manufacturer and shall be fastened at both ends to a supporting component such as a nailing strip, fascia or subfascia component in accordance with Figure R704.2.1(1). Where the unsupported span of *exterior soffit* panels is greater than 12 inches (305 mm), intermediate nailing strips shall be provided in accordance with Figure R704.2.1(2). Vinyl <u>and aluminum</u> *exterior soffit* panels shall be installed in accordance with the manufacturer's installation instructions.

Reason: This was missed in the last cycle and should include a reference to aluminum soffit in this high wind section as it does standard wind areas as noted in R704.2.1.

Cost Impact: Increase

Estimated Immediate Cost Impact:

This change is necessary and will add cost to the installation of aluminum soffit.

It has been estimated this will add cost of approximately $50-$100 per home.

Estimated Immediate Cost Impact Justification (methodology and variables):

This input is based on installer input on the issue.

Estimated Life Cycle Cost Impact:

This will create more durable application in the field and will help to reduce soffit blow-out during high wind events.

Estimated Life Cycle Cost Impact Justification (methodology and variables):

Not applicable.

RB233-25

RB234-25

IRC: TABLE R802.4.1(1), TABLE R802.4.1(3), TABLE R802.4.1(5), TABLE R802.4.1(7), TABLE R802.4.1(2), TABLE R802.4.1(4), TABLE R802.4.1(6), TABLE R802.4.1(8)

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

TABLE R802.4.1(1) RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof live load = 20 psf, ceiling not attached to rafters, L/Δ = 180, <u>minimum rafter slope greater than 3:12</u>)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	11-6	18-0	23-9	Note b	Note b	11-6	18-0	23-9	Note b	Note b
	Douglas fir-larch	#1	11-1	17-4	22-5	Note b	Note b	10-6	15-4	19-5	23-9	Note b
	Douglas fir-larch	#2	10-10	16-10	21-4	26-0	Note b	10-0	14-7	18-5	22-6	26-0
	Douglas fir-larch	#3	8-9	12-10	16-3	19-10	23-0	7-7	11-1	14-1	17-2	19-11
	Hem-fir	SS	10-10	17-0	22-5	Note b	Note b	10-10	17-0	22-5	Note b	Note b
	Hem-fir	#1	10 -7	16-8	22-0	Note b	Note b	10-4	15-2	19-2	23-5	Note b
	Hem-fir	#2	10-1	15-11	20-8	25-3	Note b	9-8	14-2	17-11	21-11	25-5
	Hem-fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Southern pine	SS	11-3	17-8	23-4	Note b	Note b	11-3	17-8	23-4	Note b	Note b
	Southern pine	#1	10-10	17-0	22-5	Note b	Note b	10-6	15-8	19-10	23-2	Note b
	Southern pine	#2	10-4	15-7	19-8	23-5	Note b	9-0	13-6	17-1	20-3	23-10
	Southern pine	#3	8-0	11-9	14-10	18-0	21-4	6-11	10-2	12-10	15-7	18-6
	Spruce-pine-fir	SS	10-7	16-8	21-11	Note b	Note b	10-7	16-8	21-9	Note b	Note b
	Spruce-pine-fir	#1	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-pine-fir	#2	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-pine-fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
16	Douglas fir-larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-3	20-7	25-2	Note b
	Douglas fir-larch	#1	10-0	15-4	19-5	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas fir-larch	#2	9-10	14-7	18-5	22-6	26-0	8-7	12-7	16-0	19-6	22-7
	Douglas fir-larch	#3	7-7	11-1	14-1	17-2	19-11	6-7	9-8	12-12	14-11	17-3
	Hem-fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	19-11	24-4	Note b
	Hem-fir	#1	9-8	15-2	19-2	23-5	Note b	9-0	13-1	16-7	20-4	23-7
	Hem-fir	#2	9-2	14-2	17-11	21-11	25-5	8-5	12-3	15-6	18-11	22-0
	Hem-fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Southern pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	25-7	Note b
	Southern pine	#1	9-10	15-6	19-10	23-2	Note b	9-1	13-7	17-2	20-1	23-10
	Southern pine	#2	9-0	13-6	17-1	20-3	23-10	7-9	11-8	14-9	17-6	20-8
	Southern pine	#3	6-11	10-2	12-10	15-7	18-6	6-0	8-10	11-2	13-6	16-0
	Spruce-pine-fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	14-10	18-10	23-0	Note b
	Spruce-pine-fir	#1	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-pine-fir	#2	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-pine-fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
19.2	Douglas fir-larch	SS	9-10	15-5	20-4	25-11	Note b	9-10	14-10	18-10	23-0	Note b
	Douglas fir-larch	#1	9-5	14-0	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas fir-larch	#2	9-1	13-3	16-10	20-7	23-10	7-10	11-6	14-7	17-10	20-8
	Douglas fir-larch	#3	6-11	10-2	12-10	15-8	18-3	6-0	8-9	11-2	12-7	15-9
	Hem-fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-4	18-2	22-3	25-9
	Hem-fir	#1	9-1	13-10	17-6	21-5	24-10	8-2	12-0	15-2	18-6	21-6
	Hem-fir	#2	8-8	12-11	16-4	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Hem-fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Southern pine	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-7	23-4	Note b
	Southern pine	#1	9-3	14-3	18-1	21-2	25-2	8-4	12-4	15-8	18-4	21-9
	Southern pine	#2	8-2	12-3	15-7	18-6	21-9	7-1	10-8	13-6	16-0	18-10
	Southern pine	#3	6-4	9-4	11-9	14-3	16-10	5-6	8-1	10-2	12-4	14-7
	Spruce-pine-fir	SS	9-1	14-3	18-9	23-11	Note b	9-1	13-7	17-2	21-0	24-4
	Spruce-pine-fir	#1	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-pine-fir	#2	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-pine-fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Douglas fir-larch	SS	9-1	14-4	18-10	23-9	Note b	9-1	13-3	16-10	20-7	23-10

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
24	Douglas fir-larch	#1	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas fir-larch	#2	8-2	11-11	15-1	18-5	21-4	7-0	10-4	13-0	15-11	18-6
	Douglas fir-larch	#3	6-2	9-1	11-6	14-1	16-3	5-4	7-10	10-0	12-2	14-1
	Hem-fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	12-10	16-3	19-10	23-0
	Hem-fir	#1	8-5	12-4	15-8	19-2	22-2	7-4	10-9	13-7	16-7	19-3
	Hem-fir	#2	7-11	11-7	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Hem-fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Southern pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	13-10	17-6	20-10	24-8
	Southern pine	#1	8-7	12-9	16-2	18-11	22-6	7-5	11-1	14-0	16-5	19-6
	Southern pine	#2	7-4	11-0	13-11	16-6	19-6	6-4	9-6	12-1	14-4	16-10
	Southern pine	#3	5-8	8-4	10-6	12-9	15-1	4-11	7-3	9-1	11-0	13-1
	Spruce-pine-fir	SS	8-5	13-3	17-5	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Spruce-pine-fir	#1	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-pine-fir	#2	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-pine-fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 26 feet in length.

TABLE R802.4.1(3) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 30 psf, ceiling not attached to rafters, L/Δ = 180, minimum rafter slope greater than 3:12)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	10-0	15-9	20-9	Note b	Note b	10-0	15-9	20-5	24-11	Note b
	Douglas fir-larch	#1	9-8	14-9	18-8	22-9	Note b	9-0	13-2	16-8	20-4	23-7
	Douglas fir-larch	#2	9-6	14-0	17-8	21-7	25-1	8-6	12-6	15-10	19-4	22-5
	Douglas fir-larch	#3	7-3	10-8	13-6	16-6	19-2	6-6	9-6	12-1	14-9	17-1
	Hem-fir	SS	9-6	14-10	19-7	25-0	Note b	9-6	14-10	19-7	24-1	Note b
	Hem-fir	#1	9-3	14-6	18-5	22-6	26-0	8-11	13-0	16-6	20-1	23-4
	Hem-fir	#2	8-10	13-7	17-2	21-0	24-4	8-4	12-2	15-4	18-9	21-9
	Hem-fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Southern pine	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	25-4	Note b
	Southern pine	#1	9-6	14-10	19-0	22-3	Note b	9-0	13-5	17-0	19-11	23-7
	Southern pine	#2	8-7	12-11	16-4	19-5	22-10	7-8	11-7	14-8	17-4	20-5
	Southern pine	#3	6-7	9-9	12-4	15-0	17-9	5-11	8-9	11-0	13-5	15-10
	Spruce-pine-fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-7	18-8	22-9	Note b
	Spruce-pine-fir	#1	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Spruce-pine-fir	#2	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Spruce-pine-fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
16	Douglas fir-larch	SS	9-1	14-4	18-10	24-1	Note b	9-1	14-0	17-8	21-7	25-1
	Douglas fir-larch	#1	8-9	12-9	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas fir-larch	#2	8-3	12-1	15-4	18-9	21-8	7-5	10-10	13-8	16-9	19-5
	Douglas fir-larch	#3	6-4	9-3	11-8	14-3	16-7	5-8	8-3	10-6	12-9	14-10
	Hem-fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	13-6	17-1	20-10	24-2
	Hem-fir	#1	8-5	12-7	15-11	19-6	22-7	7-8	11-3	14-3	17-5	20-2
	Hem-fir	#2	8-0	11-9	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Hem-fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Southern pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-5	1-11	25-11
	Southern pine	#1	8-7	13-0	16-6	19-3	22-10	7-10	11-7	14-9	17-3	20-5
	Southern pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Southern pine	#3	5-9	8-6	10-8	13-0	15-4	5-2	7-7	9-7	11-7	13-9
	Spruce-pine-fir	SS	8-5	13-3	17-5	22-1	25-7	8-5	12-9	16-2	19-9	22-10

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
19.2	Spruce-pine-fir	#1	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-pine-fir	#2	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-pine-fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Douglas fir-larch	SS	8-7	13-6	17-9	22-1	25-7	8-7	12-9	16-2	19-9	22-10
	Douglas fir-larch	#1	7-11	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas fir-larch	#2	7-7	11-0	14-0	17-1	19-10	6-9	9-10	12-6	15-3	17-9
	Douglas fir-larch	#3	5-9	8-5	10-8	13-1	15-2	5-2	7-7	9-7	11-8	13-6
	Hem-fir	SS	8-1	12-9	16-9	21-4	24-8	8-1	12-4	15-7	19-1	22-1
	Hem-fir	#1	7-10	11-6	14-7	17-9	20-7	7-0	10-3	13-0	15-11	18-5
	Hem-fir	#2	7-4	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Hem-fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Southern pine	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	16-10	20-0	23-7
	Southern pine	#1	8-0	11-10	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Southern pine	#3	5-3	7-9	9-9	11-10	14-0	4-8	6-11	8-9	10-7	12-6
24	Spruce-pine-fir	SS	7-11	12-5	16-5	20-2	23-4	7-11	11-8	14-9	18-0	20-11
	Spruce-pine-fir	#1	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch	SS	8-0	12-6	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas fir-larch	#1	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	#2	6-9	9-10	12-6	15-3	17-9	6-0	8-10	11-2	13-8	15-10
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-7	6-9	8-7	10-5	12-1
	Hem-fir	SS	7-6	11-10	15-7	19-1	22-1	7-6	11-0	13-11	17-0	19-9
	Hem-fir	#1	7-0	10-3	13-0	15-11	18-5	6-3	9-2	11-8	14-3	16-6
	Hem-fir	#2	6-7	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Southern pine	SS	7-10	12-3	16-2	20-0	23-7	7-10	11-10	15-0	17-11	21-2
	Southern pine	#1	7-1	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-2	6-2	7-10	9-6	11-2
	Spruce-pine-fir	SS	7-4	11-7	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#1	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-pine-fir	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 26 feet in length.

TABLE R802.4.1(5) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 50 psf, ceiling not attached to rafters, L/Δ = 180, minimum rafter slope greater than 3:12)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Douglas fir-larch	SS	8-5	13-3	17-6	22-4	26-0	8-5	13-3	17-3	21-1	24-5
	Douglas fir-larch	#1	8-2	12-0	15-3	18-7	21-7	7-7	11-2	14-1	17-3	20-0
	Douglas fir-larch	#2	7-10	11-5	14-5	17-8	20-5	7-3	10-7	13-4	16-4	18-11
	Douglas fir-larch	#3	6-0	8-9	11-0	13-6	15-7	5-6	8-1	10-3	12-6	14-6
	Hem-fir	SS	8-0	12-6	16-6	21-1	25-6	8-0	12-6	16-6	20-4	23-7
	Hem-fir	#1	7-10	11-10	15-0	18-4	21-3	7-6	11-0	13-11	17-0	19-9
	Hem-fir	#2	7-5	11-1	14-0	17-2	19-11	7-0	10-3	13-0	15-10	18-5
	Hem-fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Southern pine	SS	8-4	13-1	17-2	21-11	Note b	8-4	13-1	17-2	21-5	25-3
	Southern pine	#1	8-0	12-3	15-6	18-2	21-7	7-7	11-4	14-5	16-10	20-0

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Southern pine	#2	7-0	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Southern pine	#3	5-5	8-0	10-1	12-3	14-6	5-0	7-5	9-4	11-4	13-5
	Spruce-pine-fir	SS	7-10	12-3	16-2	20-8	24-1	7-10	12-3	15-9	19-3	22-4
	Spruce-pine-fir	#1	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#2	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas fir-larch	SS	7-8	12-1	15-11	19-9	22-10	7-8	11-10	14-11	18-3	21-2
	Douglas fir-larch	#1	7-1	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas fir-larch	#2	6-9	9-10	12-6	15-3	17-9	6-3	9-2	11-7	14-2	16-5
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-9	7-0	8-10	10-10	12-6
	Hem-fir	SS	7-3	11-5	15-0	19-1	22-1	7-3	11-5	14-5	17-8	20-5
	Hem-fir	#1	7-0	10-3	13-0	15-11	18-5	6-6	9-6	12-1	14-9	17-1
	Hem-fir	#2	6-7	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
16	Southern pine	SS	7-6	11-10	15-7	19-11	23-7	7-6	11-10	15-7	18-6	21-10
	Southern pine	#1	7-1	10-7	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-4	6-5	8-1	9-10	11-7
	Spruce-pine-fir	SS	7-1	11-2	14-8	18-0	20-11	7-1	10-9	13-8	15-11	19-4
	Spruce-pine-fir	#1	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-pine-fir	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Douglas fir-larch	SS	7-3	11-4	14-9	18-0	20-11	7-3	10-9	13-8	16-8	19-4
	Douglas fir-larch	#1	6-6	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas fir-larch	#2	6-2	9-0	11-5	13-11	16-2	5-8	8-4	10-9	12-11	15-0
	Douglas fir-larch	#3	4-8	6-11	8-9	10-8	12-4	4-4	6-4	8-1	9-10	11-5
	Hem-fir	SS	6-10	10-9	14-2	17-5	20-2	6-10	10-5	13-2	16-1	18-8
	Hem-fir	#1	6-5	9-5	11-11	14-6	16-10	8-11	8-8	11-0	13-5	15-7
	Hem-fir	#2	6-0	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Hem-fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
19.2	Southern pine	SS	7-1	11-2	14-8	18-3	21-7	7-1	11-2	14-2	16-11	20-0
	Southern pine	#1	6-6	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Southern pine	#3	4-3	6-4	8-0	9-8	11-5	4-0	5-10	7-4	8-11	10-7
	Spruce-pine-fir	SS	6-8	10-6	13-5	16-5	19-1	6-8	9-10	12-5	15-3	17-8
	Spruce-pine-fir	#1	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-pine-fir	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-pine-fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
	Douglas fir-larch	SS	6-8	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas fir-larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas fir-larch	#2	5-6	8-1	10-3	12-6	14-6	5-1	7-6	9-5	11-7	13-5
	Douglas fir-larch	#3	4-3	6-2	7-10	9-6	11-1	3-11	5-8	7-3	8-10	10-3
	Hem-fir	SS	6-4	9-11	12-9	15-7	18-0	6-4	9-4	11-9	14-5	16-8
	Hem-fir	#1	5-9	8-5	10-8	13-0	15-1	8-4	7-9	9-10	12-0	13-11
	Hem-fir	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Hem-fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0
24	Southern pine	SS	6-7	10-4	13-8	16-4	19-3	6-7	10-0	12-8	15-2	17-10
	Southern pine	#1	5-10	8-8	11-0	12-10	15-3	5-5	8-0	10-2	11-11	14-1
	Southern pine	#2	5-0	7-5	9-5	11-3	13-2	4-7	6-11	8-9	10-5	12-3
	Southern pine	#3	3-10	5-8	7-1	8-8	10-3	3-6	5-3	6-7	8-0	9-6
	Spruce-pine-fir	SS	6-2	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Spruce-pine-fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-pine-fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-pine-fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 26 feet in length.

TABLE R802.4.1(7) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 70 psf, ceiling not attached to rafters, L/Δ = 180, minimum rafter slope greater than 3:12)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	7-7	11-10	15-8	19-9	22-10	7-7	11-10	15-3	18-7	21-7
	Douglas fir-larch	#1	7-1	10-5	13-2	16-1	18-8	6-8	9-10	12-5	15-2	17-7
	Douglas fir-larch	#2	6-9	9-10	12-6	15-3	17-9	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-10	7-1	9-0	11-0	12-9
	Hem-fir	SS	7-2	11-3	14-9	18-10	22-1	7-2	11-3	14-8	18-0	20-10
	Hem-fir	#1	7-0	10-3	13-0	15-11	18-5	6-7	9-8	12-3	15-0	17-5
	Hem-fir	#2	6-7	9-7	12-2	14-10	17-3	6-2	9-1	11-5	14-0	16-3
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Southern pine	SS	7-5	11-8	15-4	19-7	23-7	7-5	11-8	15-4	18-10	22-3
	Southern pine	#1	7-1	10-7	13-5	15-9	18-8	6-9	10-0	12-8	14-10	17-7
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-9	8-7	10-11	12-11	15-3
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-5	6-6	8-3	10-0	11-10
	Spruce-pine-fir	SS	7-0	11-0	14-6	18-0	20-11	7-0	11-0	13-11	17-0	19-8
	Spruce-pine-fir	#1	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#2	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
16	Douglas fir-larch	SS	6-10	10-9	14-0	17-1	19-10	6-10	10-5	13-2	16-1	18-8
	Douglas fir-larch	#1	6-2	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas fir-larch	#2	5-10	8-7	10-10	13-3	15-4	5-6	8-1	10-3	12-6	14-6
	Douglas fir-larch	#3	4-6	6-6	8-3	10-1	11-9	4-3	6-2	7-10	9-6	11-1
	Hem-fir	SS	6-6	10-2	13-5	16-6	19-2	6-6	10-1	12-9	15-7	18-0
	Hem-fir	#1	6-1	8-11	11-3	13-9	16-0	5-9	8-5	10-8	13-0	15-1
	Hem-fir	#2	5-8	8-4	10-6	12-10	14-11	5-4	7-10	9-11	12-1	14-1
	Hem-fir	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
	Southern pine	SS	6-9	10-7	14-0	17-4	20-5	6-9	10-7	13-9	16-4	19-3
	Southern pine	#1	6-2	9-2	11-8	13-8	16-2	5-10	8-8	11-0	12-10	15-3
	Southern pine	#2	5-3	7-11	10-0	11-11	14-0	5-0	7-5	9-5	11-3	13-2
	Southern pine	#3	4-1	6-0	7-7	9-2	10-10	3-10	5-8	7-1	8-8	10-3
	Spruce-pine-fir	SS	6-4	10-0	12-9	15-7	18-1	6-4	9-6	12-0	14-8	17-1
	Spruce-pine-fir	#1	5-9	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-pine-fir	#2	5-9	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-pine-fir	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
19.2	Douglas fir-larch	SS	6-6	10-1	12-9	15-7	18-1	6-6	9-6	12-0	14-8	17-1
	Douglas fir-larch	#1	5-7	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	13-11
	Douglas fir-larch	#2	5-4	7-10	9-11	12-1	14-0	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch	#3	4-1	6-0	7-7	9-3	10-8	3-10	5-7	7-1	8-8	10-1
	Hem-fir	SS	6-1	9-7	12-4	15-1	17-4	6-1	9-2	11-8	14-2	15-5
	Hem-fir	#1	5-7	8-2	10-3	12-7	14-7	5-3	7-8	9-8	11-10	13-9
	Hem-fir	#2	5-2	7-7	9-7	11-9	13-7	4-11	7-2	9-1	11-1	12-10
	Hem-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
	Southern pine	SS	6-4	10-0	13-2	15-10	18-8	6-4	9-10	12-6	14-11	17-7
	Southern pine	#1	5-8	8-5	10-8	12-5	14-9	5-4	7-11	10-0	11-9	13-11
	Southern pine	#2	4-10	7-3	9-2	10-10	12-9	4-6	6-10	8-8	10-3	12-1
	Southern pine	#3	3-8	5-6	6-11	8-4	9-11	3-6	5-2	6-6	7-11	9-4
	Spruce-pine-fir	SS	6-0	9-2	11-8	14-3	16-6	5-11	8-8	11-0	13-5	15-7
	Spruce-pine-fir	#1	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-pine-fir	#2	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-pine-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
24	Douglas fir-larch	SS	6-0	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas fir-larch	#1	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Douglas fir-larch	#2	4-9	7-0	8-10	10-10	12-6	4-6	6-7	8-4	10-2	11-10
	Douglas fir-larch	#3	3-8	5-4	6-9	8-3	9-7	3-5	5-0	6-4	7-9	9-10
	Hem-fir	SS	5-8	8-8	11-0	13-6	13-11	5-7	8-3	10-5	12-4	12-4
	Hem-fir	#1	5-0	7-3	9-2	11-3	13-0	4-8	6-10	8-8	10-7	12-4
	Hem-fir	#2	4-8	6-9	8-7	10-6	12-2	4-4	6-5	8-1	9-11	11-6
	Hem-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10
	Southern pine	SS	5-11	9-3	11-11	14-2	16-8	5-11	8-10	11-2	13-4	15-9
	Southern pine	#1	5-0	7-6	9-6	11-1	13-2	4-9	7-1	9-0	10-6	12-5
	Southern pine	#2	4-4	6-5	8-2	9-9	11-5	4-1	6-1	7-9	9-2	10-9
	Southern pine	#3	3-4	4-11	6-2	7-6	8-10	3-1	4-7	5-10	7-1	8-4

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf 2 × 4 (feet-inches)	2 × 6 (feet-inches)	2 × 8 (feet-inches)	2 × 10 (feet-inches)	2 × 12 (feet-inches)	DEAD LOAD = 20 psf 2 × 4 (feet-inches)	2 × 6 (feet-inches)	2 × 8 (feet-inches)	2 × 10 (feet-inches)	2 × 12 (feet-inches)
			Maximum rafter spans									
	Spruce-pine-fir	SS	5-6	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	12-11
	Spruce-pine-fir	#1	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-pine-fir	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-pine-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

TABLE R802.4.1(2) RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof live load = 20 psf, flexible ceiling finish attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf 2 × 4 (feet-inches)	2 × 6 (feet-inches)	2 × 8 (feet-inches)	2 × 10 (feet-inches)	2 × 12 (feet-inches)	DEAD LOAD = 20 psf 2 × 4 (feet-inches)	2 × 6 (feet-inches)	2 × 8 (feet-inches)	2 × 10 (feet-inches)	2 × 12 (feet-inches)
			Maximum rafter spans[a]									
12	Douglas fir-larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-4	21-7	Note b	Note b
12	Douglas fir-larch	#1	10-0	15-9	20-10	Note b	Note b	10-0	15-4	19-5	23-9	Note b
12	Douglas fir-larch	#2	9-10	15-6	20-5	26-0	Note b	9-10	14-7	18-5	22-6	26-0
12	Douglas fir-larch	#3	8-9	12-10	16-3	19-10	23-0	7-7	11-1	14-1	17-2	19-11
12	Hem-fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	Note b	Note b
12	Hem-fir	#1	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-2	23-5	Note b
12	Hem-fir	#2	9-2	14-5	19-0	24-3	Note b	9-2	14-2	17-11	21-11	25-5
12	Hem-fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
12	Southern pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	Note b	Note b
12	Southern pine	#1	9-10	15-6	20-5	Note b	Note b	9-10	15-6	19-10	23-2	Note b
12	Southern pine	#2	9-5	14-9	19-6	23-5	Note b	9-0	13-6	17-1	20-3	23-10
12	Southern pine	#3	8-0	11-9	14-10	18-0	21-4	6-11	10-2	12-10	15-7	18-6
12	Spruce-pine-fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-11	25-5	Note b
12	Spruce-pine-fir	#1	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
12	Spruce-pine-fir	#2	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
12	Spruce-pine-fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
16	Douglas fir-larch	SS	9-6	14-11	19-7	25-0	Note b	9-6	14-11	19-7	25-0	Note b
16	Douglas fir-larch	#1	9-1	14-4	18-11	23-9	Note b	9-1	13-3	16-10	20-7	23-10
16	Douglas fir-larch	#2	8-11	14-1	18-5	22-6	26-0	8-7	12-7	16-0	19-6	22-7
16	Douglas fir-larch	#3	7-7	11-1	14-1	17-2	19-11	6-7	9-8	12-2	14-11	17-3
16	Hem-fir	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
16	Hem-fir	#1	8-9	13-9	18-1	23-1	Note b	8-9	13-1	16-7	20-4	23-7
16	Hem-fir	#2	8-4	13-1	17-3	21-11	25-5	8-4	12-3	15-6	18-11	22-0
16	Hem-fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
16	Southern pine	SS	9-4	14-7	19-3	24-7	Note b	9-4	14-7	19-3	24-7	Note b
16	Southern pine	#1	8-11	14-1	18-6	23-2	Note b	8-11	13-7	17-2	20-1	23-10
16	Southern pine	#2	8-7	13-5	17-1	20-3	23-10	7-9	11-8	14-9	17-6	20-8
16	Southern pine	#3	6-11	10-2	12-10	15-7	18-6	6-0	8-10	11-2	13-6	16-0
16	Spruce-pine-fir	SS	8-9	13-9	18-1	23-1	Note b	8-9	13-9	18-1	23-0	Note b
16	Spruce-pine-fir	#1	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
16	Spruce-pine-fir	#2	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
16	Spruce-pine-fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
19.2	Douglas fir-larch	SS	8-11	14-0	18-5	23-7	Note b	8-11	14-0	18-5	23-0	Note b
19.2	Douglas fir-larch	#1	8-7	13-6	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
19.2	Douglas fir-larch	#2	8-5	13-3	16-10	20-7	23-10	7-10	11-6	14-7	17-10	20-8
19.2	Douglas fir-larch	#3	6-11	10-2	12-10	15-8	18-3	6-0	8-9	11-2	13-7	15-9
19.2	Hem-fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	25-9
19.2	Hem-fir	#1	8-3	12-11	17-1	21-5	24-10	8-2	12-0	15-2	18-6	21-6
19.2	Hem-fir	#2	7-10	12-4	16-3	20-0	23-2	7-8	11-2	14-2	17-4	20-1
19.2	Hem-fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
19.2	Southern pine	SS	8-9	13-9	18-2	23-1	Note b	8-9	13-9	18-2	23-1	Note b
19.2	Southern pine	#1	8-5	13-3	17-5	21-2	25-2	8-4	12-4	15-8	18-4	21-9
19.2	Southern pine	#2	8-1	12-3	15-7	18-6	21-9	7-1	10-8	13-6	16-0	18-10
19.2	Southern pine	#3	6-4	9-4	11-9	14-3	16-10	5-6	8-1	10-2	12-4	14-7

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
24	Spruce-pine-fir	SS	8-3	12-11	17-1	21-9	Note b	8-3	12-11	17-1	21-0	24-4
	Spruce-pine-fir	#1	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-pine-fir	#2	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-pine-fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Douglas fir-larch	SS	8-3	13-0	17-2	21-10	Note b	8-3	13-0	16-10	20-7	23-10
	Douglas fir-larch	#1	8-0	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas fir-larch	#2	7-10	11-11	15-1	18-5	21-4	7-0	10-4	13-0	15-11	18-6
	Douglas fir-larch	#3	6-2	9-1	11-6	14-1	16-3	5-4	7-10	10-0	12-2	14-1
	Hem-fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	19-10	23-0
	Hem-fir	#1	7-8	12-0	15-8	19-2	22-2	7-4	10-9	13-7	16-7	19-3
	Hem-fir	#2	7-3	11-5	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Hem-fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Southern pine	SS	8-1	12-9	16-10	21-6	Note b	8-1	12-9	16-10	20-10	24-8
	Southern pine	#1	7-10	12-3	16-2	18-11	22-6	7-5	11-1	14-0	16-5	19-6
	Southern pine	#2	7-4	11-0	13-11	16-6	19-6	6-4	9-6	12-1	14-4	16-10
	Southern pine	#3	5-8	8-4	10-6	12-9	15-1	4-11	7-3	9-1	11-0	13-1
	Spruce-pine-fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-4	18-9	21-9
	Spruce-pine-fir	#1	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-pine-fir	#2	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-pine-fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 26 feet in length.

TABLE R802.4.1(4) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 30 psf, flexible ceiling finish attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	9-1	14-4	18-10	24-1	Note b	9-1	14-4	18-10	24-1	Note b
	Douglas fir-larch	#1	8-9	13-9	18-2	22-9	Note b	8-9	13-2	16-8	20-4	23-7
	Douglas fir-larch	#2	8-7	13-6	17-8	21-7	25-1	8-6	12-6	15-10	19-4	22-5
	Douglas fir-larch	#3	7-3	10-8	13-6	16-6	19-2	6-6	9-6	12-1	14-9	17-1
	Hem-fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	13-6	17-10	22-9	Note b
	Hem-fir	#1	8-5	13-3	17-5	22-3	26-0	8-5	13-0	16-6	20-1	23-4
	Hem-fir	#2	8-0	12-7	16-7	21-0	24-4	8-0	12-2	15-4	18-9	21-9
	Hem-fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Southern pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
	Southern pine	#1	8-7	13-6	17-10	22-3	Note b	8-7	13-5	17-0	19-11	23-7
	Southern pine	#2	8-3	12-11	16-4	19-5	22-10	7-8	11-7	14-8	17-4	20-5
	Southern pine	#3	6-7	9-9	12-4	15-0	17-9	5-11	8-9	11-0	13-5	15-10
	Spruce-pine-fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	Note b
	Spruce-pine-fir	#1	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
	Spruce-pine-fir	#2	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
	Spruce-pine-fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	SS	8-3	13-0	17-2	21-10	Note b	8-3	13-0	17-2	21-7	25-1
	Douglas fir-larch	#1	8-0	12-6	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas fir-larch	#2	7-10	12-1	15-4	18-9	21-8	7-5	10-10	13-8	16-9	19-5
	Douglas fir-larch	#3	6-4	9-3	11-8	14-3	16-7	5-8	8-3	10-6	12-9	14-10
	Hem-fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	20-8	24-2
	Hem-fir	#1	7-8	12-0	15-10	19-6	22-7	7-8	11-3	14-3	17-5	20-2
	Hem-fir	#2	7-3	11-5	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Hem-fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Southern pine	SS	8-1	12-9	16-10	21-6	Note b	8-1	12-9	16-10	21-6	25-11
	Southern pine	#1	7-10	12-3	16-2	19-3	22-10	7-10	11-7	14-9	17-3	20-5

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
16	Southern pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Southern pine	#3	5-9	8-6	10-8	13-0	15-4	5-2	7-7	9-7	11-7	13-9
	Spruce-pine-fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	19-9	22-10
	Spruce-pine-fir	#1	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-pine-fir	#2	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-pine-fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Douglas fir-larch	SS	7-9	12-3	16-1	20-7	25-0	7-9	12-3	16-1	19-9	22-10
	Douglas fir-larch	#1	7-6	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas fir-larch	#2	7-4	11-0	14-0	17-1	19-10	6-9	9-1	12-6	15-3	17-9
	Douglas fir-larch	#3	5-9	8-5	10-8	13-1	15-2	5-2	7-7	9-7	11-8	13-6
	Hem-fir	SS	7-4	11-7	15-3	19-5	23-7	7-4	11-7	15-3	19-1	22-1
	Hem-fir	#1	7-2	11-4	14-7	17-9	20-7	7-0	16-3	13-0	15-11	18-5
	Hem-fir	#2	6-10	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Hem-fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
19.2	Southern pine	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	20-0	23-7
	Southern pine	#1	7-4	11-7	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Southern pine	#3	5-3	7-9	9-9	11-10	14-0	4-8	6-11	8-9	10-7	12-6
	Spruce-pine-fir	SS	7-2	11-4	14-11	19-0	23-1	7-2	11-4	14-9	18-0	20-11
	Spruce-pine-fir	#1	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir	#2	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch	SS	7-3	11-4	15-0	19-1	22-10	7-3	11-4	14-5	17-8	20-5
	Douglas fir-larch	#1	7-0	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	#2	6-9	9-10	12-6	15-3	17-9	6-0	8-10	11-2	13-8	15-10
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-7	6-9	8-7	10-5	12-1
	Hem-fir	SS	6-10	10-9	14-2	18-0	21-11	6-10	10-9	13-11	17-0	19-9
	Hem-fir	#1	6-8	10-3	13-0	15-11	18-5	6-3	9-2	11-8	14-3	16-6
	Hem-fir	#2	6-4	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
24	Southern pine	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	17-11	21-2
	Southern pine	#1	6-10	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-2	6-2	7-10	9-6	11-2
	Spruce-pine-fir	SS	6-8	10-6	13-10	17-8	20-11	6-8	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#1	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-pine-fir	#2	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 26 feet in length.

TABLE R802.4.1(6) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 50 psf, flexible ceiling finish attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)
	Douglas fir-larch	SS	7-8	12-1	15-11	20-3	24-8	7-8	12-1	15-11	20-3	24-5
	Douglas fir-larch	#1	7-5	11-7	15-3	18-7	21-7	7-5	11-2	14-1	17-3	20-0
	Douglas fir-larch	#2	7-3	11-5	14-5	17-8	20-5	7-3	10-7	13-4	16-4	18-11
	Douglas fir-larch	#3	6-0	8-9	11-0	13-6	15-7	5-6	8-1	10-3	12-6	14-6
	Hem-fir	SS	7-3	11-5	15-0	19-2	23-4	7-3	11-5	15-0	19-2	23-4
	Hem-fir	#1	7-1	11-2	14-8	18-4	21-3	7-1	11-0	13-11	17-0	19-9

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)
12	Hem-fir	#2	6-9	10-8	14-0	17-2	19-11	6-9	10-3	13-0	15-10	18-5
	Hem-fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Southern pine	SS	7-6	11-10	15-7	19-11	24-3	7-6	11-10	15-7	19-11	24-3
	Southern pine	#1	7-3	11-5	15-0	18-2	21-7	7-3	11-4	14-5	16-10	20-0
	Southern pine	#2	6-11	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Southern pine	#3	5-5	8-0	10-1	12-3	14-6	5-0	7-5	9-4	11-4	13-5
	Spruce-pine-fir	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	18-9	22-4
	Spruce-pine-fir	#1	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#2	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
16	Douglas fir-larch	SS	7-0	11-0	14-5	18-5	22-5	7-0	11-0	14-5	18-3	21-2
	Douglas fir-larch	#1	6-9	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas fir-larch	#2	6-7	9-10	12-6	15-3	17-9	6-3	9-2	11-7	14-2	16-5
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-9	7-0	8-10	10-10	12-6
	Hem-fir	SS	6-7	10-4	13-8	17-5	21-2	6-7	10-4	13-8	17-5	20-5
	Hem-fir	#1	6-5	10-2	13-0	15-11	18-5	6-5	9-6	12-1	14-9	17-1
	Hem-fir	#2	6-2	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Southern pine	SS	6-10	10-9	14-2	18-1	22-0	6-10	10-9	14-2	18-1	21-10
	Southern pine	#1	6-7	10-4	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-4	6-5	8-1	9-10	11-7
	Spruce-pine-fir	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	16-8	19-4
	Spruce-pine-fir	#1	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-pine-fir	#2	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
19.2	Douglas fir-larch	SS	6-7	10-4	13-7	17-4	20-11	6-7	10-4	13-7	16-8	19-4
	Douglas fir-larch	#1	6-4	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas fir-larch	#2	6-2	9-0	11-5	13-11	16-2	5-8	8-4	10-7	12-11	15-0
	Douglas fir-larch	#3	4-8	6-11	8-9	10-8	12-4	4-4	6-4	8-1	9-10	11-5
	Hem-fir	SS	6-2	9-9	12-10	16-5	19-11	6-2	9-9	12-10	16-1	18-8
	Hem-fir	#1	6-1	9-5	11-11	14-6	16-10	5-11	8-8	11-0	13-5	15-7
	Hem-fir	#2	5-9	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Hem-fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
	Southern pine	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	16-11	20-0
	Southern pine	#1	6-2	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Southern pine	#3	4-3	6-4	8-0	9-8	11-5	4-0	5-10	7-4	8-11	10-7
	Spruce-pine-fir	SS	6-1	9-6	12-7	16-0	19-1	6-1	9-6	12-5	15-3	17-8
	Spruce-pine-fir	#1	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-pine-fir	#2	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-pine-fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
24	Douglas fir-larch	SS	6-1	9-7	12-7	16-1	18-8	6-1	9-7	12-2	14-11	17-3
	Douglas fir-larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas fir-larch	#2	5-6	8-1	10-3	12-6	14-6	5-1	7-6	9-5	11-7	13-5
	Douglas fir-larch	#3	4-3	6-2	7-10	9-6	11-1	3-11	5-8	7-3	8-10	10-3
	Hem-fir	SS	5-9	9-1	11-11	15-2	18-0	5-9	9-1	11-9	14-5	15-11
	Hem-fir	#1	5-8	8-5	10-8	13-0	15-1	5-4	7-9	9-10	12-0	13-11
	Hem-fir	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Hem-fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0
	Southern pine	SS	6-0	9-5	12-5	15-10	19-3	6-0	9-5	12-5	15-2	17-10
	Southern pine	#1	5-9	8-8	11-0	12-10	15-3	5-5	8-0	10-2	11-11	14-1
	Southern pine	#2	5-0	7-5	9-5	11-3	13-2	4-7	6-11	8-9	10-5	12-3
	Southern pine	#3	3-10	5-8	7-1	8-8	10-3	3-6	5-3	6-7	8-0	9-6
	Spruce-pine-fir	SS	5-8	8-10	11-8	14-8	17-1	5-8	8-10	11-2	13-7	15-9
	Spruce-pine-fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-pine-fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-pine-fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

TABLE R802.4.1(8) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 70 psf, flexible ceiling finish attached to rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	6-10	10-9	14-3	18-2	22-1	6-10	10-9	14-3	18-2	21-7
	Douglas fir-larch	#1	6-7	10-5	13-2	16-1	18-8	6-7	9-10	12-5	15-2	17-7
	Douglas fir-larch	#2	6-6	9-10	12-6	15-3	17-9	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-10	7-1	9-0	11-0	12-9
	Hem-fir	SS	6-6	10-2	13-5	17-2	20-10	6-6	10-2	13-5	17-2	20-10
	Hem-fir	#1	6-4	10-0	13-0	15-11	18-5	6-4	9-8	12-3	15-0	17-5
	Hem-fir	#2	6-1	9-6	12-2	14-10	17-3	6-1	9-1	11-5	14-0	16-3
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Southern pine	SS	6-9	10-7	14-0	17-10	21-8	6-9	10-7	14-0	17-10	21-8
	Southern pine	#1	6-6	10-2	13-5	15-9	18-8	6-6	10-0	12-8	14-10	17-7
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-9	8-7	10-11	12-11	15-3
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-5	6-6	8-3	10-0	11-10
	Spruce-pine-fir	SS	6-4	10-0	13-2	16-9	20-5	6-4	10-0	13-2	16-9	19-8
	Spruce-pine-fir	#1	6-2	9-9	12-4	15-1	17-6	6-2	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#2	6-2	9-9	12-4	15-1	17-6	6-2	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
16	Douglas fir-larch	SS	6-3	9-10	12-11	16-6	19-10	6-3	9-10	12-11	16-1	18-8
	Douglas fir-larch	#1	6-0	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas fir-larch	#2	5-10	8-7	10-10	13-3	15-4	5-6	8-1	10-3	12-6	14-6
	Douglas fir-larch	#3	4-6	6-6	8-3	10-1	11-9	4-3	6-2	7-10	9-6	11-1
	Hem-fir	SS	5-11	9-3	12-2	15-7	18-11	5-11	9-3	12-2	15-7	18-0
	Hem-fir	#1	5-9	8-11	11-3	13-9	16-0	5-9	8-5	10-8	13-0	15-1
	Hem-fir	#2	5-6	8-4	10-6	12-10	14-11	5-4	7-10	9-11	12-1	14-1
	Hem-fir	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
	Southern pine	SS	6-1	9-7	12-8	16-2	19-8	6-1	9-7	12-8	16-2	19-3
	Southern pine	#1	5-11	9-2	11-8	13-8	16-2	5-10	8-8	11-0	12-10	15-3
	Southern pine	#2	5-3	7-11	10-0	11-11	14-0	5-0	7-5	9-5	11-3	13-2
	Southern pine	#3	4-1	6-0	7-7	9-2	10-10	3-10	5-8	7-1	8-8	10-3
	Spruce-pine-fir	SS	5-9	9-1	11-11	15-3	18-1	5-9	9-1	11-11	14-8	17-1
	Spruce-pine-fir	#1	5-8	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-pine-fir	#2	5-8	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-pine-fir	#3	4-4	6-4	8-1	9-10	11-5	4-1	6-0	7-7	9-4	10-9
19.2	Douglas fir-larch	SS	5-10	9-3	12-2	15-6	18-1	5-10	9-3	12-0	14-8	17-1
	Douglas fir-larch	#1	5-7	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	13-11
	Douglas fir-larch	#2	5-4	7-10	9-11	12-1	14-0	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch	#3	4-1	6-0	7-7	9-3	10-8	3-10	5-7	7-1	8-8	10-1
	Hem-fir	SS	5-6	8-8	11-6	14-8	17-4	5-6	8-8	11-6	14-2	15-5
	Hem-fir	#1	5-5	8-2	10-3	12-7	14-7	5-3	7-8	9-8	11-10	13-9
	Hem-fir	#2	5-2	7-7	9-7	11-9	13-7	4-11	7-2	9-1	11-1	12-10
	Hem-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
	Southern pine	SS	5-9	9-1	11-11	15-3	18-6	5-9	9-1	11-11	14-11	17-7
	Southern pine	#1	5-6	8-5	10-8	12-5	14-9	5-4	7-11	10-0	11-9	13-11
	Southern pine	#2	4-10	7-3	9-2	10-10	12-9	4-6	6-10	8-8	10-3	12-1
	Southern pine	#3	3-8	5-6	6-11	8-4	9-11	3-6	5-2	6-6	7-11	9-4
	Spruce-pine-fir	SS	5-5	8-6	11-3	14-3	16-6	5-5	8-6	11-0	13-5	15-7
	Spruce-pine-fir	#1	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-pine-fir	#2	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-pine-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
	Douglas fir-larch	SS	5-5	8-7	11-3	13-11	16-2	5-5	8-6	10-9	13-2	15-3
	Douglas fir-larch	#1	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Douglas fir-larch	#2	4-9	7-0	8-10	10-10	12-6	4-6	6-7	8-4	10-2	11-10
	Douglas fir-larch	#3	3-8	5-4	6-9	8-3	9-7	3-5	5-0	6-4	7-9	9-0
	Hem-fir	SS	5-2	8-1	10-8	13-6	13-11	5-2	8-1	10-5	12-4	12-4
	Hem-fir	#1	5-0	7-3	9-2	11-3	13-0	4-8	6-10	8-8	10-7	12-4
	Hem-fir	#2	4-8	6-9	8-7	10-6	12-2	4-4	6-5	8-1	9-11	11-6
	Hem-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10
	Southern pine	SS	5-4	8-5	11-1	14-2	16-8	5-4	8-5	11-1	13-4	15-9

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
24	Southern pine	#1	5-0	7-6	9-6	11-1	13-2	4-9	7-1	9-0	10-6	12-5
	Southern pine	#2	4-4	6-5	8-2	9-9	11-5	4-1	6-1	7-9	9-2	10-9
	Southern pine	#3	3-4	4-11	6-2	7-6	8-10	3-1	4-7	5-10	7-1	8-4
	Spruce-pine-fir	SS	5-0	7-11	10-5	12-9	14-9	5-0	7-9	9-10	12-0	12-11
	Spruce-pine-fir	#1	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-pine-fir	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-pine-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

Reason: Table R301.7 provides the maximum allowable deflection for rafters, regardless of how they are designed. Chapter 8 provides prescriptive rafters span tables to satisfy the requirements in Chapter 3, but they are missing important criteria.

1) Rafters with a maximum allowable deflection of L/180 must have no ceiling attached, but must also be greater than 3:12 slope. The slope criteria for using the rafter span tables is not provided in the L/180 tables.

2) Rafters with a maximum allowable deflection of L/240 can only have a "flexible ceiling finish" installed and not a "brittle ceiling finish", such as plaster, which would require L/360. The tables for L/240 only say "ceiling attached" and that could be misleading as a brittle ceiling (plaster) could not be designed from the L/240 tables.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only makes the current intent of the IRC more easily understood. There is no change to the cost of construction.

RB234-25

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IRC: TABLE R802.4.1(1), TABLE R802.4.1(2), TABLE R802.4.1(3), TABLE R802.4.1(4), TABLE R802.4.1(5), TABLE R802.4.1(6), TABLE R802.4.1(7), TABLE R802.4.1(8)

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2024 International Residential Code

Revise as follows:

TABLE R802.4.1(1) RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof live load = 20 psf, ceiling not attached to rafters, L/Δ = 180)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	11-6	18-0	23-9	Note b	Note b	11-6	18-0	23-9	Note b	Note b
	Douglas fir-larch	#1	11-1	17-4	22-5	Note b	Note b	10-6	15-4	19-5	23-9	Note b
	Douglas fir-larch	#2	10-10	16-10	21-4	~~26-0~~ Note b	Note b	~~10-0~~ 9-11	14-7	18-5	22-6	~~26-0~~ Note b
	Douglas fir-larch	#3	8-9	12-10	16-3	19-10	23-0	7-7	11-1	14-1	17-2	19-11
	Hem-fir	SS	10-10	17-0	22-5	Note b	Note b	10-10	17-0	22-5	Note b	Note b
	Hem-fir	#1	10 -7	16-8	~~22-0~~ 21-11	Note b	Note b	10-4	15-2	19-2	23-5	Note b
	Hem-fir	#2	10-1	15-11	20-8	25-3	Note b	9-8	14-2	17-11	21-11	25-5
	Hem-fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
16	Douglas fir-larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-3	20-7	25-2	Note b
	Douglas fir-larch	#1	10-0	15-4	19-5	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas fir-larch	#2	9-10	14-7	18-5	22-6	26-0	8-7	12-7	16-0	19-6	22-7
	Douglas fir-larch	#3	7-7	11-1	14-1	17-2	19-11	6-7	9-8	~~12-12~~ 12-2	14-11	17-3
19.2	Douglas fir-larch	SS	9-10	15-5	20-4	25-11	Note b	9-10	14-10	18-10	23-0	Note b
	Douglas fir-larch	#1	9-5	14-0	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas fir-larch	#2	9-1	13-3	16-10	20-7	23-10	7-10	11-6	14-7	17-10	20-8
	Douglas fir-larch	#3	6-11	10-2	12-10	15-8	18-3	6-0	8-9	11-2	~~12-7~~ 13-7	15-9

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 26 feet in length.

TABLE R802.4.1(2) RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof live load = 20 psf, ceiling attached to rafters, L/Δ = 240)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Hem-fir	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
	Hem-fir	#1	8-9	13-9	~~18-1~~ 18-2	23-1	Note b	8-9	13-1	16-7	20-4	23-7
	Hem-fir	#2	8-4	13-1	17-3	21-11	25-5	8-4	12-3	15-6	18-11	22-0
	Hem-fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Spruce-pine-fir	SS	8-9	13-9	~~18-1~~ 18-2	23-1	Note b	8-9	13-9	~~18-1~~ 18-2	23-0	Note b
	Spruce-pine-fir	#1	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
16	Spruce-pine-fir	#2	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Spruce-pine-fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 26 feet in length.

TABLE R802.4.1(3) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 30 psf, ceiling not attached to rafters, L/Δ = 180)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	10-0	15-9	~~20-9~~ Note b	Note b	Note b	10-0	15-9	~~20-5~~ Note b	~~24-11~~ Note b	Note b
	Douglas fir-larch	#1	9-8	14-9	18-8	~~22-9~~ Note b	Note b	9-0	13-2	16-8	~~20-4~~ Note b	~~23-7~~ Note b
	Douglas fir-larch	#2	9-6	14-0	17-8	~~21-7~~ Note b	~~25-1~~ Note b	8-6	12-6	15-10	19-4	~~22-5~~ Note b
	Douglas fir-larch	#3	7-3	10-8	13-6	16-6	19-2	6-6	9-6	12-1	14-9	17-1
	Hem-fir	SS	9-6	14-10	19-7	~~25-0~~ Note b	Note b	9-6	14-10	19-7	~~24-1~~ Note b	Note b
	Hem-fir	#1	9-3	14-6	18-5	~~22-6~~ Note b	~~26-0~~ Note b	8-11	13-0	16-6	~~20-1~~ Note b	~~23-4~~ Note b
	Hem-fir	#2	8-10	13-7	17-2	~~21-0~~ Note b	~~24-4~~ Note b	8-4	12-2	15-4	18-9	~~21-9~~ Note b
	Hem-fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Southern pine	SS	9-10	15-6	~~20-5~~ Note b	Note b	Note b	9-10	15-6	~~20-5~~ Note b	~~25-4~~ Note b	Note b
	Southern pine	#1	9-6	14-10	19-0	~~22-3~~ Note b	Note b	9-0	13-5	17-0	19-11	~~23-7~~ Note b
	Southern pine	#2	8-7	12-11	16-4	19-5	~~22-10~~ Note b	7-8	11-7	14-8	17-4	~~20-5~~ Note b
	Southern pine	#3	6-7	9-9	12-4	15-0	17-9	5-11	8-9	11-0	13-5	15-10
	Spruce-pine-fir	SS	9-3	14-7	19-2	~~24-6~~ Note b	Note b	9-3	14-7	18-8	~~22-9~~ Note b	Note b
	Spruce-pine-fir	#1	9-1	13-9	17-5	~~21-4~~ Note b	~~24-8~~ Note b	8-5	12-4	15-7	19-1	~~22-1~~ Note b
	Spruce-pine-fir	#2	9-1	13-9	17-5	~~21-4~~ Note b	~~24-8~~ Note b	8-5	12-4	15-7	19-1	~~22-1~~ Note b
	Spruce-pine-fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
16	Douglas fir-larch	SS	9-1	14-4	18-10	~~24-1~~ Note b	Note b	9-1	14-0	17-8	~~21-7~~ Note b	~~25-1~~ Note b
	Douglas fir-larch	#1	8-9	12-9	16-2	19-9	~~22-10~~ Note b	7-10	11-5	14-5	17-8	~~20-5~~ Note b
	Douglas fir-larch	#2	8-3	12-1	15-4	18-9	~~21-8~~ Note b	7-5	10-10	13-8	16-9	19-5
	Douglas fir-larch	#3	6-4	9-3	11-8	14-3	16-7	5-8	8-3	10-6	12-9	14-10
	Hem-fir	SS	8-7	13-6	17-10	~~22-9~~ Note b	Note b	8-7	13-6	17-1	~~20-10~~ Note b	~~24-2~~ Note b
	Hem-fir	#1	8-5	12-7	15-11	19-6	~~22-7~~ Note b	7-8	11-3	14-3	17-5	~~20-2~~ Note b
	Hem-fir	#2	8-0	11-9	14-11	18-2	~~21-1~~ Note b	7-2	10-6	13-4	16-3	18-10
	Hem-fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Southern pine	SS	8-11	14-1	18-6	~~23-8~~ Note b	Note b	8-11	14-1	18-5	~~1-11~~ Note b	~~25-11~~ Note b
	Southern pine	#1	8-7	13-0	16-6	19-3	~~22-10~~ Note b	7-10	11-7	14-9	17-3	~~20-5~~ Note b
	Southern pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Southern pine	#3	5-9	8-6	10-8	13-0	15-4	5-2	7-7	9-7	11-7	13-9
	Spruce-pine-fir	SS	8-5	13-3	17-5	~~22-1~~ Note b	~~25-7~~ Note b	8-5	12-9	16-2	19-9	~~22-10~~ Note b
	Spruce-pine-fir	#1	8-2	11-11	15-1	18-5	~~21-5~~ Note b	7-3	10-8	13-6	16-6	19-2
	Spruce-pine-fir	#2	8-2	11-11	15-1	18-5	~~21-5~~ Note b	7-3	10-8	13-6	16-6	19-2
	Spruce-pine-fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
19.2	Douglas fir-larch	SS	8-7	13-6	17-9	~~22-1~~ Note b	~~25-7~~ Note b	8-7	12-9	16-2	19-9	~~22-10~~ Note b
	Douglas fir-larch	#1	7-11	11-8	14-9	18-0	~~20-11~~ Note b	7-1	10-5	13-2	16-1	18-8
	Douglas fir-larch	#2	7-7	11-0	14-0	17-1	19-10	6-9	9-10	12-6	15-3	17-9
	Douglas fir-larch	#3	5-9	8-5	10-8	13-1	15-2	5-2	7-7	9-7	11-8	13-6
	Hem-fir	SS	8-1	12-9	16-9	~~21-4~~ Note b	~~24-8~~ Note b	8-1	12-4	15-7	19-1	~~22-1~~ Note b
	Hem-fir	#1	7-10	11-6	14-7	17-9	~~20-7~~ Note b	7-0	10-3	13-0	15-11	18-5
	Hem-fir	#2	7-4	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Hem-fir	#3	~~5-7~~ 5-8	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Southern pine	SS	8-5	13-3	17-5	~~22-3~~ Note b	Note b	8-5	13-3	16-10	~~20-0~~ Note b	~~23-7~~ Note b
	Southern pine	#1	~~8-0~~ 7-11	11-10	15-1	17-7	~~20-11~~ Note b	7-1	10-7	13-5	15-9	18-8
	Southern pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf 2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	DEAD LOAD = 20 psf 2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Southern pine	#3	5-3	7-9	9-9	11-10	14-0	4-8	6-11	8-9	10-7	12-6
	Spruce-pine-fir	SS	7-11	12-5	16-5	~~20-2~~ Note b	~~23-4~~ Note b	7-11	11-8	14-9	18-0	~~20-11~~ Note b
	Spruce-pine-fir	#1	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir	#3	~~5-7~~ 5-8	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch	SS	~~8-0~~ 7-11	12-6	16-2	19-9	~~22-10~~ Note b	7-10	11-5	14-5	17-8	~~20-5~~ Note b
	Douglas fir-larch	#1	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	#2	6-9	9-10	12-6	15-3	17-9	6-0	8-10	11-2	13-8	15-10
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-7	6-9	8-7	10-5	12-1
	Hem-fir	SS	7-6	11-10	15-7	19-1	~~22-1~~ Note b	7-6	11-0	13-11	~~17-0~~ 17-1	19-9
	Hem-fir	#1	7-0	10-3	13-0	15-11	18-5	6-3	9-2	11-8	14-3	16-6
	Hem-fir	#2	6-7	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
24	Southern pine	SS	7-10	12-3	16-2	~~20-0~~ Note b	~~23-7~~ Note b	7-10	11-10	15-0	17-11	~~21-2~~ Note b
	Southern pine	#1	7-1	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-2	6-2	7-10	9-6	11-2
	Spruce-pine-fir	SS	7-4	11-7	14-9	18-0	~~20-11~~ Note b	7-1	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#1	6-8	9-9	12-4	15-1	17-6	5-11	~~8-8~~ 8-9	11-0	13-6	15-7
	Spruce-pine-fir	#2	6-8	9-9	12-4	15-1	17-6	5-11	~~8-8~~ 8-9	11-0	13-6	15-7
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds ~~26~~ 20 feet in length.

TABLE R802.4.1(4) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 30 psf, ceiling attached to rafters, L/Δ = 240)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf 2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	DEAD LOAD = 20 psf 2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Douglas fir-larch	SS	9-1	14-4	18-10	~~24-1~~ Note b	Note b	9-1	14-4	18-10	~~24-1~~ Note b	Note b
	Douglas fir-larch	#1	8-9	13-9	18-2	~~22-9~~ Note b	Note b	8-9	13-2	16-8	~~20-4~~ Note b	~~23-7~~ Note b
	Douglas fir-larch	#2	8-7	13-6	17-8	~~21-7~~ Note b	~~25-1~~ Note b	8-6	12-6	15-10	19-4	~~22-5~~ Note b
	Douglas fir-larch	#3	7-3	10-8	13-6	16-6	19-2	6-6	9-6	12-1	14-9	17-1
	Hem-fir	SS	8-7	13-6	17-10	~~22-9~~ Note b	Note b	8-7	13-6	17-10	~~22-9~~ Note b	Note b
	Hem-fir	#1	8-5	13-3	17-5	~~22-3~~ Note b	~~26-0~~ Note b	8-5	13-0	16-6	~~20-1~~ Note b	~~23-4~~ Note b
	Hem-fir	#2	8-0	12-7	16-7	~~21-0~~ Note b	~~24-4~~ Note b	8-0	12-2	15-4	18-9	~~21-9~~ Note b
	Hem-fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
12	Southern pine	SS	8-11	14-1	18-6	~~23-8~~ Note b	Note b	8-11	14-1	18-6	~~23-8~~ Note b	Note b
	Southern pine	#1	8-7	13-6	17-10	~~22-3~~ Note b	Note b	8-7	13-5	17-0	19-11	~~23-7~~ Note b
	Southern pine	#2	8-3	12-11	16-4	19-5	~~22-10~~ Note b	7-8	11-7	14-8	17-4	~~20-5~~ Note b
	Southern pine	#3	6-7	9-9	12-4	15-0	17-9	5-11	8-9	11-0	13-5	15-10
	Spruce-pine-fir	SS	8-5	13-3	17-5	~~22-3~~ Note b	Note b	8-5	13-3	17-5	~~22-3~~ Note b	Note b
	Spruce-pine-fir	#1	8-3	12-11	17-0	~~21-4~~ Note b	~~24-8~~ Note b	8-3	12-4	15-7	19-1	~~22-1~~ Note b
	Spruce-pine-fir	#2	8-3	12-11	17-0	~~21-4~~ Note b	~~24-8~~ Note b	8-3	12-4	15-7	19-1	~~22-1~~ Note b
	Spruce-pine-fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	SS	8-3	13-0	17-2	~~21-10~~ Note b	Note b	8-3	13-0	17-2	~~21-7~~ Note b	~~25-1~~ Note b
	Douglas fir-larch	#1	8-0	12-6	16-2	19-9	~~22-10~~ Note b	7-10	11-5	14-5	17-8	~~20-5~~ Note b
	Douglas fir-larch	#2	7-10	12-1	15-4	18-9	~~21-8~~ Note b	7-5	10-10	13-8	16-9	19-5
	Douglas fir-larch	#3	6-4	9-3	11-8	14-3	16-7	5-8	8-3	10-6	12-9	14-10
	Hem-fir	SS	7-10	12-3	16-2	~~20-8~~ Note b	~~25-1~~ Note b	7-10	12-3	16-2	~~20-8~~ Note b	~~24-2~~ Note b
	Hem-fir	#1	7-8	12-0	15-10	19-6	~~22-7~~ Note b	7-8	11-3	14-3	17-5	~~20-2~~ Note b
	Hem-fir	#2	7-3	11-5	14-11	18-2	~~21-1~~ Note b	7-2	10-6	13-4	16-3	18-10

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
16			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Hem-fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Southern pine	SS	8-1	12-9	16-10	~~21-6~~ Note b	Note b	8-1	12-9	16-10	~~21-6~~ Note b	~~25-11~~ Note b
	Southern pine	#1	7-10	12-3	16-2	19-3	~~22-10~~ Note b	7-10	11-7	14-9	17-3	~~20-5~~ Note b
	Southern pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Southern pine	#3	5-9	8-6	10-8	13-0	15-4	5-2	7-7	9-7	11-7	13-9
	Spruce-pine-fir	SS	7-8	12-0	15-10	~~20-2~~ Note b	~~24-7~~ Note b	7-8	12-0	15-10	19-9	~~22-10~~ Note b
	Spruce-pine-fir	#1	7-6	11-9	15-1	18-5	~~21-5~~ Note b	7-3	10-8	13-6	16-6	19-2
	Spruce-pine-fir	#2	7-6	11-9	15-1	18-5	~~21-5~~ Note b	7-3	10-8	13-6	16-6	19-2
	Spruce-pine-fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Douglas fir-larch	SS	7-9	12-3	16-1	~~20-7~~ Note b	~~25-0~~ Note b	7-9	12-3	16-1	19-9	~~22-10~~ Note b
	Douglas fir-larch	#1	7-6	11-8	14-9	18-0	~~20-11~~ Note b	7-1	10-5	13-2	16-1	18-8
	Douglas fir-larch	#2	7-4	11-0	14-0	17-1	19-10	6-9	~~9-1~~ 9-10	12-6	15-3	17-9
	Douglas fir-larch	#3	5-9	8-5	10-8	13-1	15-2	5-2	7-7	9-7	11-8	13-6
19.2	Hem-fir	SS	7-4	11-7	15-3	19-5	~~23-7~~ Note b	7-4	11-7	15-3	19-1	~~22-1~~ Note b
	Hem-fir	#1	7-2	11-4	14-7	17-9	~~20-7~~ Note b	7-0	~~16-3~~ 10-3	13-0	15-11	18-5
	Hem-fir	#2	6-10	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Hem-fir	#3	~~5-7~~ 5-8	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Southern pine	SS	7-8	12-0	15-10	~~20-2~~ Note b	~~24-7~~ Note b	7-8	12-0	15-10	~~20-0~~ Note b	~~23-7~~ Note b
	Southern pine	#1	7-4	11-7	15-1	17-7	~~20-11~~ Note b	7-1	10-7	13-5	15-9	18-8
	Southern pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Southern pine	#3	5-3	7-9	9-9	11-10	14-0	4-8	6-11	8-9	10-7	12-6
	Spruce-pine-fir	SS	7-2	11-4	14-11	19-0	~~23-1~~ Note b	7-2	11-4	14-9	18-0	~~20-11~~ Note b
	Spruce-pine-fir	#1	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir	#2	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-pine-fir	#3	~~5-7~~ 5-8	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch	SS	7-3	11-4	15-0	19-1	~~22-10~~ Note b	7-3	11-4	14-5	17-8	~~20-5~~ Note b
	Douglas fir-larch	#1	7-0	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	#2	6-9	9-10	12-6	15-3	17-9	6-0	8-10	11-2	13-8	15-10
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-7	6-9	8-7	10-5	12-1
24	Hem-fir	SS	6-10	10-9	14-2	18-0	~~21-11~~ Note b	6-10	10-9	13-11	~~17-0~~ 17-1	19-9
	Hem-fir	#1	6-8	10-3	13-0	15-11	18-5	6-3	9-2	11-8	14-3	16-6
	Hem-fir	#2	6-4	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Southern pine	SS	7-1	11-2	14-8	18-9	~~22-10~~ Note b	7-1	11-2	14-8	17-11	~~21-2~~ Note b
	Southern pine	#1	6-10	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-2	6-2	7-10	9-6	11-2
	Spruce-pine-fir	SS	6-8	10-6	13-10	17-8	~~20-11~~ Note b	6-8	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#1	6-6	9-9	12-4	15-1	17-6	5-11	~~8-8~~ 8-9	11-0	13-6	15-7
	Spruce-pine-fir	#2	6-6	9-9	12-4	15-1	17-6	5-11	~~8-8~~ 8-9	11-0	13-6	15-7
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds ~~26~~ 20 feet in length.

TABLE R802.4.1(5) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 50 psf, ceiling not attached to rafters, L/Δ = 180)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Douglas fir-larch	SS	8-5	13-3	17-6	~~22-4~~ Note b	~~26-0~~ Note b	8-5	13-3	17-3	~~21-1~~ Note b	~~24-5~~ Note b
	Douglas fir-larch	#1	8-2	12-0	15-3	18-7	~~21-7~~ Note b	7-7	11-2	14-1	17-3	20-0

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	#2	7-10	11-5	14-5	17-8	~~20-5~~ Note b	7-3	10-7	13-4	16-4	18-11
	Douglas fir-larch	#3	~~6-0~~ 5-11	8-9	11-0	13-6	15-7	5-6	8-1	10-3	12-6	14-6
	Hem-fir	SS	8-0	12-6	16-6	~~21-1~~ Note b	~~25-6~~ Note b	8-0	12-6	16-6	~~20-4~~ Note b	~~23-7~~ Note b
	Hem-fir	#1	7-10	11-10	15-0	18-4	~~21-3~~ Note b	7-6	11-0	13-11	17-0	19-9
	Hem-fir	#2	7-5	11-1	14-0	17-2	19-11	7-0	10-3	13-0	15-10	18-5
	Hem-fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Southern pine	SS	8-4	13-1	17-2	~~21-11~~ Note b	Note b	8-4	13-1	17-2	~~21-5~~ Note b	~~25-3~~ Note b
	Southern pine	#1	8-0	12-3	15-6	18-2	~~21-7~~ Note b	7-7	11-4	14-5	16-10	20-0
	Southern pine	#2	7-0	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Southern pine	#3	5-5	8-0	10-1	12-3	14-6	5-0	7-5	9-4	11-4	13-5
	Spruce-pine-fir	SS	7-10	12-3	16-2	~~20-8~~ Note b	~~24-1~~ Note b	7-10	12-3	15-9	19-3	~~22-4~~ Note b
	Spruce-pine-fir	#1	7-8	11-3	14-3	17-5	~~20-2~~ Note b	7-1	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#2	7-8	11-3	14-3	17-5	~~20-2~~ Note b	7-1	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
16	Douglas fir-larch	SS	7-8	12-1	15-11	19-9	~~22-10~~ Note b	7-8	11-10	14-11	18-3	~~21-2~~ Note b
	Douglas fir-larch	#1	7-1	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas fir-larch	#2	6-9	9-10	12-6	15-3	17-9	6-3	9-2	11-7	14-2	16-5
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-9	7-0	8-10	10-10	12-6
	Hem-fir	SS	7-3	11-5	15-0	19-1	~~22-1~~ Note b	7-3	11-5	14-5	17-8	~~20-5~~ Note b
	Hem-fir	#1	7-0	10-3	13-0	15-11	18-5	6-6	9-6	12-1	14-9	17-1
	Hem-fir	#2	6-7	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	~~10-6~~ 10-7	12-3
	Southern pine	SS	7-6	11-10	15-7	19-11	~~23-7~~ Note b	7-6	11-10	15-7	18-6	~~21-10~~ Note b
	Southern pine	#1	7-1	10-7	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-4	6-5	8-1	9-10	11-7
	Spruce-pine-fir	SS	7-1	11-2	14-8	18-0	~~20-11~~ Note b	7-1	10-9	13-8	~~15-11~~ 16-8	19-4
	Spruce-pine-fir	#1	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-pine-fir	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	~~10-6~~ 10-7	12-3
19.2	Douglas fir-larch	SS	7-3	11-4	14-9	18-0	~~20-11~~ Note b	7-3	10-9	13-8	16-8	19-4
	Douglas fir-larch	#1	6-6	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas fir-larch	#2	6-2	9-0	11-5	13-11	16-2	5-8	8-4	~~10-9~~ 10-7	12-11	15-0
	Douglas fir-larch	#3	4-8	6-11	8-9	10-8	12-4	4-4	6-4	8-1	9-10	11-5
	Hem-fir	SS	6-10	10-9	14-2	17-5	~~20-2~~ Note b	6-10	10-5	13-2	16-1	18-8
	Hem-fir	#1	6-5	9-5	11-11	14-6	16-10	~~8-11~~ 5-11	8-8	11-0	13-5	15-7
	Hem-fir	#2	6-0	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Hem-fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
	Southern pine	SS	7-1	11-2	14-8	18-3	~~21-7~~ Note b	7-1	11-2	14-2	16-11	20-0
	Southern pine	#1	6-6	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Southern pine	#3	4-3	6-4	8-0	9-8	11-5	4-0	5-10	7-4	8-11	10-7
	Spruce-pine-fir	SS	6-8	10-6	13-5	16-5	19-1	6-8	9-10	12-5	15-3	17-8
	Spruce-pine-fir	#1	6-1	8-11	11-3	13-9	15-11	~~5-7~~ 5-8	8-3	10-5	12-9	14-9
	Spruce-pine-fir	#2	6-1	8-11	11-3	13-9	15-11	~~5-7~~ 5-8	8-3	10-5	12-9	14-9
	Spruce-pine-fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
24	Hem-fir	SS	6-4	9-11	12-9	15-7	18-0	6-4	9-4	11-9	14-5	16-8
	Hem-fir	#1	5-9	8-5	10-8	13-0	15-1	~~8-4~~ 5-4	7-9	9-10	12-0	13-11
	Hem-fir	#2	5-4	7-10	9-11	12-1	14-1	~~4-11~~ 5-0	7-3	9-2	11-3	13-0
	Hem-fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds ~~26~~ 20 feet in length.

TABLE R802.4.1(6) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 50 psf, ceiling attached to rafters, L/Δ = 240)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf 2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	DEAD LOAD = 20 psf 2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)	(feet- inches)
12	Douglas fir-larch	SS	7-8	12-1	15-11	~~20-3~~ Note b	~~24-8~~ Note b	7-8	12-1	15-11	~~20-3~~ Note b	~~24-5~~ Note b
	Douglas fir-larch	#1	7-5	~~11-7~~ 11-8	15-3	18-7	~~21-7~~ Note b	7-5	11-2	14-1	17-3	20-0
	Douglas fir-larch	#2	7-3	11-5	14-5	17-8	~~20-5~~ Note b	7-3	10-7	13-4	16-4	18-11
	Douglas fir-larch	#3	~~6-0~~ 5-11	8-9	11-0	13-6	15-7	5-6	8-1	10-3	12-6	14-6
	Hem-fir	SS	7-3	11-5	15-0	19-2	~~23-4~~ Note b	7-3	11-5	15-0	19-2	~~23-4~~ Note b
	Hem-fir	#1	7-1	11-2	14-8	18-4	~~21-3~~ Note b	7-1	11-0	13-11	17-0	19-9
	Hem-fir	#2	6-9	10-8	14-0	17-2	19-11	6-9	10-3	13-0	15-10	18-5
	Hem-fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Southern pine	SS	7-6	11-10	15-7	19-11	~~24-3~~ Note b	7-6	11-10	15-7	19-11	~~24-3~~ Note b
	Southern pine	#1	7-3	11-5	15-0	18-2	~~21-7~~ Note b	7-3	11-4	14-5	16-10	20-0
	Southern pine	#2	6-11	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Southern pine	#3	5-5	8-0	10-1	12-3	14-6	5-0	7-5	9-4	11-4	13-5
	Spruce-pine-fir	SS	7-1	11-2	14-8	18-9	~~22-10~~ Note b	7-1	11-2	14-8	18-9	~~22-4~~ Note b
	Spruce-pine-fir	#1	6-11	10-11	14-3	17-5	~~20-2~~ Note b	6-11	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#2	6-11	10-11	14-3	17-5	~~20-2~~ Note b	6-11	10-5	13-2	16-1	18-8
	Spruce-pine-fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
16	Douglas fir-larch	SS	7-0	11-0	14-5	18-5	~~22-5~~ Note b	7-0	11-0	14-5	18-3	~~21-2~~ Note b
	Douglas fir-larch	#1	6-9	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas fir-larch	#2	6-7	9-10	12-6	15-3	17-9	6-3	9-2	11-7	14-2	16-5
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-9	7-0	8-10	10-10	12-6
	Hem-fir	SS	6-7	10-4	13-8	17-5	~~21-2~~ Note b	6-7	10-4	13-8	17-5	~~20-5~~ Note b
	Hem-fir	#1	6-5	10-2	13-0	15-11	18-5	6-5	9-6	12-1	14-9	17-1
	Hem-fir	#2	6-2	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	~~10-6~~ 10-7	12-3
	Southern pine	SS	6-10	10-9	14-2	18-1	~~22-0~~ Note b	6-10	10-9	14-2	18-1	~~21-10~~ Note b
	Southern pine	#1	6-7	10-4	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-4	6-5	8-1	9-10	11-7
	Spruce-pine-fir	SS	6-5	10-2	13-4	17-0	~~20-9~~ Note b	6-5	10-2	13-4	16-8	19-4
	Spruce-pine-fir	#1	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-pine-fir	#2	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	~~10-6~~ 10-7	12-3
19.2	Douglas fir-larch	SS	6-7	10-4	13-7	17-4	~~20-11~~ Note b	6-7	10-4	13-7	16-8	19-4
	Douglas fir-larch	#1	6-4	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas fir-larch	#2	6-2	9-0	11-5	13-11	16-2	5-8	8-4	10-7	12-11	15-0
	Douglas fir-larch	#3	4-8	6-11	8-9	10-8	12-4	4-4	6-4	8-1	9-10	11-5
	Southern pine	SS	6-5	10-2	13-4	17-0	~~20-9~~ Note b	6-5	10-2	13-4	16-11	20-0
	Southern pine	#1	6-2	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Southern pine	#3	4-3	6-4	8-0	9-8	11-5	4-0	5-10	7-4	8-11	10-7
	Spruce-pine-fir	SS	6-1	9-6	12-7	16-0	19-1	6-1	9-6	12-5	15-3	17-8
	Spruce-pine-fir	#1	5-11	8-11	11-3	13-9	15-11	~~5-7~~ 5-8	8-3	10-5	12-9	14-9
	Spruce-pine-fir	#2	5-11	8-11	11-3	13-9	15-11	~~5-7~~ 5-8	8-3	10-5	12-9	14-9
	Spruce-pine-fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
24	Hem-fir	SS	5-9	9-1	11-11	15-2	18-0	5-9	9-1	11-9	14-5	~~15-11~~ 16-8
	Hem-fir	#1	5-8	8-5	10-8	13-0	15-1	5-4	7-9	9-10	12-0	13-11
	Hem-fir	#2	5-4	7-10	9-11	12-1	14-1	~~4-11~~ 5-0	7-3	9-2	11-3	13-0
	Hem-fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 20 feet in length.

TABLE R802.4.1(7) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 70 psf, ceiling not attached to rafters, L/Δ = 180)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	SS	7-7	11-10	15-8	19-9	~~22-10~~ Note b	7-7	11-10	15-3	18-7	~~21-7~~ Note b
	Douglas fir-larch	#1	7-1	10-5	13-2	16-1	18-8	6-8	9-10	12-5	15-2	17-7
	Douglas fir-larch	#2	6-9	9-10	12-6	15-3	17-9	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-10	7-1	9-0	11-0	12-9
	Hem-fir	SS	7-2	11-3	14-9	18-10	~~22-1~~ Note b	7-2	11-3	14-8	18-0	~~20-10~~ Note b
	Hem-fir	#1	7-0	10-3	13-0	15-11	18-5	6-7	9-8	12-3	15-0	17-5
	Hem-fir	#2	6-7	9-7	12-2	14-10	17-3	6-2	9-1	~~11-5~~ 11-6	14-0	16-3
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Southern pine	SS	7-5	11-8	15-4	19-7	~~23-7~~ Note b	7-5	11-8	15-4	18-10	~~22-3~~ Note b
	Southern pine	#1	7-1	10-7	13-5	15-9	18-8	6-9	10-0	12-8	14-10	17-7
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-9	8-7	10-11	12-11	15-3
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-5	6-6	8-3	10-0	11-10
	Spruce-pine-fir	SS	7-0	11-0	14-6	18-0	~~20-11~~ Note b	7-0	11-0	13-11	17-0	19-8
	Spruce-pine-fir	#1	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#2	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
16	Southern pine	SS	6-9	10-7	14-0	17-4	~~20-5~~ Note b	6-9	10-7	13-9	16-4	19-3
	Southern pine	#1	6-2	9-2	11-8	13-8	16-2	5-10	8-8	11-0	12-10	15-3
	Southern pine	#2	5-3	7-11	10-0	11-11	14-0	5-0	7-5	9-5	11-3	13-2
	Southern pine	#3	4-1	6-0	7-7	9-2	10-10	3-10	5-8	7-1	8-8	10-3
19.2	Douglas fir-larch	SS	6-6	10-1	12-9	15-7	18-1	6-6	9-6	12-0	14-8	17-1
	Douglas fir-larch	#1	~~5-7~~ 5-8	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	13-11
	Douglas fir-larch	#2	5-4	7-10	9-11	12-1	14-0	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch	#3	4-1	6-0	7-7	9-3	10-8	3-10	5-7	7-1	8-8	10-1
	Hem-fir	SS	6-1	9-7	12-4	15-1	~~17-4~~ 17-6	6-1	9-2	11-8	14-2	~~15-5~~ 16-6
	Hem-fir	#1	5-7	8-2	10-3	12-7	14-7	5-3	7-8	9-8	11-10	13-9
	Hem-fir	#2	5-2	7-7	9-7	11-9	13-7	4-11	7-2	9-1	11-1	12-10
	Hem-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
24	Douglas fir-larch	SS	6-0	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas fir-larch	#1	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Douglas fir-larch	#2	4-9	7-0	8-10	10-10	12-6	4-6	6-7	8-4	10-2	11-10
	Douglas fir-larch	#3	3-8	5-4	6-9	8-3	9-7	3-5	5-0	6-4	7-9	~~9-10~~ 9-0
	Hem-fir	SS	5-8	~~8-8~~ 8-9	11-0	13-6	~~13-11~~ 15-7	5-7	8-3	10-5	~~12-4~~ 12-8	~~12-4~~ 14-9
	Hem-fir	#1	5-0	7-3	9-2	11-3	13-0	4-8	6-10	8-8	10-7	12-4
	Hem-fir	#2	4-8	6-9	8-7	10-6	12-2	4-4	6-5	8-1	9-11	11-6
	Hem-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10
	Spruce-pine-fir	SS	5-6	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	~~12-11~~ 13-11
	Spruce-pine-fir	#1	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	~~10-0~~ 10-1	11-8
	Spruce-pine-fir	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	~~10-0~~ 10-1	11-8
	Spruce-pine-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 20 feet in length.

TABLE R802.4.1(8) RAFTER SPANS FOR COMMON LUMBER SPECIES (Ground snow load = 70 psf, ceiling attached to rafters, L/Δ = 240)

Portions of table not shown remain unchanged.

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
	Douglas fir-larch	SS	6-10	10-9	14-3	18-2	~~22-1~~ Note b	6-10	10-9	14-3	18-2	~~21-7~~ Note b
	Douglas fir-larch	#1	6-7	10-5	13-2	16-1	18-8	6-7	9-10	12-5	15-2	17-7

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans									
			(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)	(feet-inches)
12	Douglas fir-larch	#2	6-6	9-10	12-6	15-3	17-9	6-4	9-4	11-9	14-5	16-8
	Douglas fir-larch	#3	5-2	7-7	9-7	11-8	13-6	4-10	7-1	9-0	11-0	12-9
	Hem-fir	SS	6-6	10-2	13-5	17-2	~~20-10~~ Note b	6-6	10-2	13-5	17-2	~~20-10~~ Note b
	Hem-fir	#1	6-4	10-0	13-0	15-11	18-5	6-4	9-8	12-3	15-0	17-5
	Hem-fir	#2	6-1	9-6	12-2	14-10	17-3	6-1	9-1	~~11-5~~ 11-6	14-0	16-3
	Hem-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Southern pine	SS	6-9	10-7	14-0	17-10	~~21-8~~ Note b	6-9	10-7	14-0	17-10	~~21-8~~ Note b
	Southern pine	#1	6-6	10-2	13-5	15-9	18-8	6-6	10-0	12-8	14-10	17-7
	Southern pine	#2	6-1	9-2	11-7	13-9	16-2	5-9	8-7	10-11	12-11	15-3
	Southern pine	#3	4-8	6-11	8-9	10-7	12-6	4-5	6-6	8-3	10-0	11-10
	Spruce-pine-fir	SS	6-4	10-0	13-2	16-9	~~20-5~~ Note b	6-4	10-0	13-2	16-9	19-8
	Spruce-pine-fir	#1	6-2	9-9	12-4	15-1	17-6	6-2	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#2	6-2	9-9	12-4	15-1	17-6	6-2	9-2	11-8	14-2	16-6
	Spruce-pine-fir	#3	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
19.2	Douglas fir-larch	SS	5-10	9-3	12-2	15-6	18-1	5-10	9-3	12-0	14-8	17-1
	Douglas fir-larch	#1	~~5-7~~ 5-8	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	13-11
	Douglas fir-larch	#2	5-4	7-10	9-11	12-1	14-0	5-0	7-4	9-4	11-5	13-2
	Douglas fir-larch	#3	4-1	6-0	7-7	9-3	10-8	3-10	5-7	7-1	8-8	10-1
	Hem-fir	SS	5-6	8-8	11-6	14-8	~~17-4~~ 17-6	5-6	8-8	11-6	14-2	~~15-5~~ 16-6
	Hem-fir	#1	5-5	8-2	10-3	12-7	14-7	5-3	7-8	9-8	11-10	13-9
	Hem-fir	#2	5-2	7-7	9-7	11-9	13-7	4-11	7-2	9-1	11-1	12-10
	Hem-fir	#3	4-0	5-10	7-4	9-0	10-5	3-9	5-6	6-11	8-6	9-10
24	Hem-fir	SS	5-2	8-1	10-8	13-6	~~13-11~~ 15-7	5-2	8-1	10-5	~~12-4~~ 12-8	~~12-4~~ 14-9
	Hem-fir	#1	5-0	7-3	9-2	11-3	13-0	4-8	6-10	8-8	10-7	12-4
	Hem-fir	#2	4-8	6-9	8-7	10-6	12-2	4-4	6-5	8-1	9-11	11-6
	Hem-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10
	Spruce-pine-fir	SS	5-0	7-11	10-5	12-9	14-9	5-0	7-9	9-10	12-0	~~12-11~~ 13-11
	Spruce-pine-fir	#1	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	~~10-0~~ 10-1	11-8
	Spruce-pine-fir	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	~~10-0~~ 10-1	11-8
	Spruce-pine-fir	#3	3-7	5-2	6-7	8-1	9-4	3-4	4-11	6-3	7-7	8-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the adjustment factors in Table R802.4.1(9).

b. Span exceeds 20 feet in length.

Reason: This proposal updates the span tables in multiple locations to be aligned with ASCE 7-22 and corrects errors in spans that could not be corrected by ICC staff using ICC's editorial process. The proposed spans align with those found in the ANSI/AWC 2024 *Wood Frame Construction Manual* (WFCM). To address complexity of ASCE 7 requirements for unbalanced snow loads, horizontally-projected rafter spans over 20' have been removed from prescriptive values in the IRC, which also matches the method used in the WFCM. New calculations for horizontally-projected spans over 20' require the use of additional factors including wind exposure of the building, attic insulation, heat differential of a building, and a new winter wind provision. In order to provide prescriptive values for horizontally-projected rafter spans over 20', many conservative assumptions would need to be made so that the tables can be used prescriptively in all locations. These assumptions would create conservative spans for these rafters. It should be noted that rafters with a horizontally-projected span over 20' will typically be 25'-30' long. These longer spans are often associated with use of trusses or other engineered wood solutions. Therefore, the impact of reducing the tabulated span length limit from 26' to 20' may be negligible.

Cost Impact: Increase

Estimated Immediate Cost Impact:

$0 - $300 for engineering of spans between 20' and 26'

Estimated Immediate Cost Impact Justification (methodology and variables):

This proposal updates the span tables in multiple locations to be aligned with ASCE 7-22 and corrects errors in spans. The adjustment in spans due to alignment with ASCE 7-22 will likely not impact the lumber lengths needed for construction, as some trimming will still be necessary to accommodate the actual span end use. The error corrections are considered editorial. As Note b has changed, where a project involves spans between 20' and 26', the cost impact is estimated to be up to $300 for engineering.

RB235-25

RB236-25

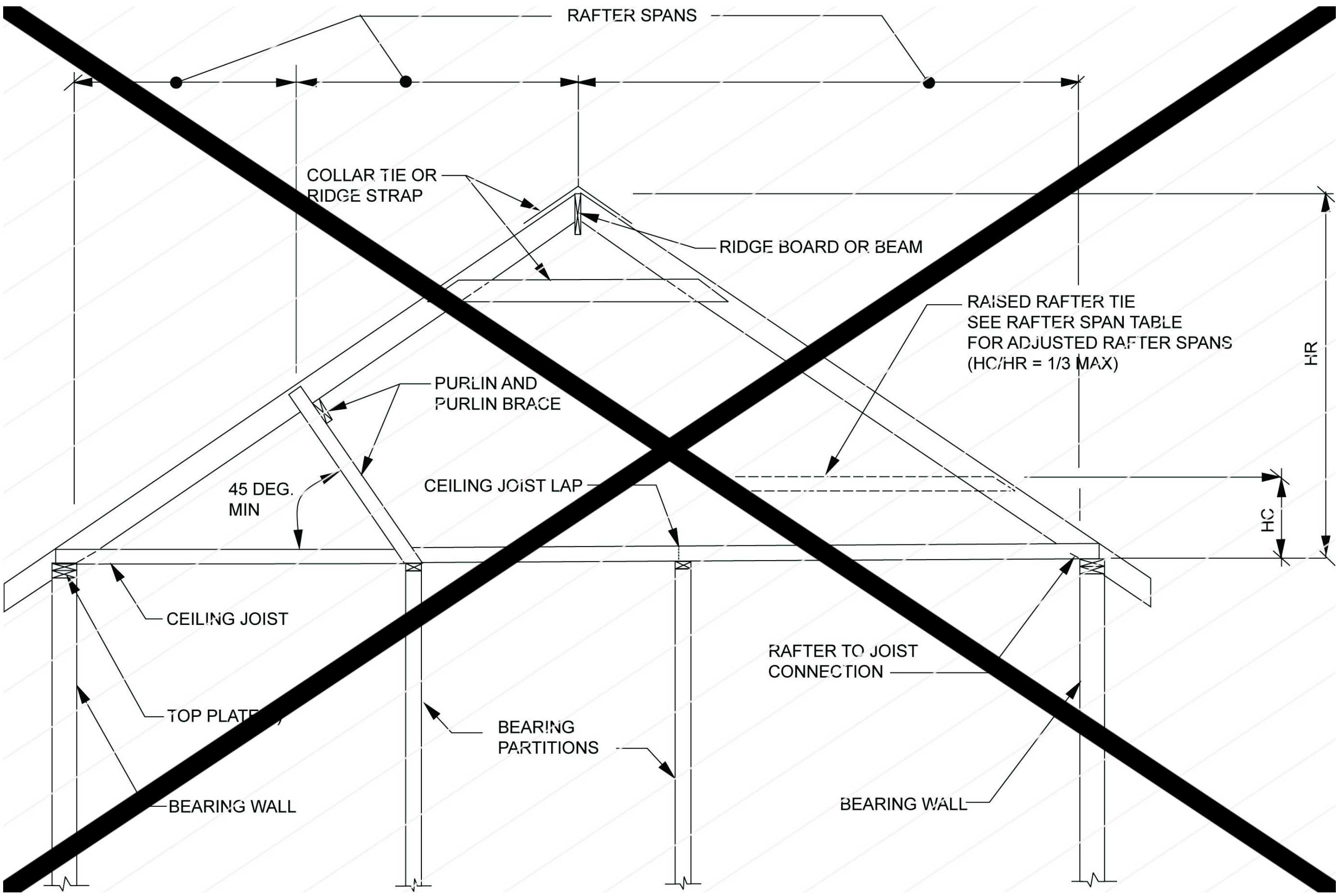
IRC: R802.4.5, FIGURE R802.4.5

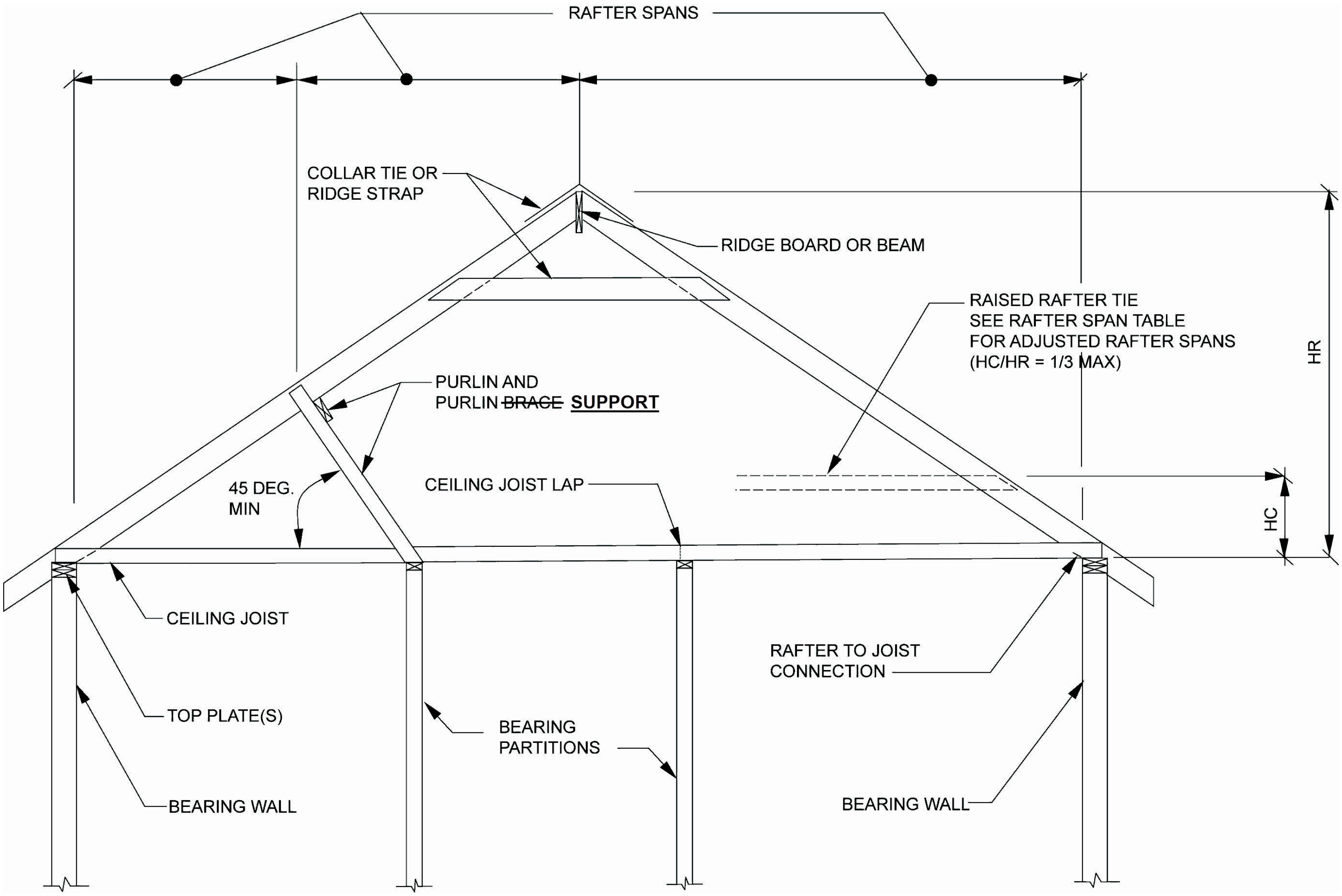
Proponents: Randy Shackelford, representing Simpson Strong-Tie Co. (rshackelford@strongtie.com)

2024 International Residential Code

Revise as follows:

R802.4.5 Purlins. Installation of purlins to reduce the span of rafters is permitted as shown in Figure R802.4.5. Purlins shall be sized not less than the required size of the rafters that they support. Purlins shall be continuous and shall be supported by 2-inch by 4-inch (51 mm by 102 mm) ~~braces~~ purlin supports installed ~~to bearing walls~~ at a slope not less than 45 degrees (0.79 rad) from the horizontal. Purlin supports shall bear on a bearing wall or a beam designed in accordance with accepted engineering practice and supported on each end by a wall or column. The ~~braces~~ purlin supports shall be spaced not more than 4 feet (1219 mm) on center and the unbraced length of purlin supports shall not exceed 8 feet (2438 mm).





For SI: 1 degree = 0.018 rad.

H_C = Height of ceiling joists or rafter ties measured vertically above the top of rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

FIGURE R802.4.5 BRACED RAFTER CONSTRUCTION

Reason: This proposal is to just add an option for when supported purlins are used to increase the span of stick-framed rafters.

In many parts of the country, builders prefer to construct roofs using IRC prescriptive framing rather than using roof trusses. Use of the purlin system has traditionally been used to support the rafter in between the ridge and the wall top plate to reduce its effective span. Currently the purlin brace is required to be supported by a bearing wall below. With the increasing use of open floor plans, there may not be a bearing wall located where the code requires the brace to be located. This change adds the option of using an engineered beam to support the purlin braces to the existing requirement for bearing on a wall. It is important that this beam be properly designed to take the load imparted on it by the braces, and that the beam bear on an adequate support. The description of the beam is the same as the language used to describe the design and support for a ridge beam.

A second part of this change is to change the purlin "brace" to a purlin "support". We think "support" is a better term for a member that transfers gravity loads down from the purlin to a wall or beam.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal just adds an option for support of purlin systems when used for rafter bracing. There should be no cost impact. If anything, providing these options could save a builder money by preventing them from having to hire a designer to design the roof framing system or use larger size lumber for rafters when there is not a bearing wall present that could be used to support a purlin system.

RB237-25

IRC: TABLE R802.5.1(1), TABLE R802.5.1(2)

Proponents: Shane Nilles, representing American Wood Council (snilles@awc.org); David Tyree, representing American Wood Council (dtyree@awc.org)

2024 International Residential Code

Revise as follows:

TABLE R802.5.1(1) CEILING JOIST SPANS FOR COMMON LUMBER SPECIES (Uninhabitable attics without storage, live load = 10 psf, L/Δ = 240)

Portions of table not shown remain unchanged.

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 5 psf			
			2 × 4	**2 × 6**	**2 × 8**	**2 × 10**
			Maximum ceiling joist spans			
			(feet-inches)	**(feet-inches)**	**(feet-inches)**	**(feet-inches)**
16	Southern pine	SS	11-9	18-5	24-3	Note a
	Southern pine	#1	11-3	17-8	~~23-10~~23-4	Note a
	Southern pine	#2	10-9	16-11	21-7	25-7
	Southern pine	#3	8-9	12-11	16-3	19-9
19.2	Southern -pine	SS	11-0	17-4	22-10	Note a
	Southern pine	#1	10-7	16-8	~~22-0~~21-11	Note a
	Southern pine	#2	10-2	15-7	19-8	23-5
	Southern pine	#3	8-0	11-9	14-10	18-0
24	Southern pine	SS	10-3	16-1	21-2	Note a
	Southern pine	#1	9-10	15-6	20-5	~~24-0~~23-11
	Southern pine	#2	9-3	13-11	17-7	20-11
	Southern pine	#3	7-2	10-6	13-3	16-1

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Span exceeds 26 feet in length.

TABLE R802.5.1(2) CEILING JOIST SPANS FOR COMMON LUMBER SPECIES (Uninhabitable attics with limited storage, live load = 20 psf, L/Δ = 240)

Portions of table not shown remain unchanged.

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf			
			2 × 4	**2 × 6**	**2 × 8**	**2 × 10**
			Maximum ceiling joist spans			
			(feet-inches)	**(feet-inches)**	**(feet-inches)**	**(feet-inches)**
12	Southern pine	SS	10-3	16-1	21-2	Note a
	Southern pine	#1	9-10	15-6	20-5	~~24-0~~23-11
	Southern pine	#2	9-3	13-11	17-7	20-11
	Southern pine	#3	7-2	10-6	13-3	16-1
16	Southern pine	SS	9-4	14-7	19-3	24-7
	Southern pine	#1	8-11	14-0	17-9	20-9
	Southern pine	#2	8-0	12-0	15-3	18-1
	Southern pine	#3	6-2	9-2	11-6	~~14-0~~13-11
	Spruce-pine-fir	SS	8-9	13-9	~~18-1~~18-2	23-1
	Spruce-pine-fir	#1	8-7	12-10	16-3	19-10
	Spruce-pine-fir	#2	8-7	12-10	16-3	19-10
	Spruce-pine-fir	#3	6-8	9-8	12-4	15-0

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Span exceeds 26 feet in length.

Reason: This proposal updates the span tables to be aligned with ASCE 7-22 and corrects errors in spans that could not be corrected by ICC staff using ICC's editorial process. The proposed spans align with those found in the ANSI/AWC 2024 *Wood Frame Construction Manual* (WFCM).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal corrects errors and updates for ceiling joist spans to align with the WFCM.

RB237-25

RB238-25

IRC: TABLE R802.5.2(1)

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

TABLE R802.5.2(1) ~~RAFTER/CEILING JOIST~~ RAFTER/RAFTER TIE HEEL JOINT CONNECTIONS[g]

RAFTER SLOPE	RAFTER TIE SPACING (inches)	GROUND SNOW LOAD (psf)											
		20[e]			30			50			70		
		Roof span (feet)											
		12	24	36	12	24	36	12	24	36	12	24	36
		Required number of 16d common nails per heel joint connection [a, b, c, d, f]											
3:12	12	3	5	8	3	6	9	5	9	13	6	12	17
	16	4	7	10	4	8	12	6	12	17	8	15	23
	19.2	4	8	12	5	10	14	7	14	21	9	18	27
	24	5	10	15	6	12	18	9	17	26	12	23	34
4:12	12	3	4	6	3	5	7	4	7	10	5	9	13
	16	3	5	8	3	6	9	5	9	13	6	12	17
	19.2	3	6	9	4	7	11	6	11	16	7	14	21
	24	4	8	11	5	9	13	7	13	19	9	17	26
5:12	12	3	3	5	3	4	6	3	6	8	4	7	11
	16	3	4	6	3	5	7	4	7	11	5	9	14
	19.2	3	5	7	3	6	9	5	9	13	6	11	17
	24	3	6	9	4	7	11	6	11	16	7	14	21
7:12	12	3	3	4	3	3	4	3	4	6	3	5	8
	16	3	3	5	3	4	5	3	5	8	4	7	10
	19.2	3	4	5	3	4	6	3	6	9	4	8	12
	24	3	5	7	3	5	8	4	8	11	5	10	15
9:12	12	3	3	3	3	3	3	3	3	5	3	4	6
	16	3	3	4	3	3	4	3	4	6	3	5	8
	19.2	3	3	4	3	4	5	3	5	7	3	6	9
	24	3	4	5	3	4	6	3	6	9	4	8	12
12:12	12	3	3	3	3	3	3	3	3	4	3	3	5
	16	3	3	3	3	3	3	3	3	5	3	4	6
	19.2	3	3	3	3	3	4	3	4	6	3	5	7
	24	3	3	4	3	3	5	3	5	7	3	6	9

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

g. Tabulated requirements are based on 10 psf roof dead load in combination with the specified roof snow load and roof live load.

f. Tabulated heel joint connection requirements assume that ceiling joists or rafter ties are located at the bottom of the attic space. Where ceiling joists or rafter ties are located higher in the attic, heel joint connection requirements shall be increased by the adjustment factors in Table 802.5.2(2).

e. Applies to roof live load of 20 psf or less.

d. Equivalent nailing patterns are required for ~~ceiling joist to ceiling joist~~ rafter tie to rafter tie lap splices.

c. Where intermediate support of the rafter is provided by vertical struts or purlins to a load-bearing wall, the tabulated heel joint connection requirements shall be permitted to be reduced proportionally to the reduction in span.

b. Heel joint connections are not required where the ridge is supported by a load-bearing wall, header or ridge beam.

a. 10d common (3″ × 0.148″) nails shall be permitted to be substituted for 16d common ($3^1/_2$″ × 0.162″) nails where the required number of nails is taken as 1.2 times the required number of 16d common nails, rounded up to the next full nail.

Reason: A ceiling joist can function as a rafter tie, but is not always a rafter tie. The fastening required in this table is for rafter ties. Whether that be rafter ties or ceiling joists acting as rafter ties. However, using the term "ceiling joist" in the title of this table is misleading and can lead to misinterpretation. Section R802.5 is specific to ceiling joists and requires they only be fastened to the top plate in accordance with the basic fastening found in Table R602.3(1). The ceiling joist does not need to be fastened to the rafter at all, if the ceiling joist is not functioning as a rafter tie, such as in these examples:

A "shed roof" type of assembly, where the rafter is directly supported at the top and no rafter thrust exists.

When the rafter is supported by a ridge BEAM, there is no rafter thrust

When a rafter tie is installed above the ceiling joists due to the ceiling joists being perpendicular to the rafters and not able to function as rafter ties.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Clarification of terms for better interpretation of existing intent and purpose. No impact to cost of construction.

RB238-25

RB239-25

IRC: R802.10.2.1

Proponents: Greg Greenlee, SBCA, representing SBCA, Technical Director (ggreenlee@sbcacomponents.com); Jay Jones, representing Truss Plate Institute, Executive Director (jpjones@tpinst.org)

2024 International Residential Code

Delete without substitution:

~~**R802.10.2.1 Applicability limits.** The provisions of this section shall control the design of truss roof framing where snow controls for *buildings* that are not greater than 60 feet (18 288 mm) in length perpendicular to the joist, rafter or truss span, not greater than 36 feet (10 973 mm) in width parallel to the joist, rafter or truss span, not more than three *stories above grade plane* in height, and have roof slopes not smaller than 3:12 (25-percent slope) or greater than 12:12 (100-percent slope). Truss roof framing constructed in accordance with the provisions of this section shall be limited to sites subjected to a maximum design wind speed of 140 miles per hour (63 m/s), Exposure B or C, and a maximum ground snow load of 70 psf (3352 Pa). For consistent loading of all truss types, roof snow load is to be computed as: 0.7~~ $\cancel{p_g}$~~.~~

Reason: This provision was added to the 2006 version of the IRC. It allows for a reduced snow load to be used in certain defined conditions for the design of metal-plate-connected wood trusses. As written, it is not and was not intended to be a blanket statement of applicability limits for all metal plate connected wood trusses. This is clear by reading the reason statement provided in RB193-04/05 when the provision was introduced.

> *Where snow falls, how it falls and how it applies load to a structure is independent of structure type and the structural framing that is used. Although we believe following ASCE 7 is more appropriate, the truss industry respectfully requests that there is a level engineering playing field when it comes to the requirements of structural building components. In this case, the industry requests that approach taken by the code with respect to the application of snow loads on steel structures be identical to the application of snow loads on truss structures, within the identical design constraints.*
>
> *The code referenced steel rafter tables from the American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing. Prescriptive Method for One- and Two-family Dwellings (COFS/PM), as referenced in R301.1.1, are based upon the following design rationale per Section A2.1 of the Commentary to the 2003 CFS Prescriptive Method:*
>
> *Applied roof snow loads were calculated by multiplying the ground snow load by a 0.7 conversion factor in accordance with ASCE 7 (ASCE, 1998). No further reductions were made for special cases.*
>
> *The sloped roof snow load, Ps = Cs x Pf, where Pf is the flat roof snow load. Pf = 0.7 Ce Ct I Pg.*
>
> *Unbalanced snow loads, sliding snow loads, and snow drifts on lower roofs were not considered due to the lack of evidence for damage from unbalanced loads on homes and the lack of data to typify the statistical uncertainties associated with this load pattern on residential structures. Rain-on-snow surcharge load was also not considered in the calculations. Roof slopes in this document exceed the ½-inch per foot requirement by ASCE 7 for the added load to be considered. Therefore, roof snow load was computed as: 1.0 * 0.7 * 1.0 * 1.0 * Pg = 0.7 Pg.*

The sections of the IRC referenced for this code change were taken from the prescriptive tables for CFS rafters. Component manufacturers rely on design software to calculate snow loads using the code referenced and selected version of ASCE-7. Accordingly, in practice the provided provisions of this section are not utilized for the design of metal-plate-connected wood trusses.

The reason statement provided in RB193-04/05 suggests that the roof snow load can be calculated as 0.7*Pg and the effects of unbalanced snow load do not need to be considered, which is inconsistent with ASCE 7-22. Also, using a reduced ground snow load is inconsistent with Section R301.6 which states “The roof shall be designed for the live load indicated in Table R301.6 or the ground snow load indicated in Table R301.2, whichever is greater.”

Since the code modification was incorporated in the 2006 edition of the IRC the method by which the CFS rafter tables are calculated has changed. Table R804.3.2.1(1) in the 2024 IRC is derived from AISI S230-19, North American Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings. The Commentary for AISI S230-19 Section F3.1 indicates that snow loads for the tables were calculated using ASCE 7-16 and unbalanced snow loads were considered.

As written, Section R802.10.2.1 is difficult to follow and has the potential to be misunderstood, applied incorrectly, or used in an unconservative manner. The provision is not utilized in the software developed by manufacturers for the design of metal-plate-connected wood trusses, so it is not of value to the industry to which it is targeted. Eliminating the provision will help reduce confusion.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a provision that is not utilized by component manufacturers. Eliminating this section will not have a cost impact.

RB239-25

RB240-25

IRC: R802.11

Proponents: Randy Shackelford, representing Simpson Strong-Tie Co. (rshackelford@strongtie.com)

2024 International Residential Code

Revise as follows:

R802.11 Roof tie uplift resistance. *Roof assemblies* shall have uplift resistance in accordance with Sections R802.11.1 and R802.11.2.

Exceptions: Rafters or trusses shall be permitted to be attached to their supporting wall assemblies in accordance with Table R602.3(1) where <u>the specific gravity of the wood species used for the wall and roof framing is greater than or equal to 0.42 in accordance with AWC NDS and </u>either of the following occur:

1. Where ~~the specific gravity of the wood species used for wall framing is greater than or equal to 0.42 in accordance with AWC NDS and~~ the uplift force per rafter or truss does not exceed 200 pounds (90.8 kg) as determined by Table R802.11.
2. Where the *basic wind speed* does not exceed 115 miles per hour (51.4 m/s), the wind exposure category is B, the roof pitch is 5 units vertical in 12 units horizontal (42-percent slope) or greater, the roof span is 32 feet (9754 mm) or less, and rafters and trusses are spaced not more than 24 inches (610 mm) on center.

Reason: The purpose of this code change proposal is to relocate the requirement for wood framing to have a specific gravity greater than or equal to 0.42 from the first of the two cases to the charging paragraph. The requirement should apply to both cases, not just the first one. Both cases are just saying that the assumption is that the IRC standard roof framing fastening provides around 200 pounds of uplift resistance, assuming a minimum of SPF lumber. The first explicitly states the 200 pound value, and the second just points to the place in the table where the uplift starts to exceed 200 pounds. At the time this section was written, SPF lumber had the minimum specific gravity generally available so that was the worst case and was the basis for the 200-pound trigger. Recently, lumber with lower specific gravity has become available, and it would provide an uplift resistance of somewhat less than 200 pounds for the roof to wall connection, so the 200-pound value would not be applicable.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is primarily a clarification (and correction), moving the requirement for a minimum specific gravity from only one case to the charging paragraph where it would apply to both cases.

RB240-25

RB241-25

IRC: R806.5

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R806.5 Unvented attic and unvented enclosed rafter assemblies. Unvented *attics* and unvented enclosed roof framing assemblies created by ceilings that are applied directly to the underside of the roof framing members and structural roof sheathing applied directly to the top of the roof framing members/rafters, shall be permitted where all the following conditions are met:

1. The unvented *attic* space is completely within the *building thermal envelope*.
2. Interior Class I vapor retarders are not installed on the ceiling side (*attic* floor) of the unvented *attic* assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, a minimum $^{1}/_{4}$-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing *underlayment* above the structural sheathing.
4. In *Climate Zones* 5, 6, 7 and 8, any *air-impermeable insulation* shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Insulation shall comply with Item 5.3 and either Item 5.1 or 5.2:
   - 5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.
     - 5.1.1. Where only *air-impermeable insulation* is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.
     - 5.1.2. Where *air-permeable insulation* is installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the *R*-values in Table R806.5 for condensation control.
     - 5.1.3. Where both *air-impermeable* and *air-permeable insulation* are provided, the *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with the *R*-values in Table R806.5 for condensation control. The *air-permeable insulation* shall be installed directly under the *air-impermeable insulation*.
     - 5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

5.2. In *Climate Zones* 1, 2 and 3, air-permeable insulation installed in unvented *attics* shall meet the following requirements:

5.2.1. An *approved vapor diffusion port* shall be installed not more than 12 inches (305 mm) from the highest point of the roof, measured vertically from the highest point of the roof to the lower edge of the port.

5.2.2. The port area shall be greater than or equal to 1:150 ~~1:600~~ of the ceiling area. Where there are multiple ports in the *attic*, the sum of the port areas shall be greater than or equal to the area requirement.

5.2.3. The vapor-permeable membrane in the *vapor diffusion port* shall have a vapor permeance rating of greater than or equal to 20 perms when tested in accordance with Procedure A of ASTM E96.

5.2.4. The *vapor diffusion port* shall serve as an *air barrier* between the *attic* and the exterior of the building.

5.2.5. The *vapor diffusion port* shall protect the *attic* against the entrance of rain and snow.

5.2.6. Framing members and blocking shall not block the free flow of water vapor to the port. Not less than a 2-inch (51 mm) space shall be provided between any blocking and the roof sheathing. Air-permeable insulation shall be permitted within that space.

5.2.7. The roof slope shall be greater than or equal to 3:12 (vertical/horizontal).

5.2.8. Where only air-permeable insulation is used, it shall be installed directly below the structural roof sheathing, on top of the *attic* floor, or on top of the ceiling.

5.2.9. *Air-impermeable insulation*, where used in conjunction with air-permeable insulation, shall be directly above or below the structural roof sheathing and is not required to meet the *R*-value in Table R806.5. Where directly below the structural roof sheathing, there shall be no space between the *air-impermeable insulation* and air-permeable insulation.

5.2.10. Where air-permeable insulation is used and is installed directly below the roof structural sheathing, air shall be supplied at a flow rate greater than or equal to 50 CFM (23.6 L/s) per 1,000 square feet (93 m^2) of ceiling. The air shall be supplied from ductwork providing supply air to the occupiable space when the conditioning system is operating. Alternatively, the air shall be supplied by a supply fan when the conditioning system is operating.

Exceptions:

1. Where both air-impermeable and air-permeable insulation are used, and the *R*-value in Table 806.5 is met, air supply to the *attic* is not required.
2. Where only air-permeable insulation is used and is installed on top of the *attic* floor, or on top of the ceiling, air supply to the *attic* is not required.

5.3. Where preformed insulation board is used as the *air-impermeable insulation* layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

Reason: An error in the ratio of vapor diffusion port area to ceiling area was made when the vapor diffusion port provisions were originally added to the 2021 IBC (G119-18) and the 2018 IRC (RB327-16). That error was corrected by the original proponents in the 2024 IBC (G160-21), but has not been corrected in the IRC. This proposal makes that correction. The original proponent's reason statement from G160-21 when this was corrected in the IBC indicated, "I got it wrong in my original proposal. There was an error in converting the measurements. The original work was based on 1:300 and the intention was to double the vent area. Doubling the vent area is really 1:150 not 1:600."

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal corrects an error in the code. No change in cost of construction should occur.

RB241-25

RB242-25

IRC: R807.1

Proponents: Allen Burris, Clark County Nevada, representing Southern Nevada Chapter (allen.burris@clarkcountynv.gov); Jeffrey Grove, representing Southern Nevada ICC Chapter (jeff.grove@coffman.com)

2024 International Residential Code

Revise as follows:

R807.1 Attic access. Buildings with attics shall have an access opening to attic areas that have a vertical height of 30 inches (762 mm) or greater over an area of not less than 30 square feet (2.8 m^2). The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members.

The rough-framed opening shall be not less than 22 inches by 30 inches (559 mm by 762 mm) and shall be located in a hallway or other location with *ready access*. Where located in a wall, the opening shall be not less than 22 inches wide by 30 inches high (559 mm wide by 762 mm high). Where the access is located in a ceiling, unobstructed headroom in the attic space above the access shall be not less than 30 inches (762 mm) along one side or more measured vertically from the bottom of ceiling framing members. See Section M1305.1.2 for access requirements where mechanical *equipment* is located in *attics*.

<u>**Exception:** Access openings are not required for attic spaces that do not have plumbing, mechanical, or electrical components that require access for periodic maintenance.</u>

Reason: The proposed exception in this section is to clarify that when a structure has non-contiguous attic spaces and no equipment that would require periodic maintenance, access openings are not required. This proposal would also address large porch, patio, or other outdoor living spaces that may require access per the current language due to the size of the attic area.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

$200 per access

Estimated Immediate Cost Impact Justification (methodology and variables):

The current code requires accesses that serve no purpose. Depending on the house design, this could lead to several attic accesses that would need to be installed. The cost would increase exponentially if the accesses needed to be decorative or disguised.

RB242-25

RB243-25

IRC: R807.1

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R807.1 Attic access. ~~Buildings with attics shall have an access opening to~~ attic areas with ~~that have~~ a vertical height of 30 inches (762 mm) or greater over an area of ~~not less than~~ 30 square feet (2.8 m^2) or greater shall have an access opening. The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members. Where the access is located in a ceiling, unobstructed headroom in the attic space above the access shall be not less than 30 inches (762 mm) along one side or more measured vertically from the bottom of ceiling framing members. Where located in a ceiling, the ~~The~~ rough-framed opening shall be not less than 22 inches by 30 inches (559 mm by 762 mm) and shall be located in a hallway or other location with *ready access*. Where located in a wall, the opening shall be not less than 22 inches wide by 30 inches high (559 mm wide by 762 mm high). ~~Where the access is located in a ceiling, unobstructed headroom in the attic space above the access shall be not less than 30 inches (762 mm) along one side or more measured vertically from the bottom of ceiling framing members.~~ ~~See Section M1305.1.2 for access requirements where~~ Where mechanical *equipment* is located in *attics,* the access shall comply with Section M1305.1.2.

Reason: This proposal aims only to simplify the language with no change in the intent.

Prior to the 2015 IRC this section referred to the size of attics as "exceeding 30 square feet". Proposal RB407 - 13, changed the language to the current "area of not less than 30 square feet", but that wasn't the significant reason for the overall change. I think it would be clearer to simply refer to the area as "Areas that have a vertical height of 30 inches or greater over an area of 30 square feet or greater.".

Currently this section discusses the height of the attic for when an opening is required, then the size of the ceiling opening, then the size of the wall opening, then back to the height of the attic over the ceiling opening. The last part seems out of place, so I suggest moving it up in the text.

The phrase "See Section ###" is not commonly used in the body of the IRC. "in accordance with" and "shall comply with" are the significantly common phrases. I believe "shall comply with" is more common when referencing other IRC sections.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code proposal only clarifies the current intent. There is no impact to the cost of construction.

RB243-25

RB244-25

IRC: R902.1

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Residential Code

Revise as follows:

R902.1 Roof assemblies. Roof decks shall be covered with materials as set forth in Section R904 <u>and with the applicable provisions for</u> ~~or with~~ roof coverings as set forth in Section R905. Class A, B or C roof assemblies shall be installed in *jurisdictions* designated by law as requiring their use or where the edge of the roof deck is less than 3 feet (914 mm) from a *lot line*. Where Class A, B or C roof assemblies are required, they shall be tested in accordance with ASTM E108 or UL 790. Where required, the roof assembly shall be listed and identified as to class by an approved testing agency.

Exceptions:

1. Class A *roof assemblies* include those with coverings of brick, masonry and exposed concrete *roof deck*.
2. Class A *roof assemblies* include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile, or slate installed on noncombustible roof decks.
3. Class A *roof assemblies* include minimum 16 ounces per square foot (4.882 kg/m^2) copper sheets installed over combustible roof decks.
4. Class A *roof assemblies* include slate installed over *underlayment* over combustible roof decks.

Reason: The prior cycle included changes to Section R902.1 brought forward via RB251-22 and RB252-22, which were combined to create the 2024 IRC language. As was pointed out by Aaron Phillips, of ARMA, unfortunately, a minor detail was missed, resulting in the change of "and" to "or," which is technically incorrect without further clarification. Provisions of both Sections R904 and R905 are intended to apply, as applicable. Section R904 deals with the materials in roof assemblies and Section R905 deals with the roof coverings.

Looking at section R904.1, it is clear that only the "applicable provisions" of R905 apply. Sections R904.1 and R905.1 are being shown for reference.This proposal addresses the issue.

SECTIONR904
MATERIALS

R904.1 Scope. The requirements set forth in this section shall apply to the application of roof covering materials specified herein. *Roof assemblies* shall be applied in accordance with this chapter and the manufacturer's installation instructions. Installation of *roof assemblies* shall comply with the applicable provisions of Section R905.

SECTIONR905
REQUIREMENTS FOR ROOF COVERINGS

R905.1 Roof covering application. *Roof coverings* shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. Unless otherwise specified in this section, *roof coverings* shall be installed to resist the component and cladding loads specified in Table R301.2.1(1), adjusted for height and exposure in accordance with Table R301.2.1(2).

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

clarification

RB245-25

IRC: R902.1

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R902.1 Roof assemblies. Roof decks shall be covered with materials as set forth in Section R904 <u>and</u> ~~or~~ with roof coverings as set forth in Section R905. Class A, B or C roof assemblies shall be installed in *jurisdictions* designated by law as requiring their use or where the edge of the roof deck is less than 3 feet (914 mm) from a *lot line*. Where Class A, B or C roof assemblies are required, they shall be tested in accordance with ASTM E108 or UL 790. Where required, the roof assembly shall be listed and identified as to class by an approved testing agency.

Exceptions:

4. Class A *roof assemblies* include slate installed over *underlayment* over combustible roof decks.
3. Class A *roof assemblies* include minimum 16 ounces per square foot (4.882 kg/m^2) copper sheets installed over combustible roof decks.
2. Class A *roof assemblies* include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile, or slate installed on noncombustible roof decks.
1. Class A *roof assemblies* include those with coverings of brick, masonry and exposed concrete *roof deck*.

Reason: The prior cycle included changes to Section R902.1 brought forward via RB251-22 and RB252-22, which were combined to create the 2024 IRC language. Unfortunately, a minor detail was missed, resulting in the change of "and" to "or," which is technically incorrect. The provisions of Section R904 apply in all situations. That is, materials shall be compatible with each other and the building or structure to which they are applied (R904.2), they shall conform to the applicable standards (R904.3), and they shall be identified (R904.4). Application of roof coverings is in accordance with R905, the first section of which points out that only applicable provisions of the section apply. Both R904 and R905 contains provisions which must be satisfied. Therefore, the correct conjunction in this situation is "and".

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal corrects an error made in the previous code cycle. No change in cost of construction relative to historical precedent will occur.

RB245-25

RB246-25

IRC: R902.2

Proponents: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2024 International Residential Code

Revise as follows:

R902.2 *Fire-retardant-treated* *wood* shingles and shakes. *Fire-retardant-treated wood* ~~shakes and~~ shingles and shakes shall be treated by impregnation with chemicals by the full-cell vacuum-pressure process, in accordance with AWPA C1. Each bundle shall be marked to identify the manufactured unit and the manufacturer, and shall be *labeled* to identify the classification of the material in accordance with the testing required in Section R902.1, the treating company and an *approved* agency.

Reason: Purely editorial. The most common way to designate these products is as "fire-retardant-treated wood shingles and shakes". This proposal simply uses those words both in the title and in the requirements. No change in requirements.

See below language in the IBC and the IWUIC, although some cleanup would be needed there too.

IBC: [BF] 1505.6 Fire-retardant-treated wood shingles and shakes. *Fire-retardant-treated wood* shakes and shingles shall be treated by impregnation with chemicals by the full-cell vacuum-pressure process, in accordance with AWPA C1. Each bundle shall be marked to identify the manufactured unit and the manufacturer, and shall be *labeled* to identify the classification of the material in accordance with the testing required in Section 1505.1, the treating company and the quality control agency.

IWUIC: 503.2.3 Fire-retardant-treated wood roof coverings. Roof assemblies containing fire-retardant-treated wood shingles and shakes shall comply with the requirements of Section 1505.6 of the *International Building Code* and shall be classified as Class A roof assemblies as required in Section 1505.2 of the *International Building Code*.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Change in the order of words.

RB246-25

RB247-25

IRC: R902.3

Proponents: Larry Sherwood, Sustainable Energy Action Committee, representing IREC (larry@irecusa.org); Dara Yung, representing California Solar & Storage Association (CALSSA) (dara@calssa.org); Joseph H. Cain, P.E., representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing NASFM (phil@browning.red)

2024 International Residential Code

Revise as follows:

R902.3 Building-integrated photovoltaic (BIPV) systems. *Building-integrated photovoltaic* (BIPV) *systems* installed as the *roof covering* shall be tested, *listed* and *labeled* for fire classification in accordance with UL 7103. Class A, B or C BIPV ~~products~~ systems shall be installed in jurisdictions designated by law as requiring their use or where the edge of the roof is less than 3 feet (914 mm) from a *lot line*.

Reason: Just like any other roofing systems and for rooftop mounted PV panel systems, BIPV roofing systems that have a fire classification should be required to be installed where required by law. The current requirement only applies to when the edge of the roof is less than 3 feet from a lot line.

This proposal was prepared by the Sustainable Energy Action Committee (SEAC), a forum for all stakeholders (including, but not limited to, AHJs, designers, engineers, contractors, first responders, manufacturers, suppliers, utilities, and testing labs) to collaboratively identify and find solutions for issues that affect the installation and use of solar energy systems, energy storage systems, demand response, and energy efficiency. The purpose is to facilitate the deployment and use of affordable, clean and renewable energy in a safe, efficient, and sustainable manner.
All recommendations from SEAC are approved by diverse stakeholders through a consensus process. For more information, please visit www.sustainableenergyaction.org

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal clarifies what the local laws already require.

RB247-25

RB248-25

IRC: R903.2

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Residential Code

Revise as follows:

R903.2 Flashing. Flashings shall be designed in accordance with this code and installed in accordance with the *roof covering* manufacturer's *approved* instructions in a manner that prevents moisture from entering the wall and roof through joints in copings, through moisture permeable materials and at intersections with parapet walls and other penetrations through the roof plane.

Reason: This proposed code change is intended to clarify the code's requirements regarding to roofing-related flashings by making it clear roofing-reated flashing design and installation need to be according to the roof covering manufacturer's instructions. The previous section, Section R903.1, already provides a similar requirement for the roof covering itself. Since roofing-related flashings are integral to, but not necessarily always considered a part of the roof covering ("roof covering" is specifically defined in Section 202), this added clarification is appropriate.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposed change is clarifying in nature and will not increase or decrese the cost of construction.

RB248-25

RB249-25

IRC: R903.5 (New)

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Residential Code

Add new text as follows:

R903.5 Attic and rafter ventilation. Intake and exhaust vents for ventilation of *attic* and enclosed rafter assemblies shall be provided in accordance with Sections R806 and the vent product manufacturer's installation instructions.

Exception: Unvented *attic* and unvented enclosed rafter assemblies in accordance with Section R806.5.

Reason: This code change proposal is intended to add clarity to the code by providing a new pointer in Chapter 9-Roof Assemblies to the IRC's requirements in Chapter 8-Roof-Ceiling Construction for attic ventilation and ventilation of enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters. The exception provides a direct pointer to the code's provisions for unvented attics and unvented enclosed roof framing assemblies created by ceilings that are applied directly to the underside of the roof framing.

This proposal will not have an impact on the stringency of the IRC.

Language similar to what is proposed here is already provided in IBC Chapter 15-Roof Assemblies and Rooftop Structures, Section 1503.4-Attic and Rafter Ventilation.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is editorial in nature and will not increase or decrease the cost of construction.

RB249-25

RB250-25

IRC: TABLE R905.1.1(1)

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Residential Code

Revise as follows:

TABLE R905.1.1(1) UNDERLAYMENT TYPES

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
Asphalt shingles	R905.2	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257 <u>ASTM D6757</u>
Clay and concrete tile	R905.3	ASTM D226 Type II ASTM D1970 ASTM D2626 ASTM D6380 Class M ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D8257
Metal roof shingles	R905.4	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Mineral-surfaced roll roofing	R905.5	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Slate and slate-type shingles	R905.6	ASTM D226 Type I ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Wood shingles	R905.7	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Wood shakes on solid sheathing	R905.8	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Metal panels on solid sheathing	R905.10	ASTM D226 Type I or II ASTM D4869 Type I, II III or IV	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
BIPV roof coverings	R905.15	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257 <u>ASTM D6757</u>

For SI: 1 mile per hour = 0.447 m/s.

Reason: This code change proposal adds an additional underlayment material for use in areas where wind design is required. Underlayment complying with ASTM D6757 has long been permitted for asphalt shingle roof coverings in the International Codes and is currently permitted to be used in areas where wind design is not required in the IRC. In the 2021 IRC, the underlayment requirements for areas requiring wind design were updated to be consistent with the IBHS Fortified Home requirements for a sealed roof deck (SRD). At the time, Fortified did not specifically permit the use of underlayment complying with ASTM D6757 for a SRD. Since then, Fortified has been updated and now specifically permits the use of underlayment complying with ASTM D6757 to create a SRD. Support of this proposal will align the underlayment requirements in areas requiring wind design in the IRC with the IBHS Fortified SRD and add an additional underlayment option to be used in these areas.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds an additional underlayment material for use in areas where wind design is required.

RB250-25

RB251-25

IRC: TABLE R905.1.1(1), TABLE R905.1.1(2), TABLE R905.1.1(3), R905.16.3.1, R905.16.4

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Residential Code

Revise as follows:

TABLE R905.1.1(1) UNDERLAYMENT TYPES

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
Asphalt shingles	R905.2	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Clay and concrete tile	R905.3	ASTM D226 Type II ASTM D1970 ASTM D2626 ASTM D6380 Class M ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D8257
Metal roof shingles	R905.4	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Mineral-surfaced roll roofing	R905.5	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Slate and slate-type shingles	R905.6	ASTM D226 Type I ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Wood shingles	R905.7	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Wood shakes on solid sheathing	R905.8	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Metal panels on solid sheathing	R905.10	ASTM D226 Type I or II ASTM D4869 Type I, II III or IV	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
BIPV roof coverings	R905.15 R905.16	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257

For SI: 1 mile per hour = 0.447 m/s.

TABLE R905.1.1(2) UNDERLAYMENT APPLICATION

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
Asphalt shingles	R905.2	Underlayment shall be one of the following: 1. For roof slopes from 2 units vertical in 12 units horizontal (2:12), up to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch- wide membrane strips. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Clay and concrete tile	R905.3	Underlayment shall be one of the following: 1. For roof slopes from $2^1/_2$ units vertical in 12 units horizontal ($2^1/_2$:12), up to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment felt that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortionsin the underlayment shall not interferewith the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Metal roof shingles	R905.4	Apply in accordance with the manufacturer's installation instructions.	Underlayment shall be be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.
Mineral-surfaced roll roofing	R905.5		
Slate and slate-type shingles	R905.6		
Wood shingles	R905.7		
Wood shakes	R905.8		
Metal panels	R905.10		

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
BIPV roof coverings	R905.15 R905.16	Underlayment shall be one of the following: 1. For roof slopes from 2 units vertical in 12 units horizontal (2:12), up to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.	Underlayment shall be one of the following: 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s.

TABLE R905.1.1(3) UNDERLAYMENT ATTACHMENT

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
Asphalt shingles	R905.2	Fastened sufficiently to hold in place	Mechnically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at side and end laps. Underlayment shall be attached using annular ring or deformed shank nails with 1-inch-diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.
Clay and concrete tile	R905.3		
BIPV roof covering	R905.15 R905.16		
Metal roof shingles	R905.4	Manufacturer's installation instructions.	Mechnically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at side and end laps. Underlayment shall be attached using annular ring or deformed shank nails with 1-inch-diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. **Exception:** Self-adhering polymer modified bitumen underlayment shall not be installed under wood shakes or wood shingles.
Mineral-surfaced roll roofing	R905.5		
Slate and slate-type shingles	R905.6		
Wood shingles	R905.7		
Wood shakes	R905.8		
Metal panels	R905.10		

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

Delete without substitution:

~~**R905.16.3.1 Ice barrier.** Where required, an ice barrier shall comply with Section R905.1.2.~~

Revise as follows:

R905.16.4 Ice barrier. Where required, ice barriers shall comply with Section R905.1.2. ~~In areas where there has been a history of ice forming along the eaves causing a backup of water, as designated in Table R301.2, an ice barrier that consists of not less than two layers of *underlayment* cemented together or of a self-adhering polymer-modified bitumen sheet shall be used in lieu of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the *building*.~~

~~**Exception:** Detached *accessory structures* that do not contain *conditioned floor area*.~~

Reason: This code change is simply a cleanup. It adds the appropriate section reference in the underlayment tables for BIPV roof panels that is currently missing. Additionally, it cleans up the multiple sections addressing ice barriers. There are no technical changes in this proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial.

RB251-25

RB252-25

IRC: TABLE R905.1.1(1), TABLE R905.1.1(2), TABLE R905.1.1(3)

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Residential Code

Revise as follows:

TABLE R905.1.1(1) UNDERLAYMENT TYPES

ROOF COVERING	SECTION	AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~	AREAS WITHIN HURRICANE-PRONE REGIONS ~~WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~
Asphalt shingles	R905.2	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Clay and concrete tile	R905.3	ASTM D226 Type II ASTM D1970 ASTM D2626 ASTM D6380 Class M ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D8257
Metal roof shingles	R905.4	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Mineral-surfaced roll roofing	R905.5	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Slate and slate-type shingles	R905.6	ASTM D226 Type I ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
Wood shingles	R905.7	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Wood shakes on solid sheathing	R905.8	ASTM D226 Type I or II ASTM D4869 Type I, II, III or IV	ASTM D226 Type II ASTM D4869 Type III or IV
Metal panels on solid sheathing	R905.10	ASTM D226 Type I or II ASTM D4869 Type I, II III or IV	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257
BIPV roof coverings	R905.15	ASTM D226 Type I or II ASTM D1970 ASTM D4869 Type I, II, III or IV ASTM D6757 ASTM D8257	ASTM D226 Type II ASTM D1970 ASTM D4869 Type III or IV ASTM D8257

For SI: 1 mile per hour = 0.447 m/s.

TABLE R905.1.1(2) UNDERLAYMENT APPLICATION

ROOF COVERING	SECTION	AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~	AREAS WITHIN HURRICANE-PRONE REGIONS ~~WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~

ROOF COVERING	SECTION	AREAS <u>OUTSIDE HURRICANE-PRONE REGIONS</u> ~~WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~	AREAS <u>WITHIN HURRICANE-PRONE REGIONS</u> ~~WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~
Asphalt shingles	R905.2	Underlayment shall be one of the following: 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 1. For roof slopes from 2 units vertical in 12 units horizontal (2:12), up to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.	Underlayment shall be one of the following: 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch- wide membrane strips. 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.
Clay and concrete tile	R905.3	Underlayment shall be one of the following: 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches. End laps shall be 4 inches and shall be offset by 6 feet. 1. For roof slopes from $2^1/_2$ units vertical in 12 units horizontal ($2^1/_2$:12), up to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full-width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet.	Underlayment shall be one of the following: 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment felt that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortionsin the underlayment shall not interferewith the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.
Metal roof shingles	R905.4		
Mineral-surfaced roll roofing	R905.5		
Slate and slate-type shingles	R905.6		Underlayment shall be be one of the following: 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. End laps shall be 4 inches and shall be offset by 6 feet.
Wood shingles	R905.7		
Wood shakes	R905.8		
Metal panels	R905.10	Apply in accordance with the manufacturer's installation instructions.	

ROOF COVERING	SECTION	AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~	AREAS WITHIN HURRICANE-PRONE REGIONS ~~WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~
BIPV roof coverings	R905.15	Underlayment shall be one of the following: 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. 2. For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet. 1. For roof slopes from 2 units vertical in 12 units horizontal (2:12), up to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.	Underlayment shall be one of the following: 3. A single layer of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the underlayment and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. 2. A minimum 4-inch-wide strip of self-adhering polymer modified bitumen underlayment complying with ASTM D1970, installed in accordance with the manufacturer's installation instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment complying with Table R905.1.1(1) for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide membrane strips. 1. Two layers of mechanically fastened underlayment applied in the following manner: Apply a strip of underlayment that is half the width of a full sheet parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply full width sheets of underlayment, overlapping successive sheets half the width of a full sheet plus 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s.

TABLE R905.1.1(3) UNDERLAYMENT ATTACHMENT

ROOF COVERING	SECTION	AREAS OUTSIDE HURRICANE-PRONE REGIONS ~~WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~	AREAS WITHIN HURRICANE-PRONE REGIONS ~~WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1~~
Asphalt shingles	R905.2	Fastened sufficiently to hold in place	Mechnically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at side and end laps. Underlayment shall be attached using annular ring or deformed shank nails with 1-inch-diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^{3}/_{4}$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.
Clay and concrete tile	R905.3		
BIPV roof covering	R905.15		
Metal roof shingles	R905.4	Manufacturer's installation instructions.	Mechnically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at side and end laps. Underlayment shall be attached using annular ring or deformed shank nails with 1-inch-diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^{3}/_{4}$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. **Exception:** Self-adhering polymer modified bitumen underlayment shall not be installed under wood shakes or wood shingles.
Mineral-surfaced roll roofing	R905.5		
Slate and slate-type shingles	R905.6		
Wood shingles	R905.7		
Wood shakes	R905.8		
Metal panels	R905.10		

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

Attached Files

- **Reroof SRD Cost Impact.pdf**
  https://www.cdpaccess.com/proposal/10963/34923/files/download/9050/
- **New Roof SRD Cost Impact.pdf**
  https://www.cdpaccess.com/proposal/10963/34923/files/download/9049/
- **ICWE14_ID02149.pdf**
  https://www.cdpaccess.com/proposal/10963/34923/files/download/9017/
- **Auburn_Home Innovation_WindstormDamageDataset.pdf**
  https://www.cdpaccess.com/proposal/10963/34923/files/download/9016/

Reason: This proposal expands the requirements for improved roof covering underlayment from the Wind Design Required Region to the Hurricane-prone Region. This effectively expands the secondary roof underlayment strategies recommended by the IBHS Fortified Home - Hurricane program (sealed roof deck) from areas where the design wind speed is 130 mph and greater to areas where the design wind speed is 115 mph and greater.

Damage due to water intrusion continues to be a significant problem for buildings impacted by hurricanes. Water entry can occur where it is able to infiltrate through the roof, walls, vents, windows, and/or doors, or at interfaces between these items. The roof deck, where the roof covering is lost or damaged, is particularly susceptible. Water intrusion can cause extensive damage to interior finishes, furnishings, and other contents, and can lead to ceiling collapse when attic insulation is saturated. When power is lost and/or a building cannot otherwise be dried out within 24–48 hours, additional issues such as mold can develop, potentially extending the period during which the property may not be available for use.

Tests performed by IBHS at the Research Center have consistently shown that a sealed roof deck as recommended by the IBHS Fortified Home - Hurricane program consistently show significantly reduced water intrusion rates when one of these strategies was employed. A summary of the results of the demonstration can be viewed at the following link:

http://ibhstest.wpengine.com/ibhsnews- releases/ibhs-hurricane-demonstration-illustrates-importance-of-sealed-roof-deck-3/.

The wind driven rain demonstration can be viewed at the following link:

https://disastersafety.org/thunderstorms/winddriven-rain-demo/.

These underlayment strategies required reduce water entry into the attic space by 70% or more.

This expansion is being proposed primarily for 2 reasons. The adoption of ASCE 7-22 in the 2024 IRC resulted in numerous changes to the wind design requirements including changes to the wind speed maps. While some wind speeds in the hurricane-prone region are increasing, notably, the 130 mph contour, which is the Wind Design Required Region trigger in the Hurricane-prone Region, is being reduced in many areas near the Gulf coast and North Atlantic coast. The following figures overlays the ASCE 7-22 design wind speeds for Risk Category II over the ASCE 7-16 design wind speeds for Risk Category II near the Gulf and Atlantic coasts. The areas shaded in blue indicate where the 130 mph contour has shifted more towards the coast effectively reducing wind speeds in these areas. As shown, the North Atlantic coast has been completely removed from the Wind Design Required Region. Without this proposed expansion, these areas would non longer be required to use the improved underlayment strategies.

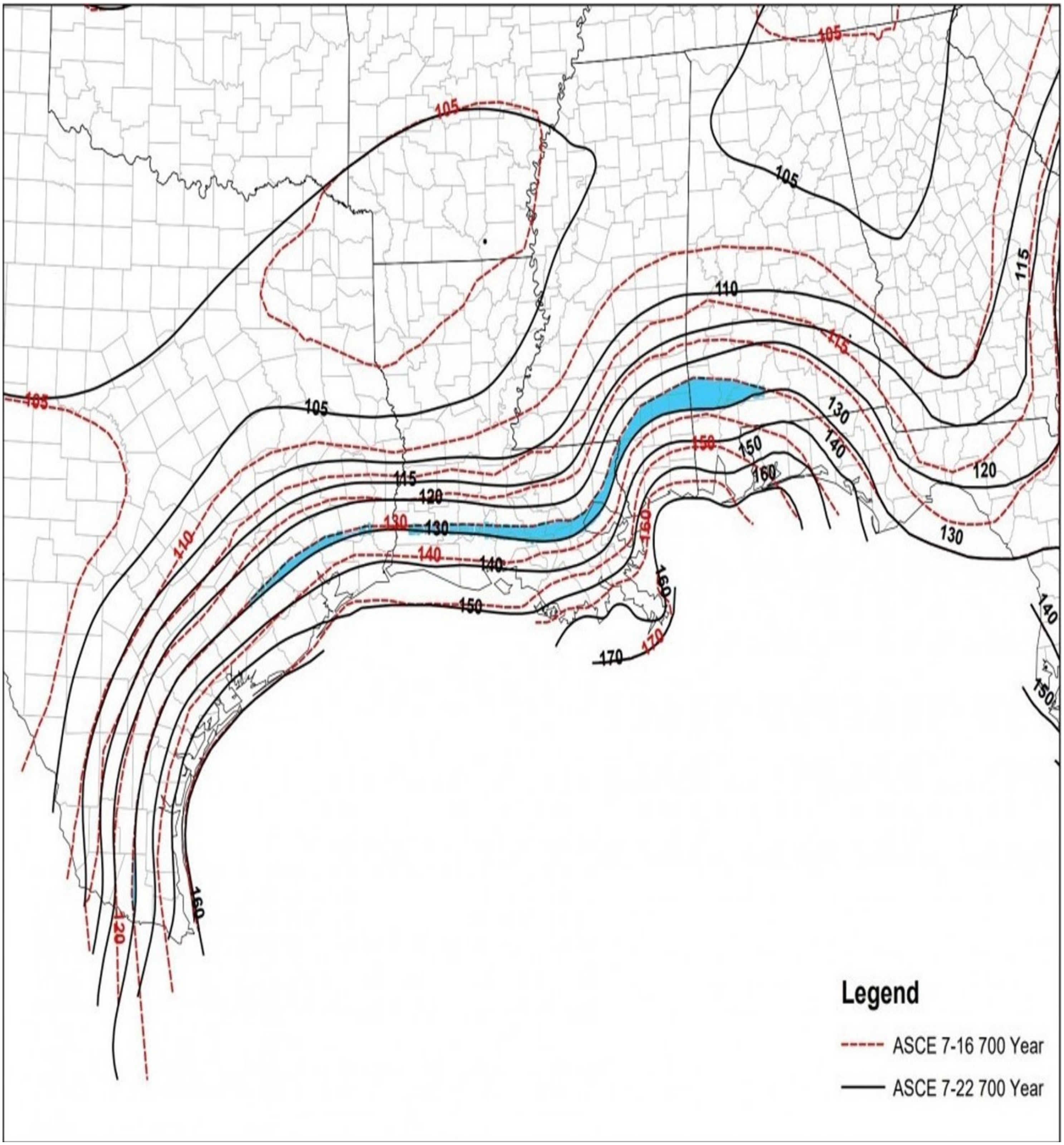


Figure 1
Loss of Wind Design Required Region in the Gulf Region Due to ASCE 7-22 Wind Speed Updates

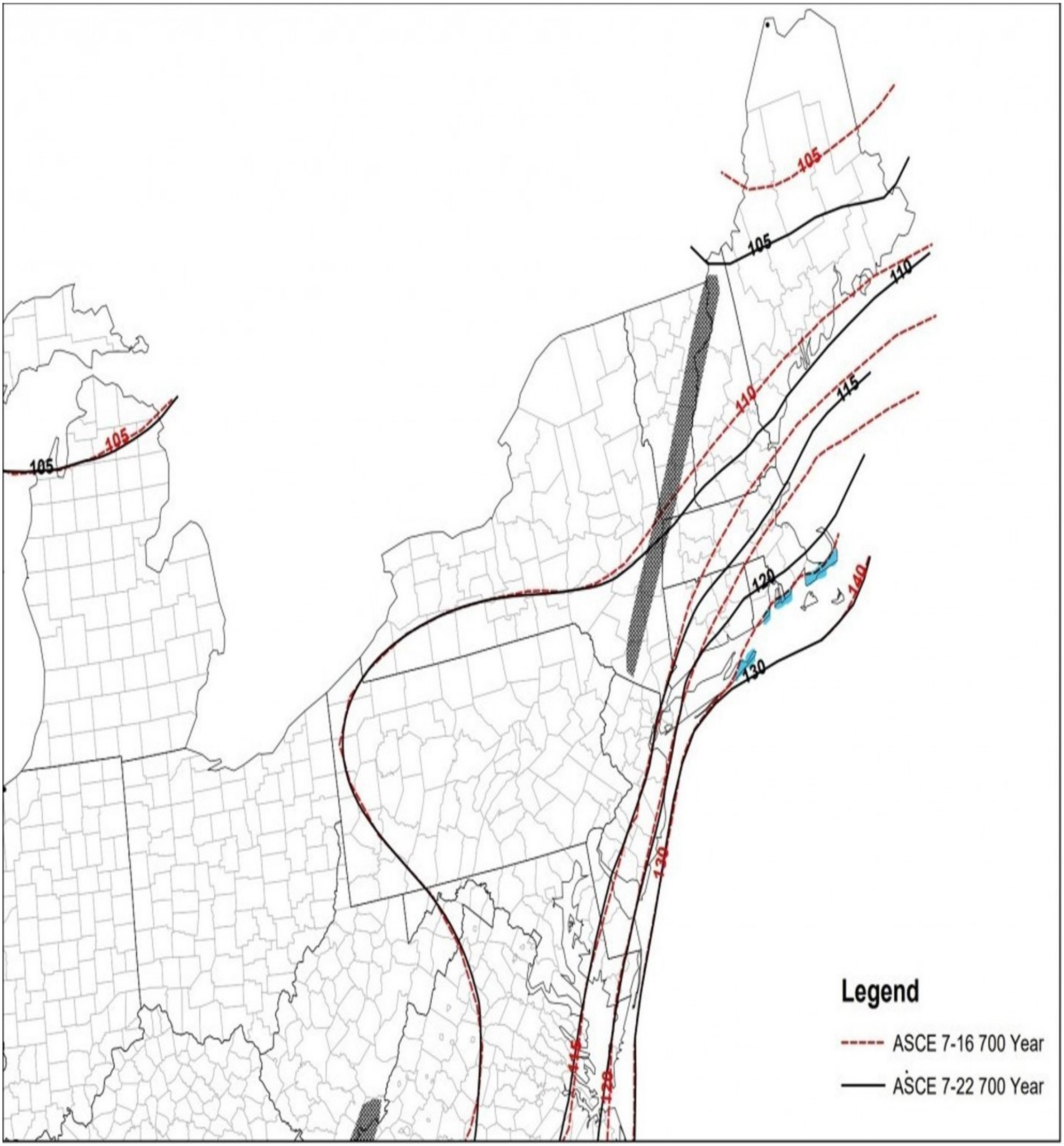


Figure 2
Loss of Wind Design Required Region in the North Atlantic Region Due to ASCE 7-22 Wind Speed Updates

Additionally, a recent report published by David Roueche with Auburn University for Home Innovation Research Labs shows that roof covering damage is by far the most common cladding damage and that even at lower wind speeds roof covering damage is frequently observed. The full report is attached to this proposal. The report is a curation of the windstorm building performance dataset collected by the StEER (Structural Extreme Events Reconnaissance) network. The dataset quantifies common wind damage patterns from recent windstorms. The following windstorm events were included in the dataset:

Joplin Tornado
Garland Tornado
Hurricane Harvey
Hurricane Irma
Hurricane Michael
Nashville/Cookeville Tornadoes
Hurricane Laura

When stratified by hazard intensity, the data shows for wind speeds between 116 mph and 140 mph the frequency of roof covering damage is near 80%. Even for wind speeds between 91 mph and 115 mph the frequency of roof covering damage is near 70%.

The report notes that "considering all hazard intensities and years of construction, 26-50% of the roof cover on a single-family home is typically damaged in an extreme windstorm."

It should also be noted that the 7th Edition (2020) and the 8th Edition (2023) Florida Building Code adopted these underlayment strategies for the entire state. For Risk Category II buildings, design wind speeds in the state of Florida range from approximately 115 mph to 180 mph.
Installing a sealed roof deck is the most cost effective method for reducing water intrusion through the roof deck where the primary roof covering has been damaged or lost.

Bibliography: Brown, T.M., Quarles, S.L., Giammanco, I.M., Brown, R., Insurance Institute for Business and Home Safety, "Building Vulnerability to Wind-Driven Rain Entry and Effectiveness of Mitigation Techniques." 14th International Conference on Wind Engineering (ICWE).

Roueche, D.B., Nakayama, J., Department of Civil Engineering, Auburn University Ginn Colege of Engineering, "Quantification of Common Wind Damage Patterns in Recent Windstorms." May 202

Cost Impact: Increase

Estimated Immediate Cost Impact:

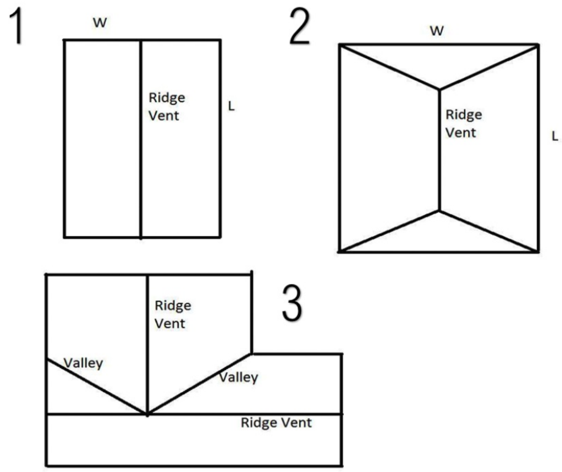
For our cost impact estimates, we used Xactimate which is a construction cost estimating software program. Select markets that would be affected by this code change were analyzed in all the hurricane-prone states.

Two sealed roof deck options were analyzed –

Option 1: Installing 4-inch-wide strips of self-adhering polymer modified bitumen over all joints in the roof deck and covering the strips with a 30# (ASTM D226 Type II, ASTM D4869 Type III or IV) felt underlayment and fastened as specified in the code.

Option 2: Installing a self-adhering polymer modified bitumen underlayment over the entire roof deck.

Three roof configurations were analyzed – 3 gable, 2 gable, and hip. Additionally, we estimated the cost impacts for large roofs (2800 square feet to 3016 square feet) and small roofs (1575 square feet to 1696 square feet). Estimated costs were developed for an asphalt shingle roof.



A copy of the Xactimate report for this analysis is attached to this code change.

The cost for either option varies according to the markets analyzed but are within close ranges.

Option 1 – (taped joints with 30# underlayment over the taped joints)

For large roofs the increased cost for Option 1 ranges from a low of $917.32 in Dothan, AL to a high of $1714.83 on Long Island, NY. For new construction, these costs represent increases of 9.5% and 9.1% respectively of the total cost of the roof (roof covering, underlayment, ventilation components, etc). For reroofing, these costs represent increases of 8.1% and 7.6% respectively of the total cost of the reroofing job.

For small roofs the increased cost for Option 1 ranges from a low of $512.29 in Dothan, AL to a high of $959.66 on Long Island, NY. For new construction, these costs represent increases of 8.9% and 8.3% respectively of the total cost of the roof (roof covering, underlayment, ventilation components, etc). For reroofing, these costs represent increases of 7.6% and 7.6% respectively of the total cost of the reroofing job.

Option 2 – (self-adhering polymer modified bitumen underlayment over the entire roof deck)

For large roofs the increased cost for Option 2 ranges from a low of $1428.39 in Florence, SC to a high of $1909.49 in Stamford, CT. For new construction, these costs represent increases of 13.4% and 10.4% respectively of the total cost of the roof (roof covering, underlayment, ventilation components, etc). For reroofing, these costs represent increases of 11.5% and 8.9% of the total cost of the reroofing job.

For small roofs the increased cost for Option 2 ranges from a low of $793.41 in Dover, DE to a high of $1065.74 in Stamford, CT. For new construction, these costs represent increases of 9.3% and 9.5% respectively of the total cost of the roof (roof covering, underlayment, ventilation components, etc). For reroofing, these costs represent increases of 8.2% and 8.2% respectively of the total cost of the reroofing job.

Estimated Immediate Cost Impact Justification (methodology and variables):

Xactimate, which is a construction cost estimating software program, was used to analyze the cost impacts of this proposal.

RB252-25

RB253-25

IRC: TABLE R905.1.1(3)

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Residential Code

Revise as follows:

TABLE R905.1.1(3) UNDERLAYMENT ATTACHMENT

Portions of table not shown remain unchanged.

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
Asphalt shingles	R905.2	Fastened sufficiently to hold in place	Mechnically fastened underlayment shall be fastened at 6 inches on center 3 inches from the eave and 6 inches on center at all side and end laps. ~~with corrosion-resistant fasteners~~ Underlayment shall be fastened in a grid pattern of not greater than 12 inches on center horizontally and vertically between side laps ~~with a 6-inch spacing at side and end laps~~. Underlayment shall be attached using corrosion-resistant annular ring or deformed shank nails with 1-inch-diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.
Clay and concrete tile	R905.3		
BIPV roof covering	R905.15		
Metal roof shingles	R905.4	Manufacturer's installation instructions.	Mechnically fastened underlayment shall be fastened at 6 inches on center 3 inches from the eave and 6 inches on center at all side and end laps. ~~with corrosion-resistant fasteners~~ Underlayment shall be fastened in a grid pattern of not greater than 12 inches on center horizontally and vertically between side laps ~~with a 6-inch spacing at side and end laps~~. Underlayment shall be attached using corrosion-resistant annular ring or deformed shank nails with 1-inch-diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^3/_4$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. **Exception:** Self-adhering polymer modified bitumen underlayment shall not be installed under wood shakes or wood shingles.
Mineral-surfaced roll roofing	R905.5		
Slate and slate-type shingles	R905.6		
Wood shingles	R905.7		
Wood shakes	R905.8		
Metal panels	R905.10		

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

Reason: This code change proposal intends to clarify fastening requirements for underlayment at eave locations in areas prone to high winds and hurricanes. The code currently requires corrosion-resistant fasteners in a grid pattern no greater than 12 inches horizontally and vertically, with a 6-inch spacing at side and end laps. However, it does not specifically state how to properly fasten the underlayment at the eave edge, where wind pressures can be significantly higher than on the roof field.

The roof underlayment methods required in high wind areas (V ≥ 130 mph in hurricane-prone regions, and V ≥ 140 mph outside hurricane-prone regions) are intended to provide a secondary barrier against water infiltration through the roof deck if the primary roofing material fails. Given its importance, properly securing underlayment is vital to this function For many roof configurations, wind pressures are highest along the eave edge, particularly the eave edge corners, due to the wind's interaction with the roof structure.

Considering that underlayment is installed shingle fashion, inadequate fastening at the edge can lead to underlayment failure at the eave during high-wind events, potentially causing a cascading failure across other rows of underlayment and compromise the entire underlayment system. This proposal addresses this vulnerability by specifically requiring the first course of underlayment to be fastened at 6 inches on center 3 inches from the eave edge.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is primarily a clarification and is not expected to add any meaningful cost to construction.

RB254-25

IRC: TABLE R905.1.1(3)

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Residential Code

Revise as follows:

TABLE R905.1.1(3) UNDERLAYMENT ATTACHMENT

Portions of table not shown remain unchanged.

ROOF COVERING	SECTION	AREAS WHERE WIND DESIGN IS NOT REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1	AREAS WHERE WIND DESIGN IS REQUIRED IN ACCORDANCE WITH FIGURE R301.2.1.1
Asphalt shingles	R905.2	~~Fastened sufficiently to hold in place~~ Apply in accordance with the manufacturer's installation instructions.	Mechnically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at side and end laps. Underlayment shall be attached using annular ring or deformed shank nails with 1-inch-diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^{3}/_{4}$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration, and climate exposure of the roof covering.
Clay and concrete tile	R905.3		
BIPV roof covering	R905.15		
Metal roof shingles	R905.4		
Mineral-surfaced roll roofing	R905.5	~~Manufacturer's installation instructions.~~ Apply in accordance with the manufacturer's installation instructions.	Mechnically fastened underlayment shall be fastened with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at side and end laps. Underlayment shall be attached using annular ring or deformed shank nails with 1-inch-diameter metal or plastic caps. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch. The cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than $^{3}/_{4}$ inch into the roof sheathing. Self-adhering polymer modified bitumen underlayment shall be installed in accordance with the underlayment and roof covering manufacturers' installation instructions for the deck material, roof ventilation configuration and climate exposure of the roof covering. **Exception:** Self-adhering polymer modified bitumen underlayment shall not be installed under wood shakes or wood shingles.
Slate and slate-type shingles	R905.6		
Wood shingles	R905.7		
Wood shakes	R905.8		
Metal panels	R905.10		

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

Reason: This code change proposal is intended to add clarity to the code by consistently addressing underlayment attachment where conventional underlayment attchment applies--that is, areas where wind design is not required. Section R905.1 already requires installation in accordance with the manufacturer's instalaltion instructions. The current notations in Table R905.1.1(3)-Underlayment Attachment differ from that slightly. These are made consistent with this code change proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal is clarifying in nature and does not change the code's technical requirements or stringency. As a result, there is no increase or decrease in the cost of construction.

RB254-25

RB255-25

IRC: R905.1.1.1 (New)

Proponents: T. Eric Stafford, representing representing Federal Emergency Management Agency (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Residential Code

Add new text as follows:

R905.1.1.1 Underlayment installation at hips and ridges. *Underlayment* shall lap over hips and ridges a minimum of 6 inches.

Exception: Hips and ridges where ventilation openings in accordance with Section R806 are provided.

Reason: This proposal seeks to provide an additional level of water intrusion protection for minimal effort in the event part of the roof covering is blown off. If approved, this proposal will align the code with IBHS's FORTIFIED Roof™ designation regarding underlayment application at hips and ridges. The FORTIFIED Home™ program was developed to reduce avoidable suffering and financial loss caused by hurricanes, high winds, and hail. The program requirements provide a systems-based, multi tiered approach for improving the resistance of homes and their contents to damage caused by wind, wind-driven rain, and hail. There are three designation levels—FORTIFIED Roof™, FORTIFIED Silver™, and FORTIFIED Gold™—that build on each other and address different systems of the home.

Roof covering damage is typically the most observed damage in post-windstorm investigations. This has been observed in damage investigations by IBHS and FEMA Mitigation Assessment Team (MAT) deployments. While widespread roof covering damage was observed and documented in the Hurricane Ian MAT report, the report noted that the failure of hip and ridge roof coverings was the most common damage observed for all roof covering types. The following paragraph is an excerpt from Section 4.2.4 in the FEMA Hurricane Ian MAT Report (https://www.fema.gov/sites/default/files/documents/fema_rm-hurriance-ian-mat-report-12-2023.pdf):

“Although roof covering damage was widespread at all sites visited by the MAT, the degree of roof covering damage varied across the sites. The most common damage observed by the MAT for all roof coverings was displacement of hip and ridge roof coverings.”

The FEMA Hurricane Michael in Florida MAT Report (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf) also noted that the failure of hip and ridge asphalt shingles was prevalent (see Section 4.2.1.1).

Figure 4-11 (see below) from the FEMA Hurricane Ian in Florida MAT Report shows typical examples of hip and ridge failures observed in Hurricane Ian.

Figure 4-11: Hip and ridge damage on four residences with different roof types: a tile roof (top left), asphalt shingle roof (top right), metal panel roof (bottom left), and cedar shake roof (bottom right)

When hip and ridge roof coverings are blown off, the interior of the building is at risk of water intrusion due to gaps in the roof framing and decking. This water intrusion can result in costly damage to interior contents and furnishings. The observations from the FEMA Hurricane Ian in Florida MAT led to the report recommending the following in Recommendation FL-10c:

FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, ARMA, NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require a minimum of 6 inches overlap of the roof underlayment to hip and ridges that do not have ventilation components. Wrapping underlayment over hips and ridges that don't have ventilation components will improve the roof's resistance to water intrusion in the event the hip and ridge coverings are damaged or blown off.

This proposal, if approved, would implement this recommendation by requiring roof underlayment to be lapped over hips and ridges a minimum of 6 inches from both sides and would also be consistent with IBHS requirements for a Fortified Roof designation. An exception to this required lapping is provided for hips and ridges that have ventilation components. According to discussions with the Asphalt Roofing Manufacturer's Association (ARMA), many of its members already recommend this practice in their installation instructions. This proposal would codify this requirement for asphalt shingles and expand this practice to all roof covering types

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is not expected to create an increase in construction costs because it is a common practice for many roof coverings and the cost to extend underlayment at hips and ridges for the required 6" lap is negligible.

RB255-25

RB256-25

IRC: R905.1.2, R905.16.4

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R905.1.2 Ice barriers. In areas where there has been a history of ice forming along the eaves causing a backup of water as designated in Table R301.2, an ice barrier shall be installed where required for the type of roof covering installed. ~~for asphalt shingles, *metal roof shingles*, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles and wood shakes.~~ The ice barrier shall consist of not fewer than two layers of *underlayment* cemented together, or a self-adhering polymer-modified bitumen sheet shall be used in place of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the *building*.

On roofs with slope equal to or greater than 8 units vertical in 12 units horizontal (67-percent slope), the ice barrier shall be applied not less than 36 inches (914 mm) measured along the roof slope from the eave edge of the *building*.

Exception: Detached *accessory structures* not containing *conditioned floor area*.

Delete without substitution:

~~**R905.16.4 Ice barrier.** In areas where there has been a history of ice forming along the eaves causing a backup of water, as designated in Table R301.2, an ice barrier that consists of not less than two layers of *underlayment* cemented together or of a self-adhering polymer-modified bitumen sheet shall be used in lieu of normal *underlayment* and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the *building*.~~

~~**Exception:** Detached *accessory structures* that do not contain *conditioned floor area*.~~

Reason: In the 2015 IRC, individual sections describing ice barrier installations were deleted and replaced with references to a "general" section for ice barriers, now found in Section R905.1.2 of the 2024 IRC. However, a "laundry list" of types of roof covering that may require ice barriers was included in the language of the "general" section. In the 2018 IRC, a new subsection was added for a new roof covering, BIPV panels. This inclusion ended up with both a reference to the "general" Ice barrier section followed by subsection about ice barriers under the specific roofing type, as was last seen in the format of the 2012 IRC.

This proposal achieves two goals of better presentation of the same information.

1) it eliminates the laundry list of roofing types under the general section about ice barriers. This is not necessary, as each subsection for each roof covering type has it's own reference to this section. If additional subsections for new roofing types are added in the future, the "general" ice barrier section will not need to be modified to add the new type to the "list". This is what happened when BIPV panels were added but never added to the "list" in the general ice barrier section.

2) It eliminates the unnecessary duplicity in Section R905.16 for BIPV panels where both a reference to the general section is provided, followed by a specific section of the same subject.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is for better interpretation of the existing intent and purpose and thus has no impact on the cost of construction.

RB256-25

RB257-25

IRC: R905.7.1.1, R905.8.1.1

Proponents: Nav Koonar, representing Cedar Shake and Shingle Bureau, Director of Operations (nav.koonar@cedarbureau.org); David Roodvoets, DLR Consultants, representing Cedar Shake and Shingle Bureau (davelee@ix.netcom.com)

2024 International Residential Code

Revise as follows:

R905.7.1.1 Solid sheathing required. ~~In areas where the average daily temperature in January is 25°F (-4°C) or less,~~ *Wood structural panels* or solid lumber sheathing shall be required on that portion of the roof deck requiring the application of an ice barrier.

R905.8.1.1 Solid sheathing required. ~~In areas where the average daily temperature in January is 25°F (-4°C) or less,~~ *Wood structural panels* or solid lumber sheathing shall be required on that portion of the roof deck requiring an ice barrier.

Reason: The IRC wood shingle and wood shake sections in this proposal contain a trigger for ice barrier provisions (i.e., average daily temperature in January is 25°F or less) which conflicts with the ice barrier trigger in R905.1.2. This proposal resolves the conflict by removing the trigger from R905.7.1.1 and R905.8.1.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Editorial

RB257-25

RB258-25

IRC: R905.7.6

Proponents: Nav Koonar, representing Cedar Shake and Shingle Bureau, Director of Operations (nav.koonar@cedarbureau.org); David Roodvoets, DLR Consultants, representing Cedar Shake and Shingle Bureau (davelee@ix.netcom.com)

2024 International Residential Code

Revise as follows:

R905.7.6 Application. Wood shingles shall be installed in accordance with this chapter and the manufacturer's instructions. Wood shingles shall be laid with a side lap not less than 1$^{1}/_{2}$ inches (38 mm) between joints in courses, and two joints shall not be in direct alignment in any three adjacent courses. Spacing between shingles shall be not less than $^{1}/_{4}$ inch to $^{3}/_{8}$ inch (6.4 mm to 9.5 mm). Weather exposure for wood shingles shall not exceed those set in Table R905.7.6(1). Fasteners for untreated (naturally durable) wood shingles shall be box nails in accordance with Table R905.7.6(2). Nails shall be stainless steel Type 304 or 316 or hot-dipped galvanized <u>after fabrication</u> with a coating weight of ASTM A153 Class D or ASTM A641 Class 3S (1.0 oz/ft^{2}). Alternatively, two 16-gage stainless steel Type 304 or 316 staples with crown widths $^{7}/_{16}$ inch (11.1 mm) minimum, $^{3}/_{4}$ inch (19.1 mm) maximum, shall be used. Fasteners installed within 15 miles (24 km) of saltwater coastal areas shall be stainless steel Type 316. Fasteners for fire-retardant-treated shingles in accordance with Section R902 or pressure-impregnated-preservative-treated shingles of *naturally durable wood* in accordance with AWPA U1 shall be stainless steel Type 316. Fasteners shall have a minimum penetration into the sheathing of $^{3}/_{4}$ inch (19.1 mm). For sheathing less than $^{3}/_{4}$ inch in (19.1 mm) thickness, each fastener shall penetrate through the sheathing. Wood shingles shall be attached to the roof with two fasteners per shingle, positioned in accordance with the manufacturer's installation instructions. Fastener packaging shall bear a *label* indicating the appropriate grade material or coating weight.

Reason: After Fabrication more clearly specifies the product that shall be used in installing cedar shingles. Fasteners that are hot dipped prior to fabrication are subject to corrosion at their tips and heads due to the impact of fabrication eliminating some of the galvanizing and exposing bare carbon steel.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The post fabrication hot dipped galvanized fastener has been the traditional product used to install cedar shingles. Recently products that use hot dipped coils of wire are used to form the fasteners. These pre hot dipped fasteners are more subject to premature failure due to corrosion.

RB258-25

RB259-25

IRC: R905.8.7

Proponents: Nav Koonar, representing Cedar Shake and Shingle Bureau, Director of Operations (nav.koonar@cedarbureau.org); David Roodvoets, DLR Consultants, representing Cedar Shake and Shingle Bureau (davelee@ix.netcom.com)

2024 International Residential Code

Revise as follows:

R905.8.7 Application. Wood shakes shall be installed in accordance with this chapter and the manufacturer's installation instructions. Wood shakes shall be laid with a side lap not less than $1^1/_2$ inches (38 mm) between joints in adjacent courses. Spacing between shakes in the same course shall be $^3/_8$ inch to $^5/_8$ inch (9.5 mm to 15.9 mm) including tapersawn shakes. Weather exposures for wood shakes shall not exceed those set in Table R905.8.7. Fasteners for untreated (naturally durable) wood shakes shall be box nails in accordance with Table R905.7.6(2). Nails shall be stainless steel Type 304, or Type 316 or hot-dipped <u>after fabrication</u> with a coating weight of ASTM A153 Class D or ASTM A641 Class 3S (1.0 oz/ft^2). Alternatively, two 16-gage Type 304 or Type 316 stainless steel staples, with crown widths $^7/_{16}$ inch (11.1 mm) minimum, $^3/_4$ inch (19.1 mm) maximum, shall be used. Fasteners installed within 15 miles (24 km) of saltwater coastal areas shall be stainless steel Type 316. Wood shakes shall be attached to the roof with two fasteners per shake positioned in accordance with the manufacturer's installation instructions. Fasteners for fire-retardant-treated (as defined in Section R902) shakes or pressure-impregnated-preservative-treated shakes of *naturally durable wood* in accordance with AWPA U1 shall be stainless steel Type 316. Fasteners shall have a minimum penetration into the sheathing of $^3/_4$ inch (19.1 mm). Where the sheathing is less than $^3/_4$ inch (19.1 mm) thick, each fastener shall penetrate through the sheathing. Fastener packaging shall bear a *label* indicating the appropriate grade material or coating weight.

Reason: After Fabrication more clearly specifies the product that shall be used in installing cedar shakes. Fasteners that are hot dipped prior to fabrication are subject to corrosion at their tips and heads due to the impact of fabrication eliminating some of the galvanizing and exposing bare carbon steel.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The hot dipped after fabrication is the traditional method for galvanizing fastener used for cedar shakes. This wording more clearly defines the product traditionally used. Fasteners that are hot dipped after fabrication are more corrosion resistant than fasteners that are fabricated after the hot dipped galvanization is applied.

RB259-25

RB260-25

IRC: R905.10.5, R905.10.5.1 (New), R905.10.5.1.1 (New), R905.10.5.1.2 (New), R905.10.5.1.2.1 (New), R905.10.5.1.2.2 (New), MCA (New)

Proponents: Robert A. Zabcik, Z-tech Consulting LLC, representing Metal Construction Association (bob@ztech-consulting.com)

2024 International Residential Code

Revise as follows:

R905.10.5 Wind resistance of metal roof panels. *Metal roof panels* shall be installed to resist the component and cladding loads specified in Table R301.2.1(1), adjusted for height and exposure in accordance with Table R301.2.1(2). *Metal roof panels* applied to a solid or closely fitted deck shall be tested for wind resistance in accordance with Section R905.10.5.1~~FM 4474, UL 580, or UL 1897~~. Structural standing seam metal panel roof systems shall be tested for wind resistance in accordance with ASTM E1592 or FM 4474. Structural through-fastened metal panel roof systems shall be tested for wind resistance in accordance with ASTM E1592, FM 4474 or UL 580.

Exceptions:

1. Metal roofs constructed of cold-formed steel shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2208.1 of the *International Building Code*.
2. Metal roofs constructed of aluminum shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2002.1 of the *International Building Code*.

Add new text as follows:

R905.10.5.1 Metal roof panel systems over deck. *Metal roof panel* systems applied to a solid or closely fitted deck shall be tested in accordance with this section. Wind resistance shall be taken as the average result from a minimum of two tests. A minimum 2 to 1 margin of safety shall apply for allowable stress design and a strength reduction factor of no more than 0.7 shall apply for load and resistance factor design.

R905.10.5.1.1 Non-Hurricane-prone regions. *Metal roof panels* in non-*hurricane-prone* regions shall be tested in accordance with FM 4474, UL 580 or Part I of UL 1897.

R905.10.5.1.2 Hurricane-prone regions. *Metal roof panels* and edge systems in *hurricane-prone regions* shall be tested in accordance with Section R905.10.5.1.2.1 and R905.10.5.1.2.2

R905.10.5.1.2.1 Metal roof panels. *Metal roof panels* shall be tested in accordance with FM 4474 or UL 580. When UL 580 is used and wind resistance in excess of that provided by Class 90 is required for design, UL 1897 Part I shall be used to determine wind load resistance as follows:

1. The positive pressure applied below the assembly shall be held at 48.5 psf (240 kPa) throughout the test.
2. The negative pressure applied above the assembly shall be 63.5 psf (310 kPa) initially and increased in intervals of 15 psf (75 kPa). Each interval shall be held for at least one minute.
3. The wind resistance shall be taken as the average of the highest completed interval of no fewer than two samples subsequent to completing Phase 5 of the Class 90 test sequence of UL 580.

R905.10.5.1.2.2 Metal Edge Systems. Metal hip, ridge and edge systems, excluding gutters, shall be tested for uplift resistance in accordance with ANSI/MCA FTS-1.

MCA

Metal Construction Association
1061 American Lane Suite 310
Schaumburg, IL 60173

ANSI/MCA FTS-1 2019 Test Method for Wind Load Resistance of Flashings Used with Metal Roof Systems

Reason: The purpose of this proposal is to clarify existing and add new requirements to determination of wind load resistance values of metal roof panel assemblies over solid or closely fitted deck, especially in hurricane-prone regions. These changes are consistent with the recommendations of FEMA P-2342 and also align with the Florida Building Code (FBC) Test Application Standard TAS-125, which is widely used in the metal roofing industry and is considered the best testing practice of these systems. However, it does NOT require any third-party listing like FBC. The technical changes fall into four general areas and are discussed in detail as shown below:

1. Stipulations for the required number of tests and applicable margin of safety for allowable stress design
2. Providing a strength reduction coefficient (a.k.a. phi factor) needed for the application of load and resistance factor design.
3. Introduction of new test requirements for edge, hip and roof systems to address issues observed by FEMA in their Hurricane Ian investigation.
4. Provide a test methodology consistent with TAS-125, addressing limitations of UL 580, which terminates at 105 psf instead of progressing to failure.

Items 1 and 2

Item 1 is self-explanatory. The proposed margin of safety of 2.0 is consistent with TAS-123 and Industry practice. Item 2 is similar to Item 1 and is needed because ASCE 7, the cited load standard in Chapter 16 if IBC, has been positioning to remove allowable stress design provisions for some time and it seems that load and resistance factor design is the future. The proposed value for the strength reduction coefficient comes from AISI S100 Section K2.1.1 to align with a margin of safety of 2. These items apply in both hurricane prone and non-hurricane prone regions.

Item 3

Item 3 only applies within hurricane-prone regions, as defined by IBC and adds requirements for testing of ridge, hip and edge metal systems similar to those currently in place for low-slope built-up, modified bitumen and single-ply roof systems in Section 1504.6. It is being put forth to address issues observed by the Roofing Industry Committee on Weather Issues (RICOWI) through their Windstorm Investigation Program (WIP) as well as FEMA's Hurricane Ian investigation. The test standard cited, ANSI/MCA FTS-1-2019, was developed by MCA through the Single Ply Roofing Institute's (SPRI) ANSI-accredited canvassing process. The RICOWI and FEMA WIP field studies revealed instances where metal ridge, hip and/or edge system were torn from the perimeter of a building with a metal roof, exposing a longer leading edge of the incorporated roof panel and initiating a partial failure of the roof system, particularly near the corners and gable edges of the roof. Although the damage was very localized, it did allow water to enter the building and in cases, the edge metal became a wind-borne debris threat. Most commonly, this occurred in two situations:

- Where a multi-piece edge trim assembly incorporating cleats deformed enough to disengage from the cleat.
- Where the metal edge trim assembly was fastened to a non-metal substrate such as wood or masonry, leaving to question the appropriateness of the fastener used since it would often not be provided by the edge system manufacturer for non-metal substrates.

The figures in the attachment depict these conditions. These tendencies were also observed by FEMA in their Mitigation Assessment Team Report for Hurricane Ian. (https://tinyurl.com/mmrstxju) Section 6.3 of this report includes Conclusion FL-10, recommending that FEMA support industry stakeholders in supporting code change proposals to requiring testing of hip and ridge roof coverings. (FEMA P-2342, Page 6-9 see excerpt)

Item 4

Item 4 also only applies in hurricane-prone regions and clarifies application of UL 580 and UL 1897 to determine appropriate wind load resistance values as represented by common industry practice and in a manner consistent with FBC TAS-125. UL 580 and 1897 are very different tests. UL 1897 utilizes steady-state load sequencing progressing until system failure and often takes less than 20 minutes to complete. However, UL 580 is designed to evaluate overall system integrity using a cyclic load sequence and yields a performance rating (Classification) from a fixed set of options. UL 580 involves two separate hour-long periods of cyclic loading and is generally considered the more rigorous test, but the test standard does not allow for additional testing to failure once the highest classification (Class 90) is achieved. Class 90 provides a net uplift value of 105 psf, which equates to a safe working load of 52.5 psf. With the current version of ASCE 7 Chapter 30, this result is not useful in the extreme edge or corner zones of roofs in hurricane-prone regions of the US.

This issue is addressed by the proposed additions, which are based on the Florida Test Application Standard TAS-125. This standard uses UL 580 as a base qualification test but then allows the metal roof panel manufacturer to perform additional testing using a modified UL 1897 sequence until failure is observed. This process is repeated at least once more and a margin of safety of two is applied to the average result for the purposes of allowable stress design. This qualifies the panel for wind load resistance higher than the 105 psf net load given by Class 90 of UL 580 and ensures repeatability. Although TAS-125 listing is only a requirement in the High Velocity Hurricane Zone as defined by the Florida Building Code, the underlying methodology has become the de-facto way to derive allowable design loads within the metal roofing industry for all locales.

MCA

This proposal is being brought forward by The Metal Construction Association. (MCA) Founded in 1983, the MCA is a 501(c)(6) organization promoting the use of metal in the building envelope by bringing together manufacturers and suppliers of metal products used in structures throughout the world to collaborate on marketing, education and advocacy. For more information, see the MCA website at www.metalconstruction.org.

- **Figures and Excerpt for Proposal 11124.pdf**
  https://www.cdpaccess.com/proposal/11124/35663/documentation/184882/attachments/download/9762/

Bibliography:

1. American Iron and Steel Institute (AISI); North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 Version (AISI S-100 2016), Reaffirmed 2020.
2. Federal Emergency Management Association (FEMA); Mitigation Assess Team Report Hurricane Ian in Florida; FEMA P-2342, December 2023; Page 6-9.
3. Roofing Industry Committee on Weather Issues (RICOWI); Wind Investigation Report: Hurricane Ian; September 2023; Pages 87-90.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The increase over the total building cost is $38/50,000, or 0.8%. This change would increase the cost of construction indirectly as the cost of the testing would presumably be passed to the consumer for those products to be approved for use in hurricane-prone regions of the US. However, the impact is miniscule, conservatively estimated as less than 0.5% of initial building cost. This estimate ignores the benefit of any lowered operating costs, such as insurance, as well as any benefit over time, such as longer asset life.

Estimated Immediate Cost Impact Justification (methodology and variables):

ANSI/MCA FTS-1 testing is estimated to be $1,500/test and most manufacturers carry 4-8 styles of edge metal systems different enough to test separately. Thus, total cost is estimated to be $36,000. Similarly, additional UL 580/1897 testing required for wind resistance of the panel system is estimated as $2,500 per test over a product line of 8 profiles for $40,000. This is a total of $76,000 to carry both. If this cost is accrued over the life of the product lines, assumed to be at least 2,000 buildings, it results in a nominal increase of at most $38 per building. A typical building of this construction is 2,500 square feet of roof area at $6/square foot and 300 lineal feet of edge/hip/ridge materials valued at $5/lineal foot, this represents a total cost of $16,500 installed. At a total cost of $20/square foot, the building would be $50,000, making the roof 33% of the total cost, which is consistent with industry estimation practices. The increase over the total building cost is $38/50,000, or 0.8%.

Note: Cost estimates are based on general experience of industry stakeholders and are not available publicly due to antitrust restrictions.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ANSI/MCA FTS-1 2019   Test Method for Wind Load Resistance of Flashings Used with Metal Roof Systems

RB260-25

RB261-25

IRC: TABLE R906.2, ASTM Chapter 44

Proponents: Marcin Pazera, representing Polyisocyanurate Insulation Manufacturers Association (mpazera@pima.org); Richard Justin Koscher, representing Polyisocyanurate Insulation Manufacturers Association (jkoscher@pima.org)

2024 International Residential Code

Revise as follows:

TABLE R906.2 MATERIAL STANDARDS FOR ROOF INSULATION

MATERIAL	STANDARD
Cellular glass board	ASTM C552 **or ASTM C1902**
Composite polyisocyanurate boards	ASTM C1289, Type III, IV, V or VI
Expanded polystyrene	ASTM C578
Extruded polystyrene board	ASTM C578
Fiber-reinforced gypsum board	ASTM C1278
Glass-faced gypsum board	ASTM C1177
High-density polyisocyanurate board	ASTM C1289, Type II, Class 4 or 5
Mineral wool board	ASTM C726
Perlite board	ASTM C728
Polyisocyanurate board	ASTM C1289, Type I or II
Wood fiberboard	ASTM C208

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428

C1289—~~22~~25 Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board

Reason: The proposed code change includes several changes to Table 1508.2 that lists material standards for roof insulation. The high-density polyisocyanurate board is added to Table R906.2. Type II, Class 4 high-density polyisocyanurate board are already recognized and have been included in the International Building Code (IBC) Table 1508.2 but have not been added to the International Residential Code (IRC). This aligns the requirements in the IRC with the IBC. A new class (Type II, Class 5) of high-density polyisocyanurate board is added to reflect the change in the ASTM C1289 standard. The Type II, Class 5 high-density polyisocyanurate board has glass fiber-reinforced cellulosic facer, and has been recently added to the ASTM C1289 standard along with general requirements for physical properties. The addition of requirements to ASTM C1289 for Type II, Class 5 high-density polyisocyanurate cover boards as well as addition of referenced standard to the IBC's Table 1508.2 will help ensure that products manufactured and installed in roof systems comply with required standards. Additionally, clarification is added that composite boards refer to polyisocyanurate insulation as this is already intended by the referenced ASTM C1289 standard.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal has no cost impact. This proposal provides additional option for high-density polyisocyanurate board in certain roofing applications.

RB261-25

RB262-25

IRC: R908.3.1 (New), R908.3.1.1 (New), TABLE R908.3.1.1 (New), R908.3.1.2 (New)

Proponents: T. Eric Stafford, representing Insurance Institute for Business and Home Safety (testafford@charter.net); Milad Shabanian, representing Insurance Institute for Business & Home Safety (mshabanian@ibhs.org)

2024 International Residential Code

Add new text as follows:

R908.3.1 Wood roof deck attachment. Where the roof covering is removed down to the roof deck in *hurricane-prone regions*, the attachment of the roof deck shall be in accordance with Section R908.3.1.1 or R908.3.1.2.

R908.3.1.1 Wood structural panel roof sheathing attachment. The attachment of wood structural panel roof decks shall comply with Table R908.3.1.1. Supplemental fasteners, where required, shall be RSRS-01 (2 3/8" x 0.113" x 0.281" head) ring shank nails.

TABLE R908.3.1.1 SUPPLEMENTAL ROOF DECK FASTENERS AT PANEL EDGES AND INTERMEDIATE FRAMING

Existing Fasteners	Existing Fastener Spacing at Panel Edges or Intermediate Framing	Maximum Supplemental Fastener Spacing at Panel Edges or Intermediate Framing		
		115 mph < V_{ULT} ≤ 140 mph	140 mph < V_{ULT} ≤ 160 mph	160 mph < V_{ULT} ≤ 180 mph
Staples or 6d (2" x 0.113" x 0.266" head)	Any	6 inches on center[a]	6 inches on center[a]	4 inches on center[a]
8d (2 1/2" x 0.131" x 0.281" head) clipped head or round head smooth shank or round head ring shank	6 inches on center or less	None Necessary	None Necessary	4 inches on center[b]
8d (2 1/2" x 0.131" x 0.281" head) clipped head or round head smooth shank or round head ring shank	Greater than 6 inches on center	6 inches on center[b]	6 inches on center[b]	4 inches on center[b]

a. Maximum spacing determined based on supplemental fasteners only.

b. Maximum spacing determined based on existing fasteners and supplemental fasteners

R908.3.1.2 Solid sawn lumber or wood plank roof decking attachment. Roof decks consisting of sawn lumber or wood planks up to 12 inches wide shall be fastened with at least two 8d (2 1/2" x 0.131" x 0.281" head) nails at each roof framing member. For sawn lumber or wood plank decking attached with smaller fasteners or with fewer than two fasteners, additional fasteners shall be added so that the roof decking is attached wth at the 2 fasteners with a minimum size of 8d (2 1/2" x 0.131" x 0.281" head) nails at each roof framing member.

Attached Files

- **Renailing the roof deck cost impacts.pdf**
  https://www.cdpaccess.com/proposal/11186/35372/files/download/9121/

Reason: Performing wind mitigation on existing older buildings to make them more resilient and resistant to wind loads specified by modern building codes can often be challenging and expensive. However, mitigation on one of the most vulnerable elements can be performed rather effortlessly and inexpensively during a roof replacement. The attachment of the roof deck to the roof framing is one of the more critical connections for typical buildings covered by the IRC. Wind loads on the roof deck are typically the largest loads imparted on the building during a windstorm. When windows or doors fail or are breached by wind-borne debris, the wind loads on roof decking are even higher. Failure of the roof decking can result in significant wind and water intrusion into the building causing significant damage to the interior contents and furnishings. Additionally, failure of the roof decking can also result in progressive failure of the roof framing and gable ends due to a lack of support. A securely attached roof deck is critical to the resilience of buildings impacted by windstorms.

When a roof covering is replaced, the existing roofing materials including the underlayment are removed down to the roof deck. This is an opportune and particularly convenient time to evaluate the attachment of the roof deck and add supplemental fasteners as necessary to strengthen the roof deck attachment.The nail spacings shown in Table R903.1.1 are derived from Appendix C Table C202.1.2 in the 2024 International Existing Building Code with some simplifications. They are derived from research conducted in the 1990's at Clemson University tempered by the requirements for roof sheathing attachment for high winds in the Wood Frame Construction Manual. They differ somewhat from the requirements for new construction. Blindly applying the same fastening requirements where fasteners already exist could potentially compromise performance because of damage to roof decking or framing members. The assumption is that there is an optimum spacing of existing and new fasteners that is a function of the number and type of existing connectors. Adding fasteners where fasteners already exist is different than installing fasteners in new construction because of the greater potential for damaging sheathing or framing members. Smaller diameter fasteners such as staples damage framing members less than larger diameter fasteners and they provide significantly lower uplift resistance. Consequently, in these situations supplemental fasteners can be installed at typical new construction spacing without concern for splitting the structural members. The addition of supplemental fasteners will approach fastening requirements in the current code to approach a similar performance level. This code change provides the guidance that is needed when adding fasteners where fasteners already exist.This code change will align the IRC with the requirements for an IBHS Fortified designation and is also supported by FEMA's post-disaster assessments of residential buildings. The FEMA Hurricane Michael MAT report noted several instances of severe roof sheathing failures pre-FBC (buildings built before the effective date of the FBC) with asphalt shingles that were recovered with metal roof panels. The report recommended that when reroofing, the existing layer of roof covering be removed down to the deck and the roof sheathing attachment be evaluated. If the sheathing attachment was inadequate, supplemental fasteners should be added to strengthen the roof deck.

The FORTIFIED Home™ program was developed to reduce avoidable suffering and financial loss caused by hurricanes, high winds, and hail. The program requirements provide a systems-based, multi tiered approach for improving the resistance of homes and their contents to damage caused by wind, wind-driven rain, and hail. There are three designation levels—FORTIFIED Roof™, FORTIFIED Silver™, and FORTIFIED Gold™—that build on each other and address different systems of the home.
The Florida Building Code has required renailing of the roof deck during roof replacements for pre-FBC buildings since the 2007 Florida Building Code.

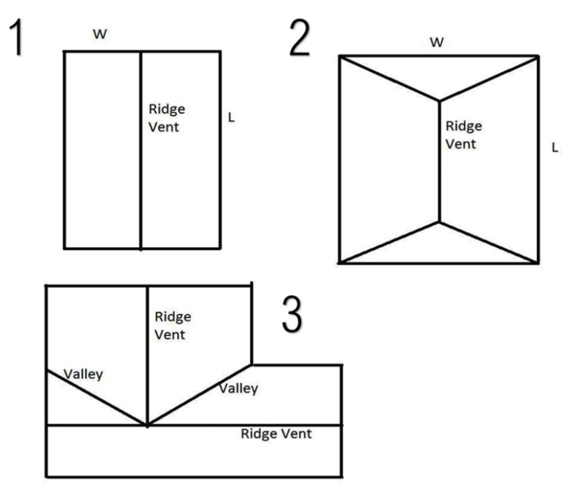
Cost Impact: Increase

Estimated Immediate Cost Impact:

$284.92 to $679.48 see justification.

For our cost impact estimates, we used Xactimate which is a construction cost estimating software program. Select markets in the following states within the hurricane-prone region were analyzed: Texas, Louisiana, Mississippi, Alabama, Georgia, South Carolina, North Carolina, Delaware, Connecticut, New Jersey, and New York.

Three roof configurations were analyzed – 3 gable, 2 gable, and hip. Additionally, we estimated the cost impacts for large roofs (2800 square feet to 3016 square feet) and small roofs (1575 square feet to 1696 square feet).



This cost estimate is a "worst-case" scenario for re-nailing the roof deck at 6 inches on center. It assumes that the entire deck has to be re-nailed at 6 inches on center. Depending on the existing fastener type and spacing, this may not be necessary.

A copy of the Xactimate report for this analysis is attached to this code change.

The cost varies according to the markets analyzed but are within close ranges.

Large Roofs – (2800 square feet to 3016 square feet)

For large roofs the cost for re-nailing the roof deck ranges from a low of $506.52 in Alabama to a high of $1208.32 in Connecticut for the markets analyzed. These costs represent increases of 4.4% and 6.4% respectively of the total cost of the roof replacement (roof covering, underlayment, ventilation components, etc.) for the markets analyzed.

Small Roofs – (1575 square feet to 1696 square feet)

For small roofs the cost for re-nailing the roof deck ranges from a low of $284.92 in Alabama to a high of $679.48 in Connecticut for the markets analyzed. These costs represent increases of 4.2% and 5.2% respectively of the total cost of the roof replacement (roof covering, underlayment, ventilation components, etc.) for the markets analyzed.

Although this code change will increase roof replacement costs, the additional costs are modest and will significantly reduce the likelihood of failure under anticipated wind loads, and thus will decrease future costs associated with repairs and rebuilding after high wind events.

Estimated Immediate Cost Impact Justification (methodology and variables):

Xactimate, which is a construction cost estimating software program, was used to analyze the cost impacts of this proposal.

RB262-25

RB263-25

IRC: R908.4

Proponents: Mark S. Graham, representing National Roofing Contractors Association (NRCA) (mgraham@nrca.net)

2024 International Residential Code

Revise as follows:

R908.4 Roof recover. The installation of a new *roof covering* over an existing *roof covering* shall be permitted where any of the following conditions occur:

1. Where the new *roof covering* is installed in accordance with the roof covering manufacturer's *approved* instructions.
2. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the *building*'s structural system and do not rely on existing roofs and *roof coverings* for support, shall not require the removal of existing *roof coverings*.
3. Metal panel, metal shingle and concrete and clay tile *roof coverings* shall be permitted to be installed over existing wood shake roofs where applied in accordance with Section R908.4.1.
4. The application of a new ~~protective~~ *roof coating* over an existing ~~protective~~ *roof coating*, *metal roof panel*, *metal roof shingle*, mineral surfaced roll roofing, built-up roof, modified bitumen roofing, thermoset and thermoplastic single-ply roofing and spray polyurethane foam roofing system shall be permitted without tear-off of existing *roof coverings*.

Exceptions: A *roof recover* shall not be permitted where any of the following conditions occur:

1. Where the existing roof or *roof covering* is water soaked or has deteriorated to the point that the existing roof or *roof covering* is not adequate as a base for the additional roofing.
2. Where the existing *roof covering* is slate, clay, cement or asbestos-cement title.
3. Where the existing roof has two or more applications of any type of *roof covering*.

Reason: This code change proposal is intended to clarify the existing code.

This code change proposal strikes the word "protective" from references to the term "roof coating" in Section R908.4.4. The word "protective" is unnecessary as the term "roof coating" is already defined in Section 202-Definitions and specific requirements for roof coatings are provided in Section R909-Roof Coatings. This change will not have an impact on the strigency of the residential code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal is editorial in nature and will not increase or decrease the cost of construction.

RB263-25

RB264-25

IRC: R1001.11

Proponents: DANIEL FREEMAN, Freeman Fire Inspectors, representing National Chimney Sweep Guild (dan@freemanfire.com)

2024 International Residential Code

Revise as follows:

R1001.11 Fireplace clearance. Wood beams, joists, studs and other *combustible material* shall have a clearance of not less than 2 inches (51 mm) from the front faces and sides of masonry fireplaces and not less than 4 inches (102 mm) from the back faces of masonry fireplaces. The airspace shall not be filled, except by <u>one-quarter-inch (6.4 mm) cement-based billboard as listed in R302.11 or by a site-built metal firestop spacer at least 24 gauge in thickness but not to exceed 1/8" thick(3.2 mm). The non-combustible material or firestop shall not be more than 1/8 inch (3.2 mm) away from the outside of the chimney. Beyond the air space clearance</u> *fireblocking* in accordance with Section R1001.12 shall be provided.

Exceptions:

1. <u>Modular masonry</u> ~~Masonry~~ fireplaces *listed* and *labeled* for use in contact with combustibles in accordance with UL 127 and installed in accordance with the manufacturer's instructions are permitted to have *combustible material* in contact with their exterior surfaces <u>only as specified in the manufacturer instructions</u>.
2. Where masonry fireplaces are part of masonry or concrete walls, *combustible materials* shall not be in contact with the masonry or concrete walls less than 12 inches (306 mm) from the inside surface of the nearest firebox lining.
3. Exposed combustible *trim* and the edges of sheathing materials such as wood siding, flooring and *gypsum board* shall be permitted to abut the masonry fireplace sidewalls and hearth extension in accordance with Figure R1001.11, provided that such combustible *trim* or sheathing is not less than 8 inches (203 mm) from the inside surface of the nearest firebox lining. Where the fireplace opening is 6 square feet (0.6 m^2) or larger, such combustible *trim* or sheathing shall be permitted to abut the masonry fireplace sidewalls and hearth extension provided that such combustible *trim* or sheathing is not less than 12 inches (305 mm) from the inside surface of the nearest firebox lining.
4. Exposed combustible mantels or *trim* is permitted to be placed directly on the masonry fireplace front surrounding the fireplace opening providing such *combustible materials* are not placed within 6 inches (152 mm) of a fireplace opening. *Combustible material* within 12 inches (306 mm) of the fireplace opening shall not project more than $^1/_8$ inch (3 mm) for each 1-inch (25 mm) distance from such an opening.

Reason: This is just to clarify the allowed "noncombustible material" as it cannot simply be more full thickness masonry. This is not clear and could allow masons to simply consider the exterior masonry structure the fireblocking in the air space as there is no limitation on what can be used. Or this could allow improper materials to be used in thicker quantities where heat is trapped and transferred to adjacent combustibles. The fireblocking or firestop filling the air space should still allow heat disipation in much the same way as a listed firestop spacer does around a factory built chimney. For this reason I believe it should be limited to the only non-combustible method 1/4" cement based billboard included in 302.11 or the same metal thicknesses allowed and limited for firestop spacers around factory built chimneys and vents.

In our industry we have begun to differentiate between the materials used to cover the air space clearance around a masonry chimney a firestop, and the rest of the opening beyond that air space as fireblocking following 302.11. The distinction is necessary as sheetmetal can be used as a firestop but not to cover an entire fireblocking opening as during a fire large metal fireblocking could bucklet or warp and allow heat out prematurely. This needs to be clarified that the use of metal applies only to the airspace, and not the entire opening of the chase enclosure or void space.

1. in exceptions below the main paragraph should also be clarified that the area around modular masonry fireplaces (proper term) are permitted to have combustible materials in contact with their exterior surfaces only as permitted in the manufacturers instructions as many still have clearance requirements and only portions of these systems may allow combustibles to touch their exterior. For example in the case of Isokern fireplaces some allow combustibles to touch the face of the smoke chamber however the sides and rear of the firebox

have a clearance requirement, and when built on a combustible floor may have additional protection and materials necessary to provide an air space between the base of the appliance and supporting combustibles.

Bibliography: 2024 International Residential Code
UL103 Standard for Safety for Factory-Built Chimneys for Residential Type and Building Heating Appliances, UL 103, Eleventh Edition, Dated October 15, 2010

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is to clarify requirements surrounding masonry systems for contractors and chimney professionals alike. No real difference should arise in cost as this is the intention of these sections all along.

RB264-25

RB265-25

IRC: R1001.12, R1003.18, R1003.19

Proponents: DANIEL FREEMAN, Freeman Fire Inspectors, representing National Chimney Sweep Guild (dan@freemanfire.com)

2024 International Residential Code

Revise as follows:

R1001.12 Fireplace fireblocking. Fireplace *fireblocking* shall comply with the provisions of Section Sections R602.8 and R302.11. Materials used in the airspace clearance shall comply with the provisions of Section R1001.11.

R1003.18 Chimney clearances. Any portion of a *masonry chimney* located in the interior of the *building* or within the exterior wall of the *building* shall have a minimum airspace clearance to combustibles of 2 inches (51 mm). Chimneys located entirely outside the exterior walls of the *building*, including chimneys that pass through the soffit or cornice, shall have a minimum airspace clearance of 1 inch (25 mm). The airspace shall not be filled, except by one-quarter-inch cement-based billboard or by a site-built metal firestop at least 24 gauge in thickness but not to exceed 1/8-inch (3.18 mm) thick. The non-combustible material or firestop shall not be more than 1/8-inch (3.18 mm) away from the outside of the chimney. Beyond the airspace clearance fireblocking ~~to provide fire blocking~~ in accordance with Section R1003.19 shall be provided.

Exceptions:

1. *Masonry chimneys* equipped with a chimney lining system *listed* and *labeled* for use in chimneys in contact with combustibles in accordance with UL 1777 and installed in accordance with the manufacturer's instructions are permitted to have *combustible material* in contact with the ~~their~~ exterior surfaces of the masonry chimney where the minimum thickness requirements specified in the liner manufacturer instructions are met or exceeded.
2. Where *masonry chimneys* are constructed as part of masonry or concrete walls, *combustible materials* shall not be in contact with the masonry or concrete wall less than 8 inches (203 mm) from the inside surface of the nearest flue lining.
3. *Combustible materials* shall be permitted to abut the *masonry chimney* side walls, in accordance with Figure R1003.18, provided such combustible material is not less than 8 inches (203 mm) from the inside surface of the nearest flue lining.

R1003.19 Chimney fireblocking. ~~Spaces between chimneys and floors and ceilings through which chimneys pass shall be fireblocked with *noncombustible material* securely fastened in place. The *fireblocking* of spaces between chimneys and wood joists, beams or headers shall be self-supporting or be placed on strips of metal or metal lath laid across the spaces between *combustible material* and the chimney.~~ Chimney fireblocking shall comply with the provisions of Sections R602.8 and R302.11. Materials used in the airspace clearance shall comply with the provisions of Section R1003.18.

Reason: This is to clarify the difference between materials permitted within the airspace clearance of the fireplace or chimney and the materials permitted for the rest of the void space outside of the airspace clearance surrounding the fireplace or chimney.
The fireblocking or firestop filling the air space should still allow heat disipation in much the same way as a listed firestop spacer does around a factory built chimney. For this reason I believe it should be limited to the only non-combustible method 1/4" cement based billboard included in 302.11 or the same metal thicknesses allowed and limited for firestop spacers around factory built chimneys and vents. In our industry we have begun to differentiate between the materials used to cover the air space clearance around a masonry chimney a firestop, and the rest of the opening beyond that air space as fireblocking following 302.11. The distinction is necessary as sheetmetal can be used as a firestop but not to cover an entire fireblocking opening as during a fire large metal fireblocking could bucklet or warp and allow heat out prematurely. This needs to be clarified that the use of metal applies only to the airspace, and not the entire opening of the chase enclosure or void space.

1. in the exceptions was modified to inform installers that manufacturers of liners require a specified masonry thickness and insulation in order to qualify for the reduction in clearances. Its not just the requirement of a masonry structure. It must be nominally solid 4" of masonry and be installed the required insulation per the manufacturer installation instructions.

Bibliography: 2024 International Residential Code

UL103 Standard for Safety for Factory-Built Chimneys for Residential Type and Building Heating Appliances, UL 103, Eleventh Edition, Dated October 15, 2010

UL1777 Standard for Safety for Chimney Liners, UL 1777, Fifth Edition, Dated October 2, 2015

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This provides clarification and more direction regarding firestops and fireblocking around fireplaces and chimneys and when specific products are permitted. This is to clarify existing requirements for contractors and should not impact the cost of construction much. It is just a clarification of materials required or prohibited.

RB265-25

RB266-25

IRC: R1001.12

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

Revise as follows:

R1001.12 Fireplace fireblocking. Fireplace *fireblocking* shall comply with ~~the provisions of~~ Section R302.11 ~~R602.8~~.

Reason: Section R602.8 simply references R302.11. So why not just reference R302.11 directly from 1001.12. I suggested deleting "the provisions of" as a bonus to simplify this further.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only simplifies the use of the references within the IRC.

RB266-25

RB267-25

IRC: R1003.18

Proponents: Charles Clark Jr, Brick Industry Association, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2024 International Residential Code

Revise as follows:

R1003.18 Chimney clearances. Any portion of a *masonry chimney* located in the interior of the *building* or within the exterior wall of the *building* shall have a minimum airspace clearance to combustibles of 2 inches (51 mm). Chimneys located entirely outside the exterior walls of the *building*, including chimneys that pass through the soffit or cornice, shall have a minimum airspace clearance of 1 inch (25 mm). The airspace shall not be filled, except to provide fire blocking in accordance with Section R1003.19.

Exceptions:

1. *Masonry chimneys* equipped with a chimney lining system *listed* and *labeled* for use in chimneys in contact with combustibles in accordance with UL 1777 and installed in accordance with the manufacturer's instructions are permitted to have *combustible material* in contact with their exterior surfaces.
2. ~~Where masonry chimneys are constructed as part of masonry or concrete walls, combustible materials shall not be in contact with the masonry or concrete wall less than 8 inches (203 mm) from the inside surface of the nearest lining.~~ Masonry chimneys with chimney walls at least 8 inches (203mm) thick are permitted to have combustible material in contact with their exterior surface.
3. *Combustible materials* shall be permitted to abut the *masonry chimney* side walls, in accordance with Figure R1003.18, provided such combustible material is not less than 8 inches (203 mm) from the inside surface of the nearest flue lining.

Reason: Referring to "masonry or concrete walls" can be ambiguous and confusing. What matters is that combustible materials should be not less than 8 inches (203 mm) from the inside surface of the nearest flue lining. This code change proposal simplifies and clarifies the code consistent with Exception 3 and the old Exception 2 and is supported by the engineering study at https://www.rumford.com/code/EightInchThickTestReport.pdf

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The code change proposal will not increase or decrease the cost of construction. This change is just a clarification.

RB267-25

RB268-25

IRC: R1004.6 (New), UL Chapter 44 (New)

Proponents: Jonathan Roberts, representing UL Solutions (jonathan.roberts@ul.com)

2024 International Residential Code

Add new text as follows:

R1004.6 Fireplace inserts. Fireplace inserts installed in factory-built fireplaces shall be listed and labeled for such use in accordance with UL1391.

Add new standard(s) as follows:

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

ANSI/CAN/UL/ULC 1391-2024 Solid-Fuel Space Heaters for Installation into Factory-Built Fireplaces

Reason: ANSI/CAN/UL/ULC 1391 is new UL/ANSI standard which is nearing publication and is being created to address the hazards associated with the installation of fireplace inserts in a factory-built fireplace. This proposal correlates with M53-24 which was approved for the IMC during Group A. A consensus draft has been circulated by UL Standards and Engagement (ULSE) and may be publicly accessed via the ULSE Collaborative Standards Development System (CSDS) website at the following URL: https://csds.ul.com/Search/Standard/1390/Results

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial in nature and correlates with M53-24 which was approved for the IMC during Group A.

Staff Analysis: A review of the following standard proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025:
ANSI/CAN/UL/ULC 1391-2024 Solid-Fuel Space Heaters for Installation into Factory-Built Fireplaces

RB268-25

RB269-25

IRC: R1004.4

Proponents: DANIEL FREEMAN, Freeman Fire Inspectors, representing National Chimney Sweep Guild (dan@freemanfire.com)

2024 International Residential Code

Revise as follows:

R1004.4 ~~Unvented gas log heaters~~Inserted Appliances. An unvented gas log heater or a fireplace insert shall not be installed in a factory-built *fireplace* unless the *fireplace* system has been specifically tested, *listed* and *labeled* for such use in accordance with UL 127.

Reason: With the addition in the 2024 addition of "or a fireplace insert" the section title should be updated to apply to Appliances, not just unvented gas log heaters. Unvented gas log heaters and fireplace inserts are not specifically tested for installation into factory-built fireplaces at this time. The section title should reflect this is not only limited to "unvented gas log heaters". Some information from the UL standards surrounding inserts are included below.

UL1482 Standard for Solid-Fuel Type Room Heaters

- With regard to solid-fuel room heaters tested under this standard... In the recent June 15, 2022 -7th Edition the following was added to the marking instructions by the UL Technical Committee to the document.
  - 53.3 Each room heater shall be marked with the following:

    o) “To be installed as a freestanding room heater with the clearances in the manufacturer’s installation instructions. Not to be installed in any factory-built fireplace.”

UL127 Factory Built Fireplaces

- Since before 1996 this section is included in UL127 and thus in all factory-built fireplace manuals. The quote is pulled from the November 21, 2024- 10th Edition: "60.14 A fireplace shall be marked with the following or equivalent statement: "Do not use a fireplace insert or other products not specified for use with this product." When the fireplace has been investigated and found to be capable of being used with a specified fireplace insert, or other specified product, the statement shall be modified as appropriate."
- The effect of installing inserts into factory-built fireplaces is NOT tested under the UL127 standard and therefore has unknown consequences on the heat signature of the appliance and its required clearances at this time. Until the UL127 standard is updated to include testing for specific inserts and their weight on the factory-built fireplace itself this practice should continue to be precluded.

Bibliography: 2024 International Residential Code
UL Standard for Safety for Factory-Built Fireplaces, UL 127, Tenth Edition, Dated November 21, 2024
UL Standard for Safety for Solid-Fuel Type Room Heaters, UL 1482, Seventh Edition, Dated April 25, 2011

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This will clarify the intent of the newly added wording in the 2024 addition.

RB269-25

RB270-25

IRC: R1005.7

Proponents: Shane Nilles, representing Self (snilles@awc.org)

2024 International Residential Code

Delete without substitution:

~~**R1005.7 Factory-built chimney offsets.** Where a *factory-built chimney* assembly incorporates offsets, no part of the *chimney* shall be at an angle of more than 30 degrees (0.52 rad) from vertical at any point in the assembly and the chimney assembly shall not include more than four elbows.~~

Reason: The new Section R1005.9 was added by code change proposal RM22-21 which should have included removal of Section R1005.7 but was overlooked. This proposal removes Section R1005.7 to correct the accidental oversight and conflicting provisions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no technical changes proposed. This code change only removes duplicated language.

RB270-25

RB271-25

IRC: R1006.1.1

Proponents: DANIEL FREEMAN, Freeman Fire Inspectors, representing National Chimney Sweep Guild (dan@freemanfire.com)

2024 International Residential Code

Revise as follows:

R1006.1.1 Factory-built fireplaces. ~~Exterior~~ *~~combustion~~* *Combustion* *air* inlet ducts for factory-built fireplaces shall be ~~a~~ *~~listed~~* ~~component of the~~ constructed and installed in accordance with the fireplace manufacturer instructions.

Reason: Combustion air ducts and their materials are not specifically listed with the fireplaces under UL127. The materials composing them during testing is specified in UL127 7.2.1 however they are not listed components of the system and may be produced by other manufacturers. The only component usually manufactured by the factory-built fireplace manufacturer is the component "employed to connect a combustion air inlet system to the exterior of the fire chamber" as shown below from UL127 in 62.2.3 q). This is to remove the conflict in the IRC that combustion air components must be a listed component of the fireplace. While the air duct connector may be a listed component of the fireplace the rest of the air inlet ducts can only meet the materials specifications or use the components listed under others standards as specified in the listing.

I will be making proposals to clarify the text in UL127 62.2.3 q) as well so that it is specified that they must provide instruction not just for the "methods and parts to be employed to connect a combustion air inlet system to the exterior of a fire chamber" but from the exterior of the fire chamber to the exterior of the structure.

Additionally I am proposing changing the text from "exterior combustion air ducts" to "combustion air inlet ducts" as that is the way those components are referenced in the UL127 standard.

From UL127

7.2 Air duct system7.2.1 The air duct system portion of:

a) Circulating warm air ducts; and
b) Combustion air inlet ducts shall be constructed entirely of corrosion-resistant sheet metal having a minimum thickness as shown in Table 7.5. See 8.12.1 and 8.12.2.

Exception: Lesser thickness materials classified as Class 0 or Class 1 air ducts, as defined in NFPA 90B, and in the requirements in UL 181, is used when:
a) They comply with the requirements of NFPA 90B and UL 181; and
b) They have been investigated for the intended application.

8.12 Air duct system

8.12.1 The combustion air inlet system shall have zero clearance to combustible construction.
8.12.2 The combustion air inlet shall prevent material from dropping into the inlet and also prevent rodents from entering from the outside by use of a minimum 20 gauge wire mesh having openings not larger than 1/4 by 1/4 inch (6.4 by 6.4 mm).

62.2 Installation instructions

62.2.3 The instructions shall include particular details concerning:
q) The methods and parts to be employed to connect a combustion air inlet system to the exterior of a fire chamber, and any limitations with respect to installation and use of a combustion air inlet system.

Bibliography: 2024 International Residential Code
UL Standard for Safety for Factory-Built Fireplaces, UL 127, Tenth Edition, Dated November 21, 2024

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal does not impact the cost of construction as the same materials will generally be used. This clarifies what materials should be used as the exterior combustion air ducts for a factory built fireplace are not listed components of the fireplace system.

RB271-25

RB272-25

IRC: R1006.3

Proponents: DANIEL FREEMAN, Freeman Fire Inspectors, representing National Chimney Sweep Guild (dan@freemanfire.com)

2024 International Residential Code

Revise as follows:

R1006.3 Clearance. Unlisted *combustion air* ducts serving masonry fireplaces shall be installed with a minimum 1-inch (25 mm) clearance to combustibles for all parts of the duct within 5 feet (1524 mm) of the duct outlet.

Reason: Limiting this clearance requirement to combustion air ducts serving masonry fireplaces in this chapter as combustion air ducts serving factory-built fireplaces are actually not listed... but built to specifications within the UL127 standard using common materials. The combustion air ducts are not actually listed with the fireplace or components that carry a listing. Manufacturers may specify those materials in their manuals however. I have already made a comment on that section to use the materials requirements from the UL127 standard within the code itself as that is how they are all tested... and in the standard they are tested with a 0" clearance to the combustion air duct. Sections follow below.

7.2 Air duct system
7.2.1 The air duct system portion of:
a) Circulating warm air ducts; and
b) Combustion air inlet ducts shall be constructed entirely of corrosion-resistant sheet metal having a minimum thickness as shown in Table 7.5. See 8.12.1 and 8.12.2.
Exception: Lesser thickness materials classified as Class 0 or Class 1 air ducts, as defined in NFPA 90B, and in the requirements in UL 181, is used when:
a) They comply with the requirements of NFPA 90B and UL 181; and
b) They have been investigated for the intended application.

8.12 Air duct system
8.12.1 The combustion air inlet system shall have zero clearance to combustible construction.
8.12.2 The combustion air inlet shall prevent material from dropping into the inlet and also prevent rodents from entering from the outside by use of a minimum 20 gauge wire mesh having openings not larger than 1/4 by 1/4 inch (6.4 by 6.4 mm).

7.2 Air duct system

7.2.1 The air duct system portion of:

a) Circulating warm air ducts; and

b) Combustion air inlet ducts

shall be constructed entirely of corrosion-resistant sheet metal having a minimum thickness as shown in Table 7.5. See 8.12.1 and 8.12.2.

Exception: Lesser thickness materials classified as Class 0 or Class 1 air ducts, as defined in NFPA 90B, and in the requirements in UL 181, is used when:

a) They comply with the requirements of NFPA 90B and UL 181; and

b) They have been investigated for the intended application.

Table 7.5
Minimum Thickness of Sheet Metal Ducts

Diameter or width	Galvanized steel			Aluminum		Tin plate
	Nominal thickness	Minimum thickness		Minimum thickness		Minimum weight per base box
inches	inches	inches	(mm)	inches	(mm)	pounds
	(a) Round Ducts and Enclosed Rectangular Ducts:					
14 or less	0.016	0.013	(0.330)	0.016	(0.406)	135
Over 14	0.019	0.016	(0.406)	0.020	(0.508)	–
	(b) Exposed Rectangular Ducts:					
14 or less	0.019	0.016	(0.406)	0.020	(0.508)	–
Over 14	0.022	0.019	(0.483)	0.023	(0.584)	–

7.2.2 Asbestos material shall not be used.

7.2.3 Fibrous insulation materials used in an air handling compartment shall comply with the Erosion Test specified in the requirements in UL 181.

8.12 Air duct system

8.12.1 The combustion air inlet system shall have zero clearance to combustible construction.

8.12.2 The combustion air inlet shall prevent material from dropping into the inlet and also prevent rodents from entering from the outside by use of a minimum 20 gauge wire mesh having openings not larger than 1/4 by 1/4 inch (6.4 by 6.4 mm).

Bibliography: 2024 International Residential Code
UL127 Standard for Safety for Factory-Built Fireplaces, UL 127, Tenth Edition, Dated November 21, 2024

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is to clarify requirements and bring them into alignment with how UL127 fireplaces are tested. This should not have a cost to construction as materials have not changed.

RB272-25

RB273-25

IRC: APPENDIX AB, SECTION AB101, AB101.1, TABLE AB101.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Delete without substitution:

~~APPENDIX AB~~
~~PERMIT FEES~~

~~SECTION AB101~~
~~GENERAL~~

~~**AB101.1 Permit fee schedule.** *Permit* fees shall be in accordance with Table AB101.1.~~

~~TABLE AB101.1 PERMIT FEE SCHEDULE~~

~~**TOTAL VALUATION**~~	~~**FEE**~~
~~$1 to $500~~	~~$24~~
~~$501 to $2,000~~	~~$24 for the first $500; plus $3 for each additional $100 or fraction thereof, up to and including $2,000~~
~~$2,001 to $40,000~~	~~$69 for the first $2,000; plus $11 for each additional $1,000 or fraction thereof, up to and including $40,000~~
~~$40,001 to $100,000~~	~~$487 for the first $40,000; plus $9 for each additional $1,000 or fraction thereof, up to and including $100,000~~
~~$100,000 to $500,000~~	~~$1,027 for the first $100,000; plus $7 for each additional $1,000 or fraction thereof, up to and including $500,000~~
~~$500,001 to $1,000,000~~	~~$3,827 for the first $500,000; plus $5 for each additional $1,000 or fraction thereof, up to and including $1,000,000~~
~~$1,000,001 to $5,000,000~~	~~$6,327 for the first $1,000,000; plus $3 for each additional $1,000 or fraction thereof, up to and including $5,000,000~~
~~$5,000,001 and over~~	~~$18,327 for the first $5,000,000; plus $1 for each additional $1,000 or fraction thereof~~

Reason: ADM27-19 removed fees schedules from being inserted at the time of adoption into the IMC, IPC, IPMC, IFGC and ISPSC. If the jurisdiction is on a code for 3 to 6 years, this would prohibit them from adjusting their fees. Adoption of an appendix with fees (IRC) would have the same effect. This appendix should be deleted. A similar change to remove the fees appendix from the IPC and IMC was approved in P159-24 Part I and II.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial. See reason statement.

RB273-25

RB274-25

IRC: BE101.1, FIGURE BE101.1, TABLE BE101.1

Proponents: Thomas Bowles, representing USEPA (bowles.thomas@epa.gov); Jane Malone, representing Indoor Environments Association (janemalonedc@gmail.com); Kevin Stewart, Director, Environmental Health, representing American Lung Association (kevin.stewart@lung.org); Jonathan Wilson, representing National Center for Healthy Housing (jwilson@nchh.org); Joshua Kerber, Minnesota Department of Health, representing Minnesota Department of Health and CRCPD E25 Committee on Radon (joshua.kerber@state.mn.us); Ruth McBurney, representing Conference of Radiation Control Program Directors, Inc. (rmcburney@crcpd.org)

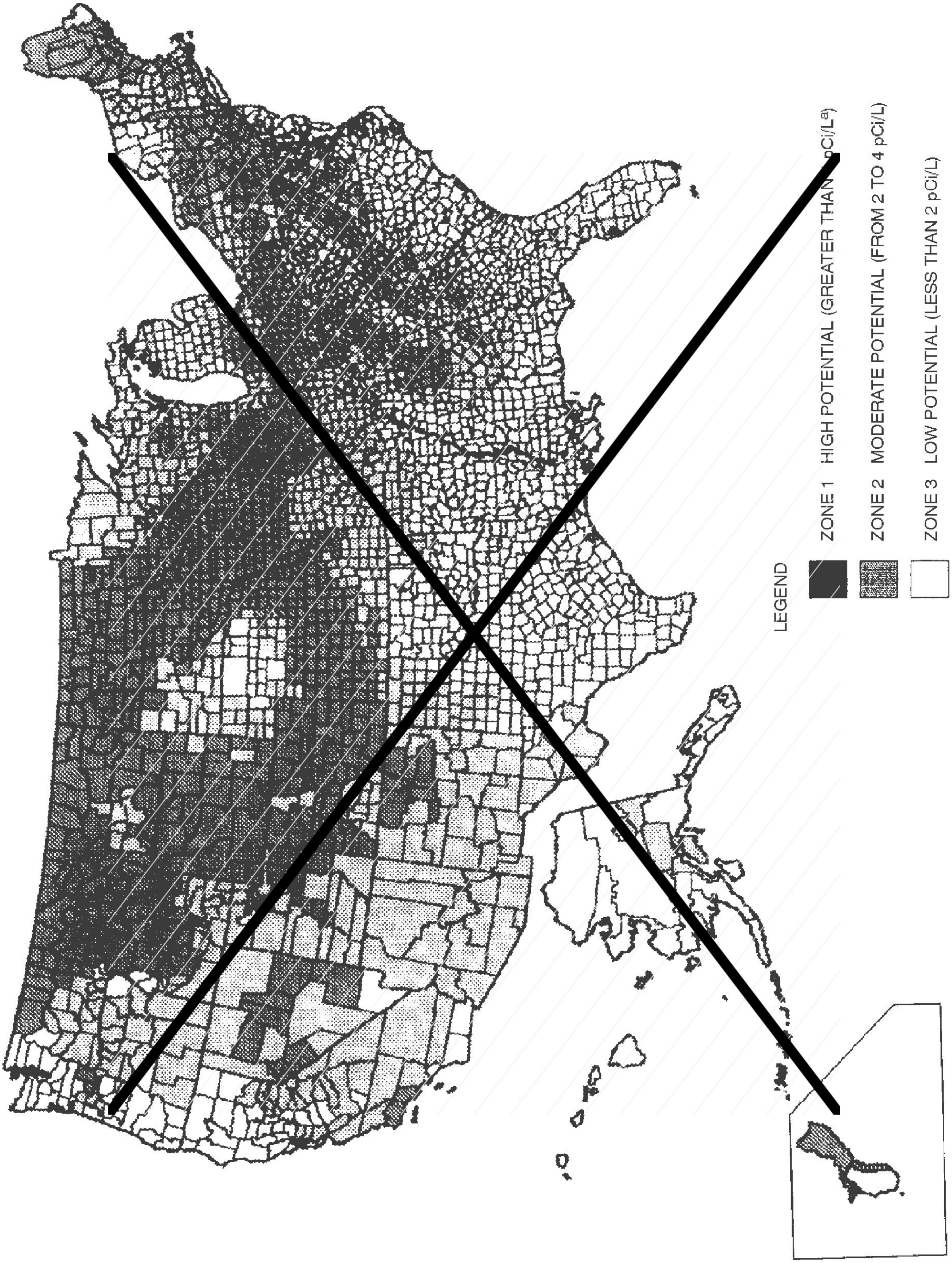
2024 International Residential Code

APPENDIX BE
RADON CONTROL METHODS

Revise as follows:

BE101.1 General. This appendix contains requirements for new construction in jurisdictions where radon-resistant construction is required. ~~Inclusion of this appendix by *jurisdictions* shall be determined through the use of locally available data or determination of Zone 1 designation in Figure AF101.1 and Table AF101.1.~~

Delete without substitution:


LEGEND
ZONE 1 HIGH POTENTIAL (GREATER THAN pCi/L[a])
ZONE 2 MODERATE POTENTIAL (FROM 2 TO 4 pCi/L)
ZONE 3 LOW POTENTIAL (LESS THAN 2 pCi/L)

~~a. pCi/L stands for picocuries per liter of radon gas. The US Environmental Protection Agency (EPA) recommends that homes that measure 4 pCi/L and greater be mitigated.~~

~~The EPA and the US Geological Survey have evaluated the radon potential in the United States and have developed a map of radon zones designed to assist building officials in deciding whether radon-resistant features are applicable in new construction.~~

~~The map assigns each of the 3,141 counties in the United States to one of three zones based on radon potential. Each zone designation reflects the average short-term radon measurement that can be expected to be measured in a *building* without the implementation of radon-control methods. The radon zone designation of highest priority is Zone 1. Table BE101.1 lists the Zone 1 counties illustrated on the map. More detailed information can be obtained from state-specific booklets (EPA-401-R-93-021 through 070) available through the State Radon Offices or from the EPA Regional Offices.~~

~~FIGURE BE101.1 EPA MAP OF RADON ZONES~~

~~TABLE BE101.1 HIGH RADON-POTENTIAL (ZONE 1) COUNTIES[a]~~

~~ALABAMA~~
~~Calhoun~~
~~Clay~~
~~Cleburne~~
~~Colbert~~
~~Coosa~~
~~Franklin~~
~~Jackson~~
~~Lauderdale~~
~~Lawrence~~
~~Limestone~~
~~Madison~~
~~Morgan~~
~~Talladega~~
~~CALIFORNIA~~
~~Santa Barbara~~
~~Ventura~~
~~COLORADO~~
~~Adams~~
~~Arapahoe~~
~~Baca~~
~~Bent~~
~~Boulder~~
~~Chaffee~~
~~Cheyenne~~
~~Clear Creek~~
~~Crowley~~
~~Custer~~
~~Delta~~
~~Denver~~
~~Dolores~~
~~Douglas~~
~~El Paso~~
~~Elbert~~
~~Fremont~~
~~Garfield~~
~~Gilpin~~
~~Grand~~
~~Gunnison~~
~~Huerfano~~
~~Jackson~~
~~Jefferson~~
~~Kiowa~~
~~Kit Carson~~
~~Lake~~
~~Larimer~~
~~Las Animas~~
~~Lincoln~~

~~Logan~~

~~Mesa~~
~~Moffat~~
~~Montezuma~~
~~Montrose~~
~~Morgan~~
~~Otero~~
~~Ouray~~
~~Park~~
~~Phillips~~
~~Pitkin~~
~~Prowers~~
~~Pueblo~~
~~Rio Blanco~~
~~San Miguel~~
~~Summit~~
~~Teller~~
~~Washington~~
~~Weld~~
~~Yuma~~
~~CONNECTICUT~~
~~Fairfield~~
~~Middlesex~~
~~New Haven~~
~~New London~~
~~GEORGIA~~
~~Cobb~~
~~De Kalb~~
~~Fulton~~
~~Gwinnett~~
~~IDAHO~~
~~Benewah~~
~~Blaine~~
~~Boise~~
~~Bonner~~
~~Boundary~~
~~Butte~~
~~Camas~~
~~Clark~~
~~Clearwater~~
~~Custer~~
~~Elmore~~
~~Fremont~~
~~Gooding~~
~~Idaho~~
~~Kootenai~~
~~Latah~~
~~Lemhi~~
~~Shoshone~~
~~Valley~~
~~ILLINOIS~~
~~Adams~~
~~Boone~~
~~Brown~~
~~Bureau~~
~~Calhoun~~
~~Carroll~~
~~Cass~~
~~Champaign~~
~~Coles~~
~~De Kalb~~
~~De Witt~~
~~Douglas~~
~~Edgar~~
~~Ford~~
~~Fulton~~
~~Greene~~
~~Grundy~~
~~Hancock~~
~~Henderson~~
~~Henry~~

~~Iroquois~~
~~Jersey~~
~~Jo Daviess~~
~~Kane~~
~~Kendall~~
~~Knox~~
~~La Salle~~
~~Lee~~
~~Livingston~~
~~Logan~~
~~Macon~~
~~Marshall~~
~~Mason~~
~~McDonough~~
~~McLean~~
~~Menard~~
~~Mercer~~
~~Morgan~~
~~Moultrie~~
~~Ogle~~
~~Peoria~~
~~Piatt~~
~~Pike~~
~~Putnam~~
~~Rock Island~~
~~Sangamon~~
~~Schuyler~~
~~Scott~~
~~Stark~~
~~Stephenson~~
~~Tazewell~~
~~Vermilion~~
~~Warren~~
~~Whiteside~~
~~Winnebago~~
~~Woodford~~
~~INDIANA~~
~~Adams~~
~~Allen~~
~~Bartholomew~~
~~Benton~~
~~Blackford~~
~~Boone~~
~~Carroll~~
~~Cass~~
~~Clark~~
~~Clinton~~
~~De Kalb~~
~~Decatur~~
~~Delaware~~
~~Elkhart~~
~~Fayette~~
~~Fountain~~
~~Fulton~~
~~Grant~~
~~Hamilton~~
~~Hancock~~
~~Harrison~~
~~Hendricks~~
~~Henry~~
~~Howard~~
~~Huntington~~
~~Jay~~
~~Jennings~~
~~Johnson~~
~~Kosciusko~~
~~LaGrange~~
~~Lawrence~~
~~Madison~~
~~Marion~~
~~Marshall~~
~~Miami~~

~~Monroe~~
~~Montgomery~~
~~Noble~~
~~Orange~~
~~Putnam~~
~~Randolph~~
~~Rush~~
~~Scott~~
~~Shelby~~
~~St. Joseph~~
~~Steuben~~
~~Tippecanoe~~
~~Tipton~~
~~Union~~
~~Vermillion~~
~~Wabash~~
~~Warren~~
~~Washington~~
~~Wayne~~
~~Wells~~
~~White~~
~~Whitley~~
~~**IOWA**~~
~~All Counties~~
~~**KANSAS**~~
~~Atchison~~
~~Barton~~
~~Brown~~
~~Cheyenne~~
~~Clay~~
~~Cloud~~
~~Decatur~~
~~Dickinson~~
~~Douglas~~
~~Ellis~~
~~Ellsworth~~
~~Finney~~
~~Ford~~
~~Geary~~
~~Gove~~
~~Graham~~
~~Grant~~
~~Gray~~
~~Greeley~~
~~Hamilton~~
~~Haskell~~
~~Hodgeman~~
~~Jackson~~
~~Jewell~~
~~Johnson~~
~~Kearny~~
~~Kingman~~
~~Kiowa~~
~~Lane~~
~~Leavenworth~~
~~Lincoln~~
~~Logan~~
~~Marion~~
~~Marshall~~
~~McPherson~~
~~Meade~~
~~Mitchell~~
~~Nemaha~~
~~Ness~~
~~Norton~~
~~Osborne~~
~~Ottawa~~
~~Pawnee~~
~~Phillips~~
~~Pottawatomie~~
~~Pratt~~
~~Rawlins~~

~~Republic~~
~~Rice~~
~~Riley~~
~~Rooks~~
~~Rush~~
~~Saline~~
~~Scott~~
~~Sheridan~~
~~Sherman~~
~~Smith~~
~~Stanton~~
~~Thomas~~
~~Trego~~
~~Wallace~~
~~Washington~~
~~Wichita~~
~~Wyandotte~~
~~KENTUCKY~~
~~Adair~~
~~Allen~~
~~Barren~~
~~Bourbon~~
~~Boyle~~
~~Bullitt~~
~~Casey~~
~~Clark~~
~~Cumberland~~
~~Fayette~~
~~Franklin~~
~~Green~~
~~Harrison~~
~~Hart~~
~~Jefferson~~
~~Jessamine~~
~~Lincoln~~
~~Marion~~
~~Mercer~~
~~Metcalfe~~
~~Monroe~~
~~Nelson~~
~~Pendleton~~
~~Pulaski~~
~~Robertson~~
~~Russell~~
~~Scott~~
~~Taylor~~
~~Warren~~
~~Woodford~~
~~MAINE~~
~~Androscoggin~~
~~Aroostook~~
~~Cumberland~~
~~Franklin~~
~~Hancock~~
~~Kennebec~~
~~Lincoln~~
~~Oxford~~
~~Penobscot~~
~~Piscataquis~~
~~Somerset~~
~~York~~
~~MARYLAND~~
~~Baltimore~~
~~Calvert~~
~~Carroll~~
~~Frederick~~
~~Harford~~
~~Howard~~
~~Montgomery~~
~~Washington~~
~~MASS.~~

~~Essex~~
~~Middlesex~~
~~Worcester~~
~~**MICHIGAN**~~
~~Branch~~
~~Calhoun~~
~~Cass~~
~~Hillsdale~~
~~Jackson~~
~~Kalamazoo~~
~~Lenawee~~
~~St. Joseph~~
~~Washtenaw~~
~~**MINNESOTA**~~
~~Becker~~
~~Big Stone~~
~~Blue Earth~~
~~Brown~~
~~Carver~~
~~Chippewa~~
~~Clay~~
~~Cottonwood~~
~~Dakota~~
~~Dodge~~
~~Douglas~~
~~Faribault~~
~~Fillmore~~
~~Freeborn~~
~~Goodhue~~
~~Grant~~
~~Hennepin~~
~~Houston~~
~~Hubbard~~
~~Jackson~~
~~Kanabec~~
~~Kandiyohi~~
~~Kittson~~
~~Lac Qui Parle~~
~~Le Sueur~~
~~Lincoln~~
~~Lyon~~
~~Mahnomen~~
~~Marshall~~
~~Martin~~
~~McLeod~~
~~Meeker~~
~~Mower~~
~~Murray~~
~~Nicollet~~
~~Nobles~~
~~Norman~~
~~Olmsted~~
~~Otter Tail~~
~~Pennington~~
~~Pipestone~~
~~Polk~~
~~Pope~~
~~Ramsey~~
~~Red Lake~~
~~Redwood~~
~~Renville~~
~~Rice~~
~~Rock~~
~~Roseau~~
~~Scott~~
~~Sherburne~~
~~Sibley~~
~~Stearns~~
~~Steele~~
~~Stevens~~
~~Swift~~
~~Todd~~

~~Traverse~~
~~Wabasha~~
~~Wadena~~
~~Waseca~~
~~Washington~~
~~Watonwan~~
~~Wilkin~~
~~Winona~~
~~Wright~~
~~Yellow Medicine~~
~~**MISSOURI**~~
~~Andrew~~
~~Atchison~~
~~Buchanan~~
~~Cass~~
~~Clay~~
~~Clinton~~
~~Holt~~
~~Iron~~
~~Jackson~~
~~Nodaway~~
~~Platte~~
~~**MONTANA**~~
~~Beaverhead~~
~~Big Horn~~
~~Blaine~~
~~Broadwater~~
~~Carbon~~
~~Carter~~
~~Cascade~~
~~Chouteau~~
~~Custer~~
~~Daniels~~
~~Dawson~~
~~Deer Lodge~~
~~Fallon~~
~~Fergus~~
~~Flathead~~
~~Gallatin~~
~~Garfield~~
~~Glacier~~
~~Granite~~
~~Hill~~
~~Jefferson~~
~~Judith Basin~~
~~Lake~~
~~Lewis and Clark~~
~~Madison~~
~~McCone~~
~~Meagher~~
~~Missoula~~
~~Park~~
~~Phillips~~
~~Pondera~~
~~Powder River~~
~~Powell~~
~~Prairie~~
~~Ravalli~~
~~Richland~~
~~Roosevelt~~
~~Rosebud~~
~~Sanders~~
~~Sheridan~~
~~Silver Bow~~
~~Stillwater~~
~~Teton~~
~~Toole~~
~~Valley~~
~~Wibaux~~
~~Yellowstone~~
~~**NEBRASKA**~~
~~Adams~~

~~Boone~~
~~Boyd~~
~~Burt~~
~~Butler~~
~~Cass~~
~~Cedar~~
~~Clay~~
~~Colfax~~
~~Cuming~~
~~Dakota~~
~~Dixon~~
~~Dodge~~
~~Douglas~~
~~Fillmore~~
~~Franklin~~
~~Frontier~~
~~Furnas~~
~~Gage~~
~~Gosper~~
~~Greeley~~
~~Hamilton~~
~~Harlan~~
~~Hayes~~
~~Hitchcock~~
~~Hurston~~
~~Jefferson~~
~~Johnson~~
~~Kearney~~
~~Knox~~
~~Lancaster~~
~~Madison~~
~~Nance~~
~~Nemaha~~
~~Nuckolls~~
~~Otoe~~
~~Pawnee~~
~~Phelps~~
~~Pierce~~
~~Platte~~
~~Polk~~
~~Red Willow~~
~~Richardson~~
~~Saline~~
~~Sarpy~~
~~Saunders~~
~~Seward~~
~~Stanton~~
~~Thayer~~
~~Washington~~
~~Wayne~~
~~Webster~~
~~York~~
~~NEVADA~~
~~Carson City~~
~~Douglas~~
~~Eureka~~
~~Lander~~
~~Lincoln~~
~~Lyon~~
~~Mineral~~
~~Pershing~~
~~White Pine~~
~~NEW HAMPSHIRE~~
~~Carroll~~
~~NEW JERSEY~~
~~Hunterdon~~
~~Mercer~~
~~Monmouth~~
~~Morris~~
~~Somerset~~
~~Sussex~~
~~Warren~~

~~NEW MEXICO~~
~~Bernalillo~~
~~Colfax~~
~~Mora~~
~~Rio Arriba~~
~~San Miguel~~
~~Santa Fe~~
~~Taos~~
~~NEW YORK~~
~~Albany~~
~~Allegany~~
~~Broome~~
~~Cattaraugus~~
~~Cayuga~~
~~Chautauqua~~
~~Chemung~~
~~Chenango~~
~~Columbia~~
~~Cortland~~
~~Delaware~~
~~Dutchess~~
~~Erie~~
~~Genesee~~
~~Greene~~
~~Livingston~~
~~Madison~~
~~Onondaga~~
~~Ontario~~
~~Orange~~
~~Otsego~~
~~Putnam~~
~~Rensselaer~~
~~Schoharie~~
~~Schuyler~~
~~Seneca~~
~~Steuben~~
~~Sullivan~~
~~Tioga~~
~~Tompkins~~
~~Ulster~~
~~Washington~~
~~Wyoming~~
~~Yates~~
~~N. CAROLINA~~
~~Alleghany~~
~~Buncombe~~
~~Cherokee~~
~~Henderson~~
~~Mitchell~~
~~Rockingham~~
~~Transylvania~~
~~Watauga~~
~~N. DAKOTA~~
~~All Counties~~
~~OHIO~~
~~Adams~~
~~Allen~~
~~Ashland~~
~~Auglaize~~
~~Belmont~~
~~Butler~~
~~Carroll~~
~~Champaign~~
~~Clark~~
~~Clinton~~
~~Columbiana~~
~~Coshocton~~
~~Crawford~~
~~Darke~~
~~Delaware~~
~~Fairfield~~
~~Fayette~~

~~Franklin~~
~~Greene~~
~~Guernsey~~
~~Hamilton~~
~~Hancock~~
~~Hardin~~
~~Harrison~~
~~Holmes~~
~~Huron~~
~~Jefferson~~
~~Knox~~
~~Licking~~
~~Logan~~
~~Madison~~
~~Marion~~
~~Mercer~~
~~Miami~~
~~Montgomery~~
~~Morrow~~
~~Muskingum~~
~~Perry~~
~~Pickaway~~
~~Pike~~
~~Preble~~
~~Richland~~
~~Ross~~
~~Seneca~~
~~Shelby~~
~~Stark~~
~~Summit~~
~~Tuscarawas~~
~~Union~~
~~Van Wert~~
~~Warren~~
~~Wayne~~
~~Wyandot~~
~~PENNSYLVANIA~~
~~Adams~~
~~Allegheny~~
~~Armstrong~~
~~Beaver~~
~~Bedford~~
~~Berks~~
~~Blair~~
~~Bradford~~
~~Bucks~~
~~Butler~~
~~Cameron~~
~~Carbon~~
~~Centre~~
~~Chester~~
~~Clarion~~
~~Clearfield~~
~~Clinton~~
~~Columbia~~
~~Cumberland~~
~~Dauphin~~
~~Delaware~~
~~Franklin~~
~~Fulton~~
~~Huntingdon~~
~~Indiana~~
~~Juniata~~
~~Lackawanna~~
~~Lancaster~~
~~Lebanon~~
~~Lehigh~~
~~Luzerne~~
~~Lycoming~~
~~Mifflin~~
~~Monroe~~
~~Montgomery~~

~~Montour~~
~~Northampton~~
~~Northumberland~~
~~Perry~~
~~Schuylkill~~
~~Snyder~~

~~Sullivan~~
~~Susquehanna~~
~~Tioga~~
~~Union~~
~~Venango~~
~~Westmoreland~~
~~Wyoming~~
~~York~~
~~**RHODE ISLAND**~~
~~Kent~~
~~Washington~~
~~**S. CAROLINA**~~
~~Greenville~~
~~**S. DAKOTA**~~
~~Aurora~~
~~Beadle~~
~~Bon Homme~~
~~Brookings~~
~~Brown~~
~~Brule~~
~~Buffalo~~
~~Campbell~~
~~Charles Mix~~
~~Clark~~
~~Clay~~
~~Codington~~
~~Corson~~
~~Davison~~
~~Day~~
~~Deuel~~
~~Douglas~~
~~Edmunds~~
~~Faulk~~
~~Grant~~
~~Hamlin~~
~~Hand~~
~~Hanson~~
~~Hughes~~
~~Hutchinson~~
~~Hyde~~
~~Jerauld~~
~~Kingsbury~~
~~Lake~~
~~Lincoln~~
~~Lyman~~
~~Marshall~~
~~McCook~~
~~McPherson~~
~~Miner~~
~~Minnehaha~~
~~Moody~~
~~Perkins~~
~~Potter~~
~~Roberts~~
~~Sanborn~~
~~Spink~~
~~Stanley~~
~~Sully~~
~~Turner~~
~~Union~~
~~Walworth~~
~~Yankton~~
~~**TENNESSEE**~~
~~Anderson~~
~~Bedford~~

~~Blount~~
~~Bradley~~
~~Claiborne~~
~~Davidson~~
~~Giles~~
~~Grainger~~
~~Greene~~
~~Hamblen~~
~~Hancock~~
~~Hawkins~~
~~Hickman~~
~~Humphreys~~
~~Jackson~~
~~Jefferson~~
~~Knox~~
~~Lawrence~~
~~Lewis~~
~~Lincoln~~
~~Loudon~~
~~Marshall~~
~~Maury~~
~~McMinn~~
~~Meigs~~
~~Monroe~~
~~Moore~~
~~Perry~~
~~Roane~~
~~Rutherford~~
~~Smith~~
~~Sullivan~~
~~Trousdale~~
~~Union~~
~~Washington~~
~~Wayne~~
~~Williamson~~
~~Wilson~~
~~UTAH~~
~~Carbon~~
~~Duchesne~~
~~Grand~~
~~Piute~~
~~Sanpete~~
~~Sevier~~
~~Uintah~~
~~VIRGINIA~~
~~Alleghany~~
~~Amelia~~
~~Appomattox~~
~~Augusta~~
~~Bath~~
~~Bland~~
~~Botetourt~~
~~Bristol~~
~~Brunswick~~
~~Buckingham~~
~~Buena Vista~~
~~Campbell~~
~~Chesterfield~~
~~Clarke~~
~~Clifton Forge~~
~~Covington~~
~~Craig~~
~~Cumberland~~
~~Danville~~
~~Dinwiddie~~
~~Fairfax~~
~~Falls Church~~
~~Fluvanna~~
~~Frederick~~
~~Fredericksburg~~
~~Giles~~
~~Goochland~~

~~Harrisonburg~~
~~Henry~~
~~Highland~~
~~Lee~~
~~Lexington~~
~~Louisa~~
~~Martinsville~~
~~Montgomery~~

~~Nottoway~~
~~Orange~~
~~Page~~
~~Patrick~~
~~Pittsylvania~~
~~Powhatan~~
~~Pulaski~~
~~Radford~~
~~Roanoke~~
~~Rockbridge~~
~~Rockingham~~
~~Russell~~
~~Salem~~
~~Scott~~
~~Shenandoah~~
~~Smyth~~
~~Spotsylvania~~
~~Stafford~~
~~Staunton~~
~~Tazewell~~
~~Warren~~
~~Washington~~
~~Waynesboro~~
~~Winchester~~
~~Wythe~~
~~WASHINGTON~~
~~Clark~~
~~Ferry~~
~~Okanogan~~
~~Pend Oreille~~
~~Skamania~~
~~Spokane~~
~~Stevens~~
~~W. VIRGINIA~~
~~Berkeley~~
~~Brooke~~
~~Grant~~
~~Greenbrier~~
~~Hampshire~~
~~Hancock~~
~~Hardy~~
~~Jefferson~~
~~Marshall~~
~~Mercer~~
~~Mineral~~
~~Monongalia~~
~~Monroe~~
~~Morgan~~
~~Ohio~~
~~Pendleton~~
~~Pocahontas~~
~~Preston~~
~~Summers~~
~~Wetzel~~
~~WISCONSIN~~
~~Buffalo~~
~~Crawford~~
~~Dane~~
~~Dodge~~
~~Door~~
~~Fond du Lac~~
~~Grant~~
~~Green~~

~~Green Lake~~
~~Iowa~~
~~Jefferson~~
~~Lafayette~~
~~Langlade~~
~~Marathon~~
~~Menominee~~
~~Pepin~~
~~Pierce~~
~~Portage~~
~~Richland~~
~~Rock~~
~~Shawano~~
~~St. Croix~~
~~Vernon~~
~~Walworth~~
~~Washington~~
~~Waukesha~~
~~Waupaca~~
~~Wood~~
~~**WYOMING**~~
~~Albany~~
~~Big Horn~~
~~Campbell~~
~~Carbon~~
~~Converse~~
~~Crook~~
~~Fremont~~
~~Goshen~~
~~Hot Springs~~
~~Johnson~~
~~Laramie~~
~~Lincoln~~
~~Natrona~~
~~Niobrara~~
~~Park~~
~~Sheridan~~
~~Sublette~~
~~Sweetwater~~
~~Teton~~
~~Uinta~~
~~Washakie~~

a. ~~The EPA recommends that this county listing be supplemented with other available state and local data to further understand the radon potential of a Zone 1 area.~~

Reason: The EPA map and Zone 1 county list are based in part on a 1993 survey that measured radon in 5694 homes, less than two per each of the 3141counties in the US. As more recent data have been compiled by states and the US Centers for Disease Control and Prevention, it is evident that more counties' have homes that exceed the EPA action level.

Radon Zone 1 counties are defined as having a predicted year-round average indoor radon screening level in the lowest livable area of a structure greater than or equal to four picocuries per liter of air (pCi/L). Relying on an average radon level does not address the full range of risk within a given county. Levels greater than 4 have been found in 85% of US counties tested.

Restricting localities as to when or how they may include the appendix("shall be determined through") can cause this appendix to conflict with local authority.

While opponents may suggest otherwise, deleting the county information does not impose a requirement for adoption in Zones 2 and 3.Appendix BE will remain an optional appendix that is only in effect where the jurisdiction has adopted it.

The purpose of the EPA radon zone map, since its inception, has been to show potential of risk not ACTUAL risk. While it is still a useful tool, the map unintentionally creates a false sense of security for those in Zone 2 and Zone 3 that risk in those areas is nonexistent. The fact remains that radon is found in all zones and to truly protect against radon you need to test regardless of zone.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Removing a reference will have no impact on cost. Appendix BE is an optional requirement that can be adopted by a jurisdiction.

RB274-25

RB275-25

IRC: BE103.1, SECTION BE105 (New), BE105.1 (New), TABLE 105.1 (New)

Proponents: Jane Malone, representing Indoor Environments Association (janemalonedc@gmail.com); Kevin Stewart, Director, Environmental Health, representing American Lung Association (kevin.stewart@lung.org); Jonathan Wilson, representing National Center for Healthy Housing (jwilson@nchh.org); Thomas Bowles, representing USEPA (bowles.thomas@epa.gov); Joshua Kerber, Minnesota Department of Health, representing Minnesota Department of Health and CRCPD E25 Committee on Radon (joshua.kerber@state.mn.us); Ruth McBurney, representing Conference of Radiation Control Program Directors, Inc. (rmcburney@crcpd.org); Kyle Hoylman, representing Indoor Environments Association

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APPENDIX BE
RADON CONTROL METHODS

Revise as follows:

BE103.1 General. The following construction techniques are intended to resist radon entry and prepare the *building* for post-construction radon mitigation, if necessary (see Figure BE103.1). These techniques are required in areas where designated by the *jurisdiction*. Radon control systems shall comply with Sections BE103.2 through BE103.12 or ANSI/AARST RRNC.

Add new text as follows:

SECTION BE105
REFERENCED STANDARDS

BE105.1 General. See Table BE105.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, the standard title, and the section or sections of this appendix that reference the standard.

TABLE 105.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ANSI/AARST RRNC 2020 Rev.10/22	Rough-in of Radon Control Components in New Construction of 1 and 2 Family Dwellings and Townhouses	BE103.1

Reason: Adding the ANSI/AARSTRRNC standard asan alternative method allowsthe builderto fulfill a jurisdictional requirementfor radoncontrolby followinganEPA-recommendedvoluntary consensus standardfor radoncontrolsystem components innewdwelling units. Its moredetailedguidancecanassist builders inthe successfulinstallationof radonsystems, preventinghighradonlevels and reducing buyer callbacks.

Thestandardhasbeendevelopedandismaintainedbyadiversegroupof stakeholdersrepresentingnot onlyradonexpertsbut also home builders,design professionals,state government,federal agencies,and public health leadership.

TheCommonwealthofMassachusettsallows a similar ANSI/AARST new construction standard asanalternativetoitsstatewidebuildingcode’s versionof IRC AppendixBE.

ANSI/AARSTRRNC supports code officials, building inspectors,and otherpartieswho inspectsystem componentsinstalledunderthestandardwitha visual review checklist inthecompanionguidance.

Thisstandardcanbeviewed atnocostontheStandardsConsortium'swebsite.

The full name and address of the promulgator is: American Association of Radon Scientists and Technologists, 527 N. Justice Street, Hendersonville NC 28739

Bibliography:

RRNC 2020 Rev. 10/22 ***Rough-in of Radon Control Components in New Construction of 1 & 2 family dwellings and townhouses***

https://standards.aarst.org/RRNC-2020-1022/index.html#zoom=z

US Environmental Protection Agency - *Current Standards of Practice*
https://www.epa.gov/radon/radon-standards-practice

Massachusetts State Board of Building Regulation and Standards - *Building Code*
https://www.mass.gov/doc/bbrs-10th-edition-building-code/download

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Since this alternative method would not be required, there is no inherent change in the cost of construction.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ANSI/AARST RRNC 2020 Rev.10/22 Rough-in of Radon Control Components in New Construction of 1 & 2 family dwellings and townhouses

RB275-25

RB276-25

IRC: BE103.5.2

Proponents: Tom Marks, Stego Industries, LLC, representing Stego Industries

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APPENDIX BE
RADON CONTROL METHODS

Revise as follows:

BE103.5.2 Soil-gas-retarder. The soil in *crawl spaces* shall be covered with a continuous ~~layer of minimum 6-mil (0.15 mm) polyethylene~~ *soil-gas-retarder* <u>complying with vapor retarder requirements in Section R408.3</u>. The ground cover shall be lapped not less than 12 inches (305 mm) at joints and shall extend to all foundation walls enclosing the *crawl space* area.

Reason: Section BE103.3 for the soil-gas-retarder beneath concrete slabs currently references Section R506.3.3 for the vapor retarder beneath concrete floors on ground. In a practical sense, the water vapor retarder beneath the concrete floor slab will be serving as the soil-gas-retarder for radon control, so this makes sense. Thus, the proposed change would simply be the same rationale applied to the soil-gas-retarder in a crawl space.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply harmonizes related code text and categories to remove ambiguity amongst code text for the same or similar application requirements across multiple code categories.

RB276-25

RB277-25

IRC: BE103.6.1, BE103.5.3

Proponents: Joshua Kerber, Minnesota Department of Health, representing Minnesota Department of Health and CRCPD E25 Committee on Radon (joshua.kerber@state.mn.us); Jane Malone, representing Indoor Environments Association (janemalonedc@gmail.com); Thomas Bowles, representing USEPA (bowles.thomas@epa.gov); Kevin Stewart, Director, Environmental Health, representing American Lung Association (kevin.stewart@lung.org); Jonathan Wilson, representing National Center for Healthy Housing (jwilson@nchh.org); Ruth McBurney, representing Conference of Radiation Control Program Directors, Inc. (rmcburney@crcpd.org)

2024 International Residential Code

APPENDIX BE
RADON CONTROL METHODS

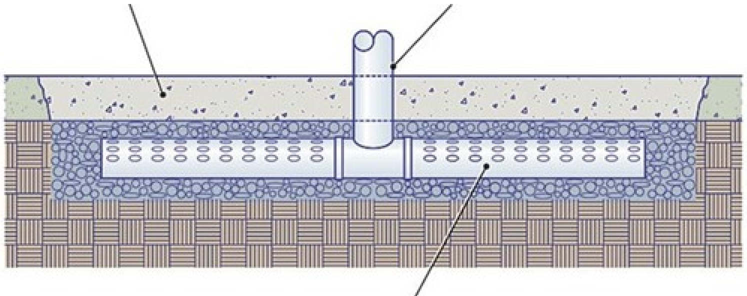
Revise as follows:

BE103.6.1 Vent pipe. A minimum 3-inch-diameter (76 mm) ABS, PVC or equivalent gastight pipe shall be embedded vertically into the subslab aggregate or other permeable material before the slab is cast. A “T” fitting or equivalent method shall be used to ensure that the pipe opening remains within the subslab permeable material<u>, and not less than 5 feet (127 cm) of perforated pipe or geotextile matting shall be connected to each of the horizontal openings of the tee fitting</u>. Alternatively, the 3-inch (76 mm) pipe shall be inserted directly into an interior perimeter *drain tile loop* or through a sealed sump cover where the sump is exposed to the subslab aggregate or connected to it through a drainage system.The pipe shall be extended up through the building floors, and terminate not less than 12 inches (305 mm) above the surface of the roof in a location not less than 10 feet (3048 mm) away from any window or other opening into the *conditioned spaces* of the *building* that is less than 2 feet (610 mm) below the exhaust point, and 10 feet (3048 mm) from any window or other opening in adjoining or adjacent *buildings*.<u> Above ground pipe material shall comply with Section P3002.1.</u>

BE103.5.3 Vent pipe. A plumbing tee or other *approved* connection shall be inserted horizontally beneath the sheeting and connected to a 3- or 4-inch-diameter (76 or 102 mm) fitting with a vertical vent pipe installed through the sheeting<u>, and not less than 5 feet (127 cm) of perforated pipe or geotextile matting shall be connected to each of the horizontal openings of the tee fitting</u>. The vent pipe shall be extended up through the building floors, and terminate not less than 12 inches (305 mm) above the roof in a location not less than 10 feet (3048 mm) away from any window or other opening into the *conditioned spaces* of the *building* that is less than 2 feet (610 mm) below the exhaust point, and 10 feet (3048 mm) from any window or other opening in adjoining or adjacent *buildings*.<u>Above ground pipe material shall comply with Section P3002.1.</u>

Reason: This proposal provides a soil gas collector and keeps open the horizontal openings in the tee fitting for both sub-slab and sub-membrane (crawl space) installations. The tee fitting is a suction point through which radon gas is pulled from below the building into the vertical vent pipe. If no pipe is present to protect the side openings in the tee fitting from filling with concrete (when the slab is cast) or aggregate, the above ground pipe cannot vent radon from below the structure to the outside.
This proposal also clarifies that the material requirement shall be consistent with Chapter 30.

Attaching five foot long perforated piping to tee fittings is required by the USEPA recommended CCAH 2020 Rev 5/23 for both sub-slab and sub-membrane systems.


4-in. perforated

Bibliography:
CCAH 2020 Rev. 05/23 *Reducing Radon in New Construction of 1 & 2 Family Dwellings and Townhouses*
https://standards.aarst.org/CCAH-2020-0523/index.html#zoom=z
US Environmental Protection Agency - *Current Standards of Practice*
https://www.epa.gov/radon/radon-standards-practice

Cost Impact: Increase

Estimated Immediate Cost Impact:

The typical cost for a ten-foot long perforated pipe with a four-inch diameter is $16-20. This pipe will be cut in half and each half attached to a horizontal opening in the tee fitting.

Estimated Immediate Cost Impact Justification (methodology and variables):

Pricing Research 1-10-25
https://www.homedepot.com/p/Advanced-Drainage-Systems-4-in-x-10-ft-Triplewall-Perforated-Drain-Pipe-4520010/100191022 $19.99
https://www.lowes.com/pd/ADS-4-in-x-10-ft-Corrugated-Perforated-Pipe/3221925 $16.90-19.88
https://www.menards.com/main/plumbing/pipe-fittings/pvc-pipe-fittings/poly-3-wall-reg-4x-10-perforated-sewer-and-drain-pipe-4-6-8-astm-f810/04tw10pf3-lb/p-1444424878508-c-8571.htm $15.99

RB278-25

IRC: BE103.8

Proponents: Joshua Kerber, Minnesota Department of Health, representing Minnesota Department of Health and CRCPD E25 Committee on Radon (joshua.kerber@state.mn.us); Thomas Bowles, representing USEPA (bowles.thomas@epa.gov); Jonathan Wilson, representing National Center for Healthy Housing (jwilson@nchh.org); Kevin Stewart, Director, Environmental Health, representing American Lung Association (kevin.stewart@lung.org); Jane Malone, representing Indoor Environments Association (janemalonedc@gmail.com); Ruth McBurney, representing Conference of Radiation Control Program Directors, Inc. (rmcburney@crcpd.org)

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APPENDIX BE
RADON CONTROL METHODS

Revise as follows:

BE103.8 Vent pipe accessibility. Radon vent pipes shall be accessible for future fan installation through an *attic* or other area outside the *habitable space*. The pipe shall be centered in an unobstructed cylindrical space having a height of not less than 36 inches (91 cm) and a diameter of not less than 21 inches (53 cm) in the location where the fan would be installed.

Exception: The radon vent pipe need not be accessible ~~in~~ within an *attic* space where an *approved* ~~roof-top~~ electrical supply is provided for future use on the roof top or other area outside the habitable space.

Reason: This change reserves adequate space in the attic for future installation of a radon fan. This language allows for easier system activation as it requires ample working room to install a fan and eliminate the abandonment of existing vent pipes that are inaccessible due to their location in an outside wall or near the gable end of a house. This is a common field failure where the pipe is run too close to the eave or outside walls. If the existing pipe system needs to be abandoned, then an additional roof penetration will be necessary and the old penetration closed and sealed.

Similar language has been part of the Minnesota Building Code (MN Code 1303.2402 subpart 5 (D)) for over a decade and has allowed for many thousands of passive radon control systems to be installed with far fewer complaints from contractors needing to add a fan. The proposed language solved one of the most common complaints our radon program would receive from our radon contractors. Having to spend less time installing the fan because of these new yet simple accessibility requirements ultimately saves fan installation costs. This language also appears in the USEPA Recommended CCAH 2020 Rev 5/2023.

Bibliography: Minnesota State Building Code 1303.2402 Subpart 5 (D): https://www.revisor.mn.gov/rules/1303.2402/

CCAH 2020 Rev. 05/23 *Reducing Radon in New Construction of 1 & 2 Family Dwellings and Townhouses*
https://standards.aarst.org/CCAH-2020-0523/index.html#zoom=z
US Environmental Protection Agency - *Current Standards of Practice*
https://www.epa.gov/radon/radon-standards-practice

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal defines a volume of space in an attic location where a radon fan can be installed, if necessary. No new material costs are added, however, the defined volume space requirement assists with proper pipe layout design to facilitate any future fan installation. This can lead to future costs savings for the occupant.

RB278-25

RB279-25

IRC: BE103.8

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Brian Tollisen, representing NYS Department of State, Division of Building Standards and Codes (brian.tollisen@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov)

2024 International Residential Code

APPENDIX BE
RADON CONTROL METHODS

Revise as follows:

BE103.8 Vent pipe access ~~accessibility~~. Ready access shall be provided to radon ~~Radon~~ vent pipes ~~shall be accessible~~ for future fan installation through an *attic* or other area outside the *habitable space*.

> **Exception:** The radon vent pipe need not be ~~accessible~~ provided with ready access in an *attic* space where an *approved* roof-top electrical supply is provided for future use.

Reason: The term "accessibility" is generally used to refer to provisions which allow people with physical disabilities to access buildings and building elements. The sections included in this proposal do not include provisions regarding access for people with physical disabilities - instead the term "accessibility" is used to refer to the ability of anyone to access the building element. To avoid confusion, this proposal changes the word "accessibility" to "access" to provide clarity as to the content of the section, and includes some slight necessary revisions to correct grammar inconsistencies arising from this change.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial change uses a correct defined term.

RB279-25

RB280-25

IRC: BE103.12

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

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APPENDIX BE RADON CONTROL METHODS

Revise as follows:

BE103.12 Power source. To provide for future installation of an active submembrane or *subslab depressurization system*, a~~n electrical~~ branch circuit terminated in a~~n~~ ~~*approved*~~ junction box shall be installed during construction in the *attic* or other anticipated location of vent pipe fans. ~~An electrical supply shall be accessible in anticipated locations of system failure alarms.~~

Reason: The change is intended to clarify that an electrical circuit is required only at the location of the future fan installation so it's possible to convert a passive system to an active, without additional expensive wiring. It is not necessary to provide an electrical circuit specifically for radon fan monitoring, as many alarms on the market today use a multi-year long life battery. And it's likely in most installations that an electrical outlet is readily available near the location of a future alarm, should a 120v system be selected.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Removes ambiguous requirement with no clear path for requirements.

RB280-25

RB281-25

IRC: BF106.4.1, FIGURE BF106.4.1

Proponents: Stephen Thomas, representing ICC Code Correlation Committee (sthomas@coloradocode.net)

2024 International Residential Code

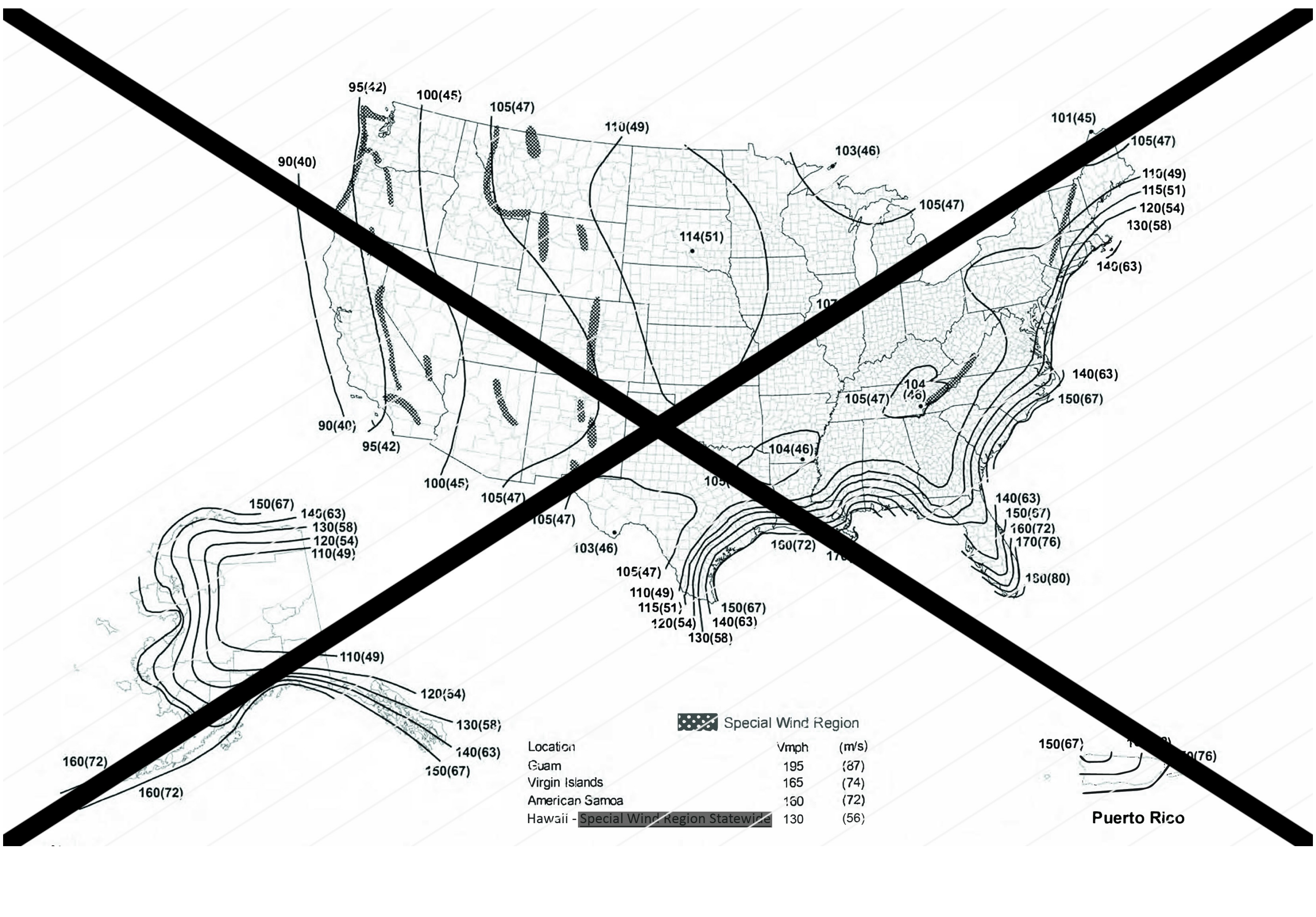
APPENDIX BF
PATIO COVERS

SECTION BF106
SPECIAL PROVISIONS FOR ALUMINUM SCREEN ENCLOSURES IN HURRICANE-PRONE REGIONS

Revise as follows:

BF106.4.1 Wind load. Structural members supporting screen enclosures shall be designed to support the minimum wind loads given in Tables BF106.4.1(1) and BF106.4.1(2) for the ultimate design wind speed, V_{ult}, determined from Figure ~~BF106.4.1~~ R302.1.2(2) . Where any value is less than 10 pounds per square foot (psf) (0.479 kN/m^2) use 10 pounds per square foot (0.479 kN/m^2).

Delete without substitution:



~~For SI: 1 foot = 304.8 mm, 1 mph = 0.447 m/s.~~
~~Notes:~~

1. ~~Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33 feet above ground for Exposure C category.~~
2. ~~Linear interpolation between contours is permitted.~~
3. ~~Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.~~
4. ~~Mountainous terrain, gorges, ocean promontories and special wind regions shall be examined for unusual wind conditions.~~
5. ~~Wind speeds correspond to approximately a 7-percent probability of exceedance in 50 years (Annual Exceedance Probability = 0.00143, MRI = 700 years).~~

~~FIGURE BF106.4.1 ULTIMATE DESIGN WIND SPEEDS FOR PATIO COVERS AND SCREEN ENCLOSURES~~

Reason: Figure R302.1.2(2) for wind loads was updated/replaced in proposal RB35-22 AS. The table in Figure BF106.4.1 was the same, but no one proposed to update this figure. Be deleting Figure BF106.4.1 and replacing it with a reference to Figure R302.1.2(2), this will remain coordinated over time.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination item. See the reason statement.

RB281-25

RB282-25

IRC: APPENDIX BH, BH101.1, SECTION BH103, BH103.1, BH103.2, BH103.3 (New), TABLE BH104.1

Proponents: Catherine Mills-Reynolds, American Fence Association, representing AFA (catherine@americanfenceassociation.com); Ben Shirley, Ameristar Perimeter Security, representing ASTM F14 (ben.shirley@assaabloy.com); Dave Monsour, Thomas Associates, representing DASMA (dmonsour@thomasamc.com); Richard Sedivy, DoorKing, Inc., representing DASMA (rsedivy@doorking.com); Kevin Ward, Miller Edge Inc, representing American Fence Association (kward@milleredge.com); Don Jeppson, representing City of San Rafael (don.jeppson@cityofsanrafael.org); Scott Kinney, D&D Technologies, representing ASTM F14.15 Gates (skinney@ddtechusa.com); Eric Quanbeck, representing The Hummingbird Alliance (eric.m.quanbeck@gmail.com); Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

APPENDIX BH
~~AUTOMATIC VEHICULAR~~ GATES

BH101.1 General. The provisions of this appendix shall control the design and construction of horizontal, swing or automatic vehicular gates, installed on the *lot* of a one- or two-family dwelling or a *townhouse*.

SECTION BH103
HORIZONTAL, SWING AND ~~AUTOMATIC~~ VEHICULAR GATES

Add new text as follows:

BH103.1 General. A horizontal slide gate or a swing gate installed in an opening more than 48 inches (1219 mm) measured horizontally or 84 inches (2134 mm) or greater measured vertically shall comply with this section. *Vehicular gates* of any size shall comply with this section.

BH103.2 Slide gates. A gate that slides in the plane of the gate shall be designed, constructed, and installed in accordance with ASTM F1184.

BH103.3 Swing gates. A hinged or swing gate shall be designed, constructed, and installed in accordance with ASTM F900.

Revise as follows:

BH103.4 ~~BH103.1~~ Vehicular gates intended for automation. *Vehicular gates* intended for automation shall be designed, constructed and installed to comply with the requirements of ASTM F2200.

BH103.5 ~~BH103.2~~ Vehicular gate openers. *Vehicular gate* openers, where provided, shall be *listed* in accordance with UL 325.

SECTION BH104
REFERENCED STANDARDS

BH104.1 General. See Table BH104.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, the standard title, and the section or sections of this appendix that reference the standard.

TABLE BH104.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ASTM F1184-23	*Standard Specification for Industrial and Commercial Horizontal Slide Gates*	BH103.1.2
ASTM F900-24	*Standard Specification for Industrial and Commercial Swing Gates*	BH103.1.3
ASTM F2200—20	*Standard Specification for Automated Vehicular Gate Construction*	BH103.1
UL 325—2017	*Door, Drapery, Gate, Louver and Window Operations and Systems—with Revisions through February 2020*	BH103.2

Reason: Gates are used, and depended on for our safety and security, throughout our society. Be it for residential use, at a sports arena, on schoolgrounds, a public park, in a parking garage, at a factory, in a multi-family dwelling or countless other applications, people are potentially in contact with a gate every day. Gates are so commonplace that most people don't think twice about their ability to operate safely until something goes wrong.

This is why it is of paramount importance that gates are designed and installed to the highest safety standard. The need for safe, functioning gates has been underscored in recent years with stories like that of, Alex Quanbeck, the 7-year-old child who was killed by a poorly maintained gate in his school yard at recess in San Rafael, California. Under deeper review, it has been discovered that numerous fatalities and life-altering injuries have occurred in the United States because of these gate issues. A map of known gate fatalities and serious injuries from gates is provided from the Hummingbird Alliance

(www.thehummingbirdalliance.com).

Having knowledge of the scope of this problem, ASTM International's F14 Committee on Fences, (which also holds jurisdiction for gate standards) updated their manual gate standards to reflect new safety requirements on slide gates (ASTM F1184) and swing gates (ASTM F900). ASTM had already updated its electric gate standard (ASTM F2200) to meet new requirements in 2002.

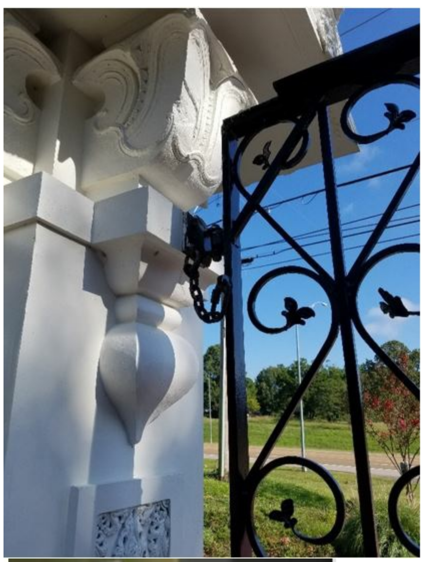
Cal/OSHA is currently reviewing these standards as well, to potentially include them in their own rules. While they do have a rule on gates, (Title 8 section 3324) it does not currently contain the provisions laid out in our proposal. In assessing these potential new standards, they reviewed some of their own accident data and found that their data from 1990 through 2005, showed that 15 out of 31 incidents (48%) involved failed or missing end stops/positive stops of gates. They then compared this data from data collected from 2014 through 2024 and found that 13 out of 16 incidents (81%) involved failed or missing end-stops/positive-stops of gates.

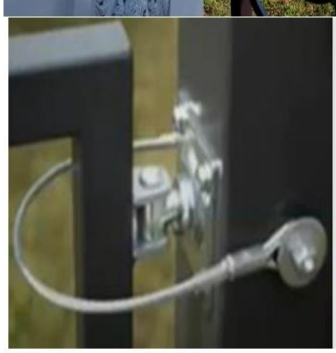
Because of these factors, they determined that, "The relatively low decrease in serious injuries and fatalities per year of only 8.2 percent after the promulgation of section 3324 in 2007 illustrates the need to amend and improve section 3324 to better protect California workers" (DOSH Evaluation, 2024).

The standards we are requesting be adopted would in no way impede first responders in accessing a property, in fact ensuring a gate is functioning properly would only provide them with safer and easier ingress and/or egress. It is when these gates go without the proper safety requirements, they are likely to fail to operate as intended or run the risk of injuring those who use them. The ICC/AFA Gate Safety Code Development Work Group consists of a wide range of gate and security experts, consumers and code enforcement officials, who have diligently reviewed ASTM standards, current safety standards and the I-Codes to confirm that this addition to the I-Codes is needed and non-duplicative. The work group decided to alter the existing section 3110 to include all gates as well as maintaining the provision currently in place for automatic vehicular gates. The new provision would only apply to gates that are 7' (84 inches) in height or greater OR 4' (48") in length or greater. The code change references industry approved national standards for gate design and construction ASTM F900 for Swing Gates and ASTM F1184 for Slide Gates. The code also includes two new standards to be referenced in Chapter

35 that are necessary for the code change. The group also looked at where gates are required for permitting and inspection and discovered that gates are not specifically referenced in the permit exemption list in Section 105. The group decided to clarify that fences and gates are unique in their own application and as such both need specific permit exceptions.

The general requirements for Swing Gates require a keeper in accordance with ASTM F900. The gate keeper is a mechanical device for securing the free end of the gate when in the fully open position. The compliance for swing gates could be a chain connected to both the gate frame and the end post (or column/structure to which the gate is attached), see the pictures below.





The general requirements for slide gates in accordance with ASTM F1184 include:

A performance statement that gates that are installed shall not fall over more than 45 degrees from the vertical plane;

· Positive stops to limit travel;

- Weight bearing rollers are covered;
- Gap no greater then 2-1/4”;
- Gates designed for lateral stability; and
- Gates design that will not move under the force of gravity.

Please see pictures below of ASTM 1184 compatible gates. Two options for fall post are shown. The first is the standard post cemented in the ground; it is the post with the yellow cap. The second is of an upside-down J bracket that has been welded on.

(Receiver Guide/ Gate Stop Below)

These standards and the code change proposal only address swing and slide gates. Overhead roll down (or up) doors, roll down security type doors (like those at the tenant space and the mall circulation areas), and parking garage entry, exit or point of sale barrier arms are not within the scope of the proposed code change or within the scope of the two reference standards.   In addition, we believe that these requirements in no way negatively impact building egress required by Chapter 10 of this code. Any swing or slide gate installed within the means of egress should be in compliance with chapter 10, as well as any other technical provision of the code and compliance with any other code application is referenced in 3110.1, as proposed.

Compliance with the ASTM standards will greatly improve safety in and around the built environment by incorporating these simple changes, (like adding fall over protection and gate stops) lives like Alex’s, can be saved. Alex’s father, Eric Quanbeck was an active participant in this work group, as well as the local building official from the city where the tragedy occurred, along with representatives from the American Fence Association, ASTM International, DASMA and UL. After thorough review, we see a need to incorporate these standards through adoption into the I-Codes.

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Compared to the overall cost of these large gates, which can run anywhere from a couple thousand dollars to tens of thousands of dollars, depending on the size, material used, and whether they have an electric operator, the safety requirement costs are negligible. The material costs for the safety parts mentioned average $50.00, with many being less than that amount. For instance, a metal gate stop can be just a few dollars. Items like a Gate Keeper and the safety chain for swing gates can be found at several retailers, including on Amazon, both for under $50.00. Labor would depend on geographical area, but overall, it would average somewhere between $150.00 to $250.00.

Estimated Immediate Cost Impact Justification (methodology and variables):

Posts for this type of application typically run $50.00 a piece or less.
Example of some product costs on Amazon:

Amazon.com: OKG Heavy Duty Security Chain, 3.9ft x 5/16" Thick Outdoor Gate Chain, Cut Proof Chain Made of Hardened Alloy Steel Chain, Ideal for Fence Gates, Bicycles, Moped, Trailers, Generator, etc : Sports & Outdoors

Amazon.com: Chain Link Fence GATE HOLD BACK: Duck Bill Gate Holdback (1-5/8" to 2-3/8"). Holds The gate open for You while You work! : Tools & Home Improvement

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ASTM F1184-23 Standard Specification for Industrial and Commercial Horizontal Slide Gates
ASTM F900-24 Standard Specification for Industrial and Commercial Swing Gates

RB282-25

RB283-25

IRC: SECTION 202, FIGURE BJ103.8 (New), BJ103.8, BJ104.2, BJ105.4.1, BJ105.6.2, BJ106.2

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); David Arkin, AIA, representing Arkin Tilt Architects (david@arkintilt.com); Dan Smith, representing DSA Architects

2024 International Residential Code

APPENDIX BJ
STRAWBALE CONSTRUCTION

Revise as follows:

LAID FLAT. The orientation of a *bale* with its largest faces horizontal, its longest dimension parallel with the wall plane, its *ties* concealed in the unfinished wall and its *straw* lengths oriented predominantly across the thickness of the wall. See Figure ~~BJ102.1~~BJ103.8.
ON-EDGE. The orientation of a *bale* with its largest faces vertical, its longest dimension horizontal and parallel with the wall plane, its *ties* on the face of the wall and its *straw* lengths oriented predominantly vertically. See Figure ~~BJ102.1~~BJ103.8.
ON-END. The orientation of a *bale* with its longest dimension vertical. For use in *nonstructural strawbale* walls only. See Figure ~~BJ102.1~~BJ103.8.

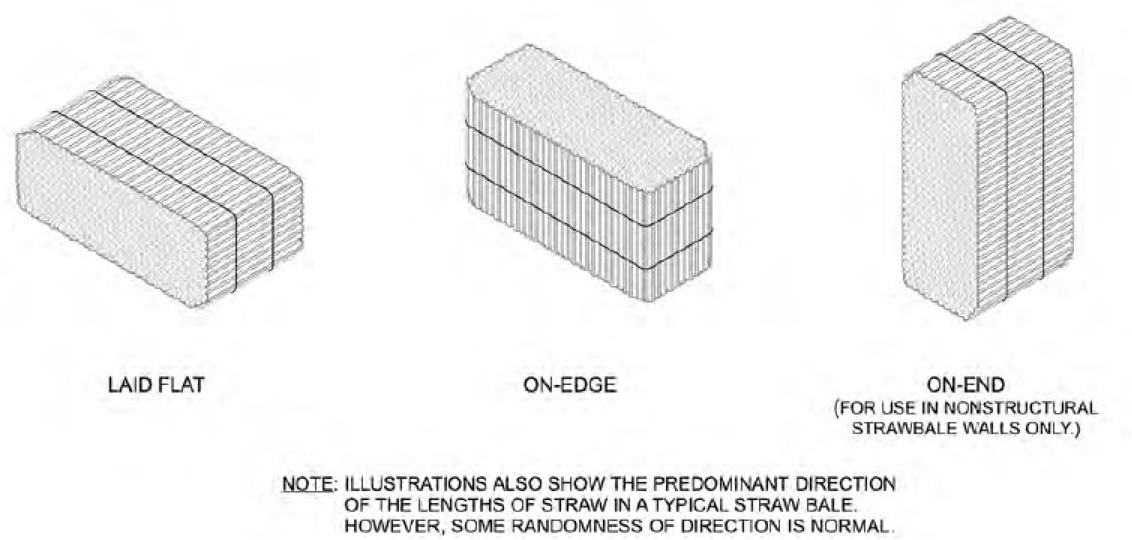


FIGURE ~~BJ102.1~~ BJ103.8 BALE ORIENTATION

BJ103.8 Orientation of bales. Straw bales shall be placed *laid flat*, *on-edge* or *on end* in accordance with this appendix. See Figure BJ103.8.

BJ104.2 Purpose, and where required. *Strawbale* walls shall be finished ~~so as~~ to provide mechanical protection, fire resistance and protection from weather and to restrict the passage of air through the ~~*bales*~~ bale walls, Vertical *strawbale* wall surfaces shall receive a coat of *plaster* not less than $^3/_8$ inch (10 mm) thick, or greater where required elsewhere in this appendix, or shall fit tightly against a solid wall panel or dense-packed cellulose insulation with a density of not less than 3.5 pounds per cubic foot (56 kg/m^3) blown into an adjacent framed wall. The tops of *strawbale* walls shall receive a coat of *plaster* not less than $^3/_8$ inch (10 mm) thick or be tightly covered by *gypsum board* or a *roof-bearing assembly*.

BJ105.4.1 Determination of out-of-plane loading. Calculating out ~~Out~~-of-plane loading ~~for the use of~~ using Table BJ105.4 shall be ~~in terms of~~ based on the ultimate design wind speed and *seismic design category* as determined by and in accordance with Sections

R301.2.1 and R301.2.2~~, respectively~~. An *approved* engineered design for out-of-plane load resistance in accordance with Section R301.2.1 shall be required ~~where~~when the *building* is located in a special wind region or ~~where~~when wind design is required in accordance with Figure ~~R301.2(2)~~R301.2.1.1 and Section R301.2.1.1 .

BJ105.6.2 Interior vapor retarders. Wall *finishes* shall have an equivalent vapor permeance rating of a Class III vapor retarder on the interior side of exterior *strawbale walls* in *Climate Zones* 5, 6, 7, 8 and Marine 4, as defined in Chapter 11. *Bale* walls enclosing ~~showers or~~ steam rooms or rooms containing showers shall be protected on the interior side by a Class I or Class II vapor retarder. See Table R702.7(1).

BJ106.2 Building limitations and requirements for use of strawbale structural walls. *Buildings* using *strawbale structural* walls shall be subject to the following limitations and requirements:

1. Number of *stories*: Not more than one, except that two *stories* shall be allowed with an *approved* engineered design.
2. Building height: Not more than 25 feet (7620 mm), except that greater heights shall be allowed with an *approved* engineered design.
3. Wall height: In accordance with Table BJ105.4, BJ106.13(2) or BJ106.13(3), as applicable, whichever is most restrictive.
4. *Braced wall panel* lengths: The greater of the values determined in accordance with Tables BJ106.13(2) and BJ106.13(3) for *buildings* using *strawbale braced wall panels*, or in accordance with Item 4 of Section BJ105.2 for *buildings* with ~~*load-bearing*~~ *strawbale walls* that ~~do not~~ use ~~*strawbale*~~ *braced wall panels*.

Reason: These proposed changes are all editorial in nature, correcting and/or adding section, figure or table reference numbers, simplifying or eliminating ambiguity in wording, but making no changes to the technical requirements or to where they apply. Below are specific notes about the proposed changes for each section.

Section BJ102: This corrects the figure reference number for the Bale Orientations figure as well as for the figure references in three defined terms related to bale orientation in Section BJ102.1.

Section BJ103.8 This adds the correct figure number for the Bale Orientation figure.

Section BJ104.2 This makes two minor changes to improve wording.

Section BJ105.4.1 This improves wording and corrects a reference number to a figure in the code.

Section BJ105.6.2 This improves the wording and adds a reference to a table in the code.

Section BJ106.2 This improves the wording of Item 4 of the section and adds a reference to a table in the code.

Section BJ107.2 This improves wording for consistency.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

These changes only involve correcting and/or adding section, figure and table references and improving wording for clarity and consistency. Therefore the changes do not involve any technical changes to requirements or where they apply, and thus have no cost impact.

RB283-25

RB284-25

IRC: BJ104.1.1 (New)

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com)

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APPENDIX BJ
STRAWBALE CONSTRUCTION

Revise as follows:

BJ104.1.1 ~~Exterior wall~~ Wall finishes. ~~Exterior wall~~ Wall finishes shall be plasters in accordance with Section BJ104.4, or nonplaster ~~exterior~~ wall coverings in accordance with ~~Section R703~~ Sections R702 and R703~~and other finish systems~~ and complying with ~~all of~~ the following:

1. ~~With *approved*~~ *Approved* specifications and details showing the *finish* system's means of attachment to the wall or its independent support. ~~, and~~ for
2. For exterior finish systems, a means of draining or evaporating water that penetrates the exterior *finish* to the exterior.

All finish systems must comply with the following:

~~2.~~ 1. The vapor permeance of ~~the combination of~~ *finish* material on each side of the wall shall be 5 perms or greater to allow the transpiration of water vapor through the wall.

~~3.~~ 2. *Finish* systems with combined weights greater than 10 or less than or equal to 20 pounds per square foot (> 48.9 and ≤ 97.8 kg/m) of wall area require a factor of 1.2 for minimum total length of *braced wall panels* in Table BJ106.13(3).

~~4.~~ 3. *Finish* systems with combined weights greater than 20 pounds per square foot (97.8 kg/m) of wall area require an engineered design.

Reason: This proposal changes the section title and reorganizes the content to cover both exterior and interior finish systems, and plaster and non-plaster finish systems, where applicable. The section already had provisions related to interior finishes and the reorganization separates them as they should be, clarifying the appropriate sections in the appendix and the code that apply to each. There are no technical changes or new requirements.

Because of the change to cover both interior and exterior finishes, it separates the need for addressing water penetration to only apply to the exterior for non-plaster finish systems, and eliminates ambiguity about the permeability requirements for finish materials. It also makes clear by adding the word "combined' to the weights of finish systems, that they include both interior and exterior finish systems for calculating additional requirements for walls with heavier finish systems.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposal reorganizes the section recognizing that it already included some requirements for both exterior and interior finishes though it was labeled as exterior finishes. The proposal also removes abiguity in some of the provisions but does not add any new requirements that would impact costs.

RB284-25

RB285-25

IRC: BJ104.2.1 (New)

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); David Arkin, AIA, representing Arkin Tilt Architects (david@arkintilt.com); Dan Smith, representing DSA Architects (dan@dsaarch.com)

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APPENDIX BJ
STRAWBALE CONSTRUCTION

Add new text as follows:

BJ104.2.1 Strawbale walls and air barriers. A continuous air barrier with breaks and joints sealed shall be required in accordance with Table N1102.5.1.1. Any plaster installed in accordance with Section BJ104, when sealed in accordance with Section BJ105.6.3, is an acceptable air barrier. Non-plaster finishes must include an acceptable air barrier as part of the finish system.

Reason: The requirement for an air barrier was already included in the appendix, but in more general language in the description of the purpose of the finish system in BJ104.2: "...to restrict the passage of air through the bales in accordance with this appendix and this code." This proposal adds a new section to BJ102 Finishes that includes missing specific language and a specific reference to the table in the code for air barriers. It also clarifies that plaster finishes installed in accordance with the finishes section, with penetrations sealed in accordance with Section BJ105.6.3, provide an acceptable air barrier. And, it confirms that non-plaster finishes are required to include an acceptable air barrier in the finish system. There are no new requirements in this proposal, rather this provides a clarification of the specific requirements.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal does not add or change any technical requirements in the appendix, but adds a new section with a reference to the appropriate table in the code for air barriers, and confirms that plaster finish systems installed in accordance with the requirements of the appendix provide an acceptable air barrier. And it also confirms that non-plaster finishes are required to include an acceptable air barrier. Thus the proposed changes have no cost impact.

RB285-25

RB286-25

IRC: BJ104.4.3.4, BJ104.4.3.5, BJ104.4.4.1, BJ104.4.4.3, BJ104.4.6.2

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); David Arkin, AIA, representing Arkin Tilt Architects (david@arkintilt.com); Jacob Racusin, representing New Frameworks (jacob@newframeworks.com); Dan Johnson, Streamline Green, representing self (dan@streamline-green.com); Dan Smith, representing DSA Architects (dan@dsaarch.com); Massey Burke, representing California Straw Building Association (massey.burke@gmail.com)

2024 International Residential Code

APPENDIX BJ
STRAWBALE CONSTRUCTION

Revise as follows:

BJ104.4.3.4 Rain-exposed. *Clay plaster,* where exposed to rain, shall be finished with lime wash, ~~lime *plaster*,~~ linseed oil or other *approved* erosion-resistant *finish*.

BJ104.4.3.5 Prohibited finish coat. *Plaster* containing Portland cement shall not be permitted as a *finish* coat over *clay plasters*. <u>Lime *plaster* shall not be permitted as an exterior *finish* coat over clay *plaster* unless a history of successful use in similar conditions is demonstrated to the building official.</u>

BJ104.4.4.1 General. Soil-cement *plaster* shall be composed of *clay subsoil*, sand and not less than 10 percent and not more than 20 percent Portland cement by volume, and shall be permitted to contain <u>lime and</u> reinforcing fibers.

BJ104.4.4.3 Thickness <u>and coats</u>. Soil-cement *plaster* shall be not less than 1-inch (25 mm) thick<u>, and is permitted to be installed in one coat</u>.

BJ104.4.6.2 Thickness and coats. Lime *plaster* shall be not less than $^7/_8$ inch (22 mm) thick, and shall be applied in not less than ~~three~~ <u>two</u> coats.

Reason: These proposed changes all relate to finishes on strawbale walls.The changes to sections BJ104.4.3.4 and BJ104.4.3.5 relate to use of lime plaster over clay plasters. Although lime plasters over clay plasters have been successfully used, de-lamination has also occurred, particularly on significantly rain-exposed walls. Thus the proposal removes lime plaster as a named acceptable finish in BJ104.4.3.4. Lime plaster is also added to BJ104.4.3.5 as a prohibited finish over clay plasters, but allows its use if evidence of successful use in similar conditions is submitted to the building official.

The changes to sections BJ104.4.4.1 and BJ104.4.4.3 relate to soil-cement plaster. BJ104.4.4.1 allows use of lime in soil-cement, typically used to increase vapor permeability. BK104.4.4.3 adds "and coats" to the title of the section and clarifies that soil-cement plaster is permitted to be installed in a single coat, which is typical for this type of plaster.

The change to Section BJ104.4.6.2 reduces the required minimum number of coats for lime plaster to two coats from the current three. Although three-coat lime plaster is more common, two-coat lime plaster also has a long successful history and is preferred by some practitioners.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

This proposal includes changes to several sections, three of which have no cost impact, one of which increases costs, and one that decreases costs. We chose Decrease because of the two changes with a cost impact, the one with a cost increase is significantly smaller than the one with a cost decrease.

The cost increase for the proposed change in BJ104.4.3.5 would range from $260 to $1800 to provide the documentation required to use lime plaster over clay plaster.

The cost decrease for the proposed change in BJ104.6.2 would be about $7700 for a 1500 sq.ft. house that uses a two-coat lime plaster instead of three coats.

Estimated Immediate Cost Impact Justification (methodology and variables):

For BJ104.4.3.4, the proposed change merely removes one option for finish plaster, leaving other acceptable options available, so there is no cost impact.

For BJ104.4.3.5, the design professional or the plaster contractor would likely charge for their time to demonstrate successful examples of lime plaster over clay plasters in similar conditions to the proposed project. The estimated time required ranges from 4 to 12 hours. Design professional rates vary widely by location and experience, from $50/hr to $250/hr. A plaster contractor's rate will vary as well, from $30/hr to $100/hr. Using an average of $150/hr for a design professional and an average of $65/hr for a plaster contractor, the cost increase would range from $260 to $1800. (4 hrs x $65/hr to 12 hrs x $150/hr.)

Sources for hourly rates and time estimates are from chatGPT, from co-proponents' experience, and interviews with contractors experienced with lime plaster and strawbale construction.

For BJ104.4.4.1, the proposed change allows the use of lime in soil-cement plaster as an option not a requirement. If used, lime would displace an equivalent amount of comparably priced Portland cement and thus would have no cost impact.

For BJ104.4.4.3, the proposed clarification that the typical application of a single coat of soil-cement plaster is acceptable has no cost impact.

For BJ104.6.2, Three-coat lime plaster over straw bales costs an average of $30/sq.ft., and a two-coat system costs about 20% less. This is based on interviews with contractors with extensive experience with lime plasters and strawbale construction (Jim Reiland, Many Hands Builders; James Henderson, NW Natural Homes). For example, for a 30'x50' residence with 1280 sq.ft. of exterior wall area (8 ft. high x160 lf) a three-coat lime plaster costs $38,400 ($30 x 1280 sq.ft.). A two-coat lime plaster would be about 20% less, or $30,700 for a cost decrease of $7700.

RB286-25

RB287-25

IRC: BJ105.9 (New), BJ105.9.1 (New), BJ105.9.2 (New)

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); David Arkin, AIA, representing Arkin Tilt Architects (david@arkintilt.com); Massey Burke, representing California Straw Building Association (massey.burke@gmail.com); Dan Johnson, Streamline Green, representing self (dan@streamline-green.com); Jacob Racusin, representing New Frameworks (jacob@newframeworks.com); Dan Smith, representing DSA Architects (dan@dsaarch.com)

2024 International Residential Code

APPENDIX BJ STRAWBALE CONSTRUCTION

Add new text as follows:

BJ105.9 Wood-based panel and fiberboard sheathing over straw bales. Wood-based panel and fiberboard sheathing shall be permitted over wood-framed walls that contain straw bales in accordance with this section.

BJ105.9.1 Exterior applications. Exterior applications shall comply with Section R702.7 for vapor retarders, Section R703.7.3 for water-resistive barriers, and Table N1102.5.1.1 for air barriers. The exterior sheathing and finish is exempt from the minimum 5 perm requirement in Section BJ104.1.1 in Climate Zones 0-4. In Climate Zones 5-8 the minimum 5 perm requirement shall apply unless a hygrothermal analysis is provided and *approved* by the building official. When the assembly includes an interior plaster finish applied directly to the straw bales, the plaster shall comply with the minimum 5 perm requirement in Section BJ104.1.1.

BJ105.9.2 Interior applications. Interior applications shall comply with Section BJ105.6.2 for vapor retarders, and Table N1102.5.1.1 for air barriers. When the assembly includes an exterior plaster finish applied directly to the straw bales, the plaster shall comply with the minimum 5 perm requirement in Section BJ104.1.1.

Reason: BJ105.9 is a new section for wood-based panel and fiberboard sheathing over wood-framed walls containing straw bales. This section was developed by the co-proponents, several of whom have extensive experience designing and building these wall systems, and three building science envelope professionals, to provide requirements for the growing use of strawbale infill in wood-framed wall systems with structural or non-structural wood-based panels. The panels can be installed on the exterior and/or interior side of the wall.

This section references and relies on the IRC sections for wall systems with conventional framing, panel sheathing, and insulation, that safely govern vapor retarders (R702.7), water-resistive barriers (R703.7.3), air barriers (Table N1102.5.1.1) and conventional wall coverings in the full range of climate zones. For exterior applications this new section specifies that the sheathing and associated exterior finish system is exempt from the minimum 5 perm requirement in Section BJ104.1.1, except in climate zones 5-8, where the exemption requires a hygrothermal analysis to be submitted to and approved by the building official.

For exterior panel applications, if a plaster finish is directly applied to the straw bales on the interior, the plaster must comply with the minimum 5 perm requirement in Section BJ104.1.1 to help ensure that moisture from the wet-applied plaster can adequately dry to the interior. For interior applications the wall assembly must comply with Section BJ105.6.2 for vapor retarders and Table N1102.5.1.1 for air barriers. For interior panel applications, if an exterior plaster finish is directly applied to the straw bales, the plaster must comply with the minimum 5 perm requirement in Section BJ104.1.1.

Cost Impact: Decrease

Estimated Immediate Cost Impact:

The estimated immediate cost impact for the use of wood-based or fiberboard panels over straw bales is a decrease of $9400 for a 30'x50' house, or about $7/sq.ft. of wall area.

Estimated Immediate Cost Impact Justification (methodology and variables):

The growing trend of strawbale infill into wood-framed wall systems with exterior sheathing, often as shear walls, is a result of time savings during construction, and the use of more conventional materials and systems contractors are familiar with. Though the plywood material and installation is an increased cost, the labor savings of applying plaster over plywood vs. straw bales yields a net cost decrease.

1/2"x4x8 CDX plywood costs $30/sheet. A 30’x50’ residence requires 40 sheets for a cost of $1200. 2 person-hours for installation of 3 sheets, for a total installation cost of 2 people x 14 hrs x $65/hr = $1800. Total labor & materials = $1800 + $1200 = $3000Three-coat lime plaster over straw bales costs an average of $30/sq.ft. (bale prep & mesh included), and over plywood an average of $20/sq.ft. (bldg. paper and mesh included), based on interviews with contractors with extensive experience with lime plasters over straw bales and over plywood (Jim Reiland, Many Hands Builders; James Henderson, NW NaturalHomes).

For a 30’x50’ residence with 1280 sq.ft. of exterior wall area(8ft high x 160 lf) a three-coat lime plaster over straw bales costs $38,400($30x 1280 sq.ft.). A three-coat lime plaster over plywood costs $25,600 + $3000 plywood labor and materials = $28,600.The decrease in cost of lime plaster over plywood vs. lime plaster over straw bales for a 30'x50 house is $28,600 - $38,000 = -$9400

In addition, a plywood substrate allows the use of non-plaster finishes that are typically less expensive than plaster (e.g., fiber-cement siding), and thus yields a similar cost savings.

RB287-25

RB288-25

IRC: BJ106.6.1, BJ106.2, BJ106.11

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); David Arkin, AIA, representing Arkin Tilt Architects (david@arkintilt.com); Massey Burke, representing California Straw Building Association; Dan Smith, representing DSA Architects (dan@dsaarch.com)

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APPENDIX BJ
STRAWBALE CONSTRUCTION

Revise as follows:

BJ106.6.1 Compressive strength. For *plaster* on *strawbale* structural walls, the *building official* is authorized to require a 2-inch (51mm) cube test conforming to ASTM C109 to demonstrate a minimum compressive strength in accordance with Table BJ106.6.1. For natural hydraulic lime (NHL) plasters, the compressive strength in the NHL manufacturer's specifications is permitted to be used to satisfy the requirements in Table BJ106.6.1 where the *plaster* mix used for the project is identical to that in the manufacturer's specifications. The following modifications to Section 10.5 of ASTM C109 are required for the testing of soil-cement, clay-lime, and clay plasters:

1. Soil-cement and clay-lime plaster samples shall be stored in a moist environment, but shall not be immersed in lime-saturated water.
2. Clay-lime plaster samples shall be stored for a minimum of 7 days.
3. Clay plaster samples shall be dried to the approximate ambient moisture conditions of the project site and shall not be stored in a moist environment or immersed in lime-saturated water.

BJ106.2 Building limitations and requirements for use of strawbale structural walls. *Buildings* using *strawbale structural* walls shall be subject to the following limitations and requirements:

1. Number of *stories*: Not more than one, except that two *stories* shall be allowed with an *approved* engineered design.
2. Building height: Not more than 25 feet (7620 mm), except that greater heights shall be allowed with an *approved* engineered design.
3. Wall height: In accordance with Table BJ105.4, BJ106.13(2) or BJ106.13(3), as applicable, whichever is most restrictive.
4. *Braced wall panel* lengths: The greater of the values determined in accordance with Tables BJ106.13(2) and BJ106.13(3) for *buildings* using *strawbale braced wall panels*, or in accordance with Item 4 of Section BJ105.2 for *buildings* ~~with *load-bearing strawbale walls*~~ that do not use *strawbale braced wall panels*.

BJ106.11 Transfer of loads to and from plaster skins. ~~Where plastered~~ Plastered *strawbale* load-bearing walls ~~are used to support~~ shall transfer their superimposed vertical loads~~, such loads shall be transferred~~ to the *plaster skins* by continuous direct bearing in accordance with Figure BJ105.1(3) or ~~by~~with an *approved* engineered design. ~~Where plastered~~ Plastered *strawbale* braced wall~~s~~ panels shall transfer their~~are used to resist in-plane~~ lateral loads~~, such loads shall be transferred~~ to the reinforcing *mesh* from the structural member or assembly above in accordance with Figure BJ105.1(3) or BJ105.1(4), and to the foundation and sill plate in accordance with Figure BJ105.1(1) or BJ105.1(2) and with Table BJ106.13(1)as applicable.

Reason: The proposed changes for each section are clarifications. The proposal adds language in BJ106.6.1, clarifying appropriate storage (curing or drying) environments for test samples of soil-cement, clay-lime and clay plasters. The proposal strikes unneeded language in BJ106.2, Item 4, to more clearly convey its intended meaning. Lastly, the proposal simplifies and improves language in BJ106.11.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The changes to each section in this proposal are clarifications with no cost impact. The proposed language in Sections BJ106.1 and BJ106.2 clarify the intended meaning. Language added to BJ106.6.1 simply clarifies the appropriate storing (curing or drying) of plaster test samples containing clay.

RB288-25

RB289-25

IRC: APPENDIX BJ, BJ107.1, BJ107.2

Proponents: David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com); David Arkin, AIA, representing Arkin Tilt Architects (david@arkintilt.com); Dan Smith, representing DSA Architects (dan@dsaarch.com)

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APPENDIX BJ
STRAWBALE CONSTRUCTION

Revise as follows:

BJ107.1 Fire-resistance rating. *Strawbale* walls ~~shall not be considered to exhibit a~~do not have a fire-resistance rating, except for walls constructed in accordance with Section BJ107.1.1 or BJ107.1.2. ~~Alternately, fire~~Fire-resistance ratings of other *strawbale* wall ~~walls~~ assemblies shall be based on testing ~~determined~~ in accordance with ~~Section R302~~ASTM E119 or UL 263, or an analytical method in accordance with Section 703.2.2 of the International Building Code.

BJ107.2 Openings in rated walls. Openings and penetrations in strawbale ~~*bale*~~ walls required to have a fire-resistance rating shall satisfy the same requirements for openings and penetrations as prescribed in this code.

Reason: The proposed changes to Section BJ107.1 simplify the code language and add a reference to the standard testing required to establish a fire-resistance rating for unrated straw bale walls, using language identical to that in Section R302.3.2. This makes no changes to the technical requirements of the section.
The proposed change to Section BJ107.2 improves wording for consistency.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed changes to BJ107.1 simplify the code language, and add a reference to the standard requirements for fire-resistance ratings. They make no technical changes and have no impact on construction costs. The proposed change for BJ107.2 is for consistency of terminology and has no cost impact.

RB289-25

RB290-25

IRC: BL103.3.7, TABLE BL103.3.7, BL103.6.5.2

Proponents: Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Timothy Callahan, representing Callahan Home Designs (t.l.callahan@icloud.com); Tom Rossmassler, representing Hempstone, LLC (tom@hempstone.net); Cameron McIntosh, representing Americhanvre LLC (cameron@americhanvre.com); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com)

2024 International Residential Code

APPENDIX BL
HEMP-LIME (HEMPCRETE) CONSTRUCTION

Revise as follows:

BL103.3.7 Openings in walls. Doors, windows and similar openings in *hemp-lime* walls shall be in accordance with the following:

1. Rough framing for doors and windows shall be part of, or be fastened to, the wall framing in accordance with this code.
2. An *approved water-resistive barrier* shall be installed at openings in *hemp-lime* walls in accordance with Sections BL103.7.4 and BL104.5.1.
3. Header size and their maximum span above openings in bearing walls with *hemp-lime* infill shall be determined with Tables R602.7(1) and BL103.3.7 or an *approved* design by a *registered design professional*.
4. Cast-in-place *hemp-lime* ~~over and~~ overhanging the face of a header more than 3 inches (76 mm) shall require an *approved* design of its support by a *registered design professional*.
5. *Hemp-lime* blocks overhanging headers shall require an *approved* design of their support by a *registered design professional*.

TABLE BL103.3.7 ALLOWABLE HEADER SPAN ~~MULTIPLIER~~<u>ADJUSTMENT FACTORS</u>[a]

WALL HEIGHT ABOVE HEADER	UNIT WALL WEIGHT (psf)			
	15	30	45	65
1′-0″	1.00	1.00	1.00	1.00
1′-6″	1.00	1.00	0.90	0.90
2′-0″	1.00	0.90	0.90	0.85
2′-6″	1.00	0.90	0.90	0.85
3′-0″	1.00	0.90	0.90	0.80

For SI: 1 foot = 304.8 mm, 1 pound per square foot = 4.882 kg/m^2.

a. Multiply the maximum allowable spans from Table R602.7(1) by the applicable factor to determine the adjusted maximum allowable header span.

BL103.6.5.2 Casting. *Hemp-lime* blocks shall be cast in accordance with Sections BL103.6.1 through ~~BL103.6.6~~<u>BL103.6.5</u>, as applicable, or by other means that produce *approved* blocks.

Reason: This proposal improves code language in a section, improves the title of a table, and corrects a section number.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal improves code language and the title of a table, and corrects a section number, so there is no impact on the cost of construction.

RB291-25

IRC: BL105.1, BL105.1.1 (New)

Proponents: Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net); David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Cameron McIntosh, representing Americhanvre LLC (cameron@americhanvre.com); Tom Rossmassler, representing Hempstone, LLC (tom@hempstone.net); Timothy Callahan, representing Callahan Home Designs (t.l.callahan@icloud.com); Matthew Mead, representing Hempitecture Inc. (mattie@hempitecture.com); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com)

2024 International Residential Code

APPENDIX BL
HEMP-LIME (HEMPCRETE) CONSTRUCTION

Revise as follows:

BL105.1 Fire-resistance rating. *Hemp-lime* walls do not have a fire-resistance rating, except for walls constructed in accordance with Sections BL105.1.1, BL105.1.2 or BL105.1.3. Fire-resistance ratings for other *hemp-lime* wall assemblies shall be determined by testing in accordance with ASTM E119 or UL 263, or an analytical method in accordance with Section 703.2.2 of the International Building Code .

Add new text as follows:

BL105.1.1 One-hour rated hemp-lime wall with center stud framing. One-hour fire-resistance rated load-bearing hemp-lime center stud walls shall comply with all of the following:

1. Shall be constructed with center stud framing per Figure BL103.1(2) with 2x4 studs at 16 inches (406 mm). The framed wall height shall not exceed 10 feet (3.05 m). Staggered 2x4 blocking shall be installed at mid-height between the studs.
2. Hemp-lime complying with Sections BL106.3.1, BL106.3.2 and BL107.1 shall be spray applied in accordance with Section BL103.6.4 to a thickness of 12 inches (305 mm).
3. Exterior and interior plaster shall be lime plaster complying with Section BL104.3.5, and shall be applied with 1/4-inch (6.4 mm) coats to a thickness of 3/4 inch (19 mm) on the exterior and 1/2 inch (12.7 mm) on the interior. Fiberglass stucco lath shall be embedded in the first exterior and interior coats.

BL105.1.2 One-hour rated hemp-lime wall with exterior stud framing. One-hour fire-resistance rated load-bearing hemp-lime exterior stud walls shall comply with all of the following:

1. Shall be constructed with exterior stud framing per Figure BL103.1(3) with 2x6 studs at 16 inches (406 mm). The framed wall height shall not exceed 10 feet (3.05 m). 2x4 on-edge blocking shall be installed at 5 feet (1.52 m) and 9 feet (2.74 m) between the studs and flush with their exterior face. 2x2 anchorage at 16 inches (406 mm) shall be fastened horizontally to inside face of the studs with 16d nails, and vertically at 16 inches (406 mm) to the horizontal anchorage.
2. A *vapor permeable* combined water-resistive and air barrier shall be stapled with lapped and taped joints at the 2x4 on-edge blocking.
3. A .06 inch x 2 3/8-inch (1.5 mm x 60mm) galvanized steel strap shall be installed diagonally from top plate to bottom plate and fastened to framing members per manufacturer's specifications.
4. 1x3 wood furring shall be installed vertically to each stud with 2 3/8 inch (60 mm) screws, and horizontally at 16 inches (406 mm) to the vertical furring.
5. 3/4-inch (19 mm) x 5 ½-inch (127 mm) vertical wood siding shall be fastened at each horizontal furring member.

6. Hemp-lime complying with Sections BL106.3.1, BL106.3.2, and BL107.1 shall be spray applied in accordance with Section BL103.6.4 to a thickness of 12 inches (305 mm).
7. Interior plaster shall be lime plaster complying with Section BL104.3.5, and applied with 1/4–inch (6.4 mm) coats to a thickness of ½ inch (12.7 mm). Fiberglass stucco lath shall be embedded in the first coat.

BL105.1.3 One-hour rated hemp-lime wall with double stud framing. One-hour fire-resistance rated load-bearing hemp-lime double stud walls shall comply with all of the following:

1. Shall be constructed with double stud framing per Figure BL103.1(4), with exterior load-bearing 2x4 studs at 16 inches (406 mm) and interior nonload-bearing 2x3 studs at 24 inches (610 mm). The framed wall height shall not exceed 10 feet (3.05 m). 2x4 on-edge blocking shall be installed at 5 feet (1.52 m) and 9 feet (2.74 m) between the exterior studs and flush with their exterior face. Horizontal 2x4 anchorage shall be fastened to the interior face of the 2x4 studs at 30, 60, and 90 inches (.76, 1.52, and 2.29 m).
2. A *vapor permeable* combined water-resistive and air barrier shall be stapled with lapped and taped joints at the 2x4 on-edge blocking.
3. A .06 inch x 2 3/8-inch (1.5 mm x 60mm) galvanized steel strap shall be installed diagonally from top plate to bottom plate and fastened to framing members per manufacturer's specifications.
4. 1x3 wood furring shall be installed vertically to each stud with 2 3/8 inch (60 mm) screws, and horizontally at 16 inches (406 mm) to the vertical furring.
5. 3/4-inch (19 mm) x 5 ½-inch (127 mm) vertical wood siding shall be fastened at each horizontal furring member.
6. Hemp-lime complying with Sections BL106.3.1, BL106.3.2, and BL107.1 shall be spray applied in accordance with Section BL103.6.4 to a thickness of 12 inches (305 mm).
7. Interior plaster shall be lime plaster complying with Section BL104.3.5, and applied with 1/4–inch (6.4 mm) coats to a thickness of ½ inch (12.7 mm). Fiberglass stucco lath shall be embedded in the first coat.

Attached Files

- **Hemp-Lime_ASTM-E119_TestA_07.10.24_IntertekReport_12.13.24.pdf**
  https://www.cdpaccess.com/proposal/11989/35949/files/download/9794/
- **Hemp-Lime_ASTM-E119_TestB_12.18.24_IntertekReport_02.05.25.pdf**
  https://www.cdpaccess.com/proposal/11989/35949/files/download/9793/
- **Hemp-Lime_ASTM-E119_TestC_01.24.25_IntertekReport_02.05.25..pdf**
  https://www.cdpaccess.com/proposal/11989/35949/files/download/9791/
- **Hemp-Lime ASTM-E119 Wall Stud Structural Calcs_2025.02.10.pdf**
  https://www.cdpaccess.com/proposal/11989/35949/files/download/9790/

Reason: This proposal modifies the current section on fire-resistance rating of hemp-lime walls to include three assemblies tested in accordance with ASTM E119, including a hose stream test, in July 2024, Dec 2024 and Jan 2025. The test reports state that the each assembly met the Conditions of Acceptance of ASTM E119 for a fire-resistance rating of 60 minutes. Accordingly this code proposal describes the construction of these tested hemp-lime walls required to assign them a 1-hour fire-resistance rating. (See attachments or contact the primary proponent for the test reports.)

Though the test reports state the use of select structural Douglas fir framing in the test specimens, the code language does not specify the framing lumber species or grade for two reasons: 1) the attached structural calculations demonstrate that commonly used and IRC-allowed Douglas fir-larch, Southern pine, Hem-fir, and Spruce-pine-fir No. 2 framing is capable of supporting the superimposed loads in these three ASTM E119 tests, and 2) the fire that these test specimens were subjected to did not reach the load-bearing framing.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The ASTM E119 tested wall assemblies described in the proposed code language simply take already acceptable (per Appendix BL) hemp-lime wall assemblies and state their newly assigned one-hour fire-resistance rating. Therefore the proposal has no cost impact.

RB291-25

RB292-25

IRC: BL106.1

Proponents: Martin Hammer, representing Martin Hammer - Architect (mfhammer@pacbell.net); David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Timothy Callahan, representing Callahan Home Designs (t.l.callahan@icloud.com); Tom Rossmassler, representing Hempstone, LLC (tom@hempstone.net); Cameron McIntosh, representing Americhanvre LLC (cameron@americhanvre.com); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com)

2024 International Residential Code

APPENDIX BL
HEMP-LIME (HEMPCRETE) CONSTRUCTION

Revise as follows:

BL106.1 Mass walls. Walls with *hemp-lime* infill shall be classified as mass walls in accordance with Section ~~N1102.2.5 (R402.2.5)~~ N1102.2.6 (R402.2.6) and shall meet the *R*-value requirements for mass walls in Table N1102.1.3 (R402.1.3), when their heat capacity (*C*) is greater than or equal to 6 Btu/ft^2 × °F (123 kJ/m^2 × K) in Equation BL-1, including the wall's exterior and interior plasters.

C = (ρ_{HL} x t_{HL} x ~~0.299~~ 0.34 Btu/lb x ºF) +(101 pcf x t_1 x 0.245 Btu/lb x ºF) + (107 pcfx t_2 x 0.24 Btu/lb x ºF)
(Equation BL-1)

where:
C = Heat capacity (Btu/ft^2 × °F).
ρ_{HL} = Density of *hemp-lime* infill (pounds per cubic foot).
t_{HL}= Thickness of *hemp-lime* infill (feet).
t_1= Thickness of lime plaster(s) (feet).
t_2= Thickness of clay plaster(s) (feet).

Reason: This proposal clarifies that the heat capacity of hemp-lime walls includes the heat capacity of its plasters, in calculating whether a wall reaches the heat capacity threshold of a mass wall classification. The associated Equation BL-1 is modified accordingly. A section number is also corrected in the opening sentence. (See below for justification of specific heat capacity and density values used.)

Specific Heat Capacity & Density of Hempcrete, Lime & Clay Plaster

1.31.25 Research by Tim Callahan, Callahan Home Designs

SOURCE: DeepSeek				
Material	WEIGHT (LB. FT.^{3})	MEDIAN WEIGHT	SPECIFIC HEAT CAPACITY	MEDIAN SHC
HEMPCRETE			0.29-0.38	0.335
LIME PLASTER	100-120	110	0.24-0.25	0.245
CLAY PLASTER	100-120	110	0.20-0.24	0.22

Source: ChatGPT				
Material	WEIGHT (LB. FT.^{3})	MEDIAN WEIGHT	SPECIFIC HEAT CAPACITY	MEDIAN SHC
HEMPCRETE			0.24-0.43	0.345
LIME PLASTER	75-110	92.5	0.22-0.26	0.24
CLAY PLASTER	70-120	105	0.22-0.30	0.26

Material	MEDIAN WEIGHT	MEDIAN SHC	
HEMPCRETE		0.34	
LIME PLASTER	101.25	0.2425	
CLAY PLASTER	107.5	0.24	

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply clarifies that the heat capacity of hemp-lime walls includes the heat capacity of its plasters, when calculating whether a wall is considered a mass wall, and revises the specific heat capacity of hemp-lime with a more accurate value. Therefore there is no cost impact.

RB292-25

RB293-25

IRC: BL106.4

Proponents: Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net); David Eisenberg, representing The Development Center for Appropriate Technology (strawnet@gmail.com); Cameron McIntosh, representing Americhanvre LLC (cameron@americhanvre.com); Timothy Callahan, representing Callahan Home Designs (t.l.callahan@icloud.com); Tom Rossmassler, representing Hempstone, LLC (tom@hempstone.net); Matthew Mead, representing Hempitecture Inc. (mattie@hempitecture.com); Anthony Dente, representing Verdant Structural Engineers (anthony@verdantstructural.com)

2024 International Residential Code

APPENDIX BL
HEMP-LIME (HEMPCRETE) CONSTRUCTION

Revise as follows:

BL106.4 Compliance with Section R302.10.1. *Hemp-lime* ~~infill shall meet~~ <u>meets</u> the requirements for insulation materials in Section R302.10.1 for *flame spread index* and *smoke-developed index* as tested in accordance with ASTM E84.

Attached Files

- **Hemp-Lime_ASTM-E84_Test_Hempitecture_2.18.20.pdf**
  https://www.cdpaccess.com/proposal/11987/35950/files/download/9381/

Reason: This proposal corrects a significant error between the approved code language in the original proposal for this Appendix in 2022, and what was published in the 2024 IRC. Specifically, this proposal removes the word "shall", which was not in the approved code language. Removing the word "shall" restores the intended and approved meaning, that is, hemp-lime <u>does</u> meet the requirements for insulation in Section R302.10.1, because in 2020 it was tested in accordance with ASTM E84 with results of zero for both flame spread index and smoke-developed index (see attachment or contact the primary proponent for the test report). This proposal also makes two editorial changes, removing the word "infill" which is unnecessary, and changing the word "meet" to "meets" to be grammatically correct.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal only corrects and improves the code language and makes no changes with construction cost impacts.

RB293-25

RB294-25

IRC: BK101.5 (New), BL101.2 (New)

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

2024 International Residential Code

APPENDIX BK
COB CONSTRUCTION (MONOLITHIC ADOBE)

Add new text as follows:

BK101.5 **Flood hazard areas.** In flood hazard areas established in Table R301.2, buildings using cob construction shall meet the requirements of Section R306.

APPENDIX BL
HEMP-LIME (HEMPCRETE) CONSTRUCTION

BL101.2 **Flood hazard areas.** In flood hazard areas established in Table R301.2, *buildings* using hemp-lime construction shall meet the requirements of Section R306.

Reason: This proposal points users of IRC appendices to existing requirements in the IRC for buildings and structures in flood hazard areas. Section R306 contains requirements for dwellings in flood hazard areas. Similar pointers are already present in appendices BA (manufactured housing); BI (light straw-clay construction); BJ (strawbale construction; and BO (existing buildings).

Walls constructed using cob or hemp-lime materials that are inundated by floodwater could deteriorate, especially floodwater that remains high for more than a few hours. For these alternative building materials, the existing flood damage-resistant materials requirements are especially relevant. Section R306.1.8 requires materials used for walls to be flood damage-resistant materials that conform to FEMA Technical Bulletin 2, Flood Damage-Resistant Materials Requirements. Thus, referring to the flood-damage resistant materials requirement is not a new requirement. Similar "reminders" of the flood provisions related to materials appear in Appendix BI (light straw-clay construction) and Appendix BJ (strawbale construction).

We note that the current edition of TB 2 does not include cob or hemp-lime materials. However, ASTM E3075 Standard Test Method for Water Immersion and Drying for Evaluation of Flood Damage Resistance and ASTM E3369 Standard Specification for Determining the Flood Damage Resistance Rating of Building Materials are available and allow for testing materials that are not specifically listed in TB 2. Those standards are proposed to be referenced in a separate proposal for R306.1.6 Flood damage-resistant materials.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal adds pointers to existing requirements in the code. There is no change to the technical content of the provisions. By reminding users of existing applicable requirements there will be no cost impact when approving this proposal.

RB294-25

RB295-25

IRC: BO102.2, BO102.3, SECTION BO103, BO103.1, SECTION 202, BO105.5.1, BO105.5.3, BO105.6, BO105.8.5

Proponents: Jenifer Gilliland, representing Seattle Department of Construction & Inspections (jenifer.gilliland@seattle.gov); Ardel Jala, representing Seattle Department of Construction & Inspections (ardel.jala@seattle.gov)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

Delete without substitution:

~~**BO102.2 Identification of work.** The work shall be clearly identified on the *permits* issued under these provisions.~~

Revise as follows:

BO102.3 Structural. Structural elements and systems that are altered, repaired or replaced shall comply with Section R102.6.1 and the structural provisions of this appendix. ~~The work performed shall not cause the structure to become less compliant with this code than it was before the work was undertaken.~~

Delete without substitution:

~~SECTION BO103~~
~~DEFINITIONS~~

~~**BO103.1 General.** The terms used in this appendix, and not provided in Chapter 2, are defined as follows:~~

~~**DANGEROUS.** Any *building*, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:~~

1. ~~The building or structure has collapsed, has partially collapsed, has moved off its foundation or lacks the necessary support of the ground.~~
2. ~~There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under permanent, routine or frequent loads; under actual loads already in effect; or under snow, wind, rain, flood, earthquake aftershock or other environmental loads when such loads are imminent.~~

Revise as follows:

BO105.5.1 Materials and methods. Newly installed electrical equipment and wiring ~~relating to work done in any work area, including in newly installed partitions and ceilings,~~ shall comply with the materials and methods requirements of Chapters 34 through 43.

BO105.5.3 Additional electrical requirements. Where the ~~work~~ area of alterations includes any of the following areas within a *dwelling unit*, the requirements of Sections BO105.5.3.1 through BO105.5.3.5 shall apply.

BO105.6 Ventilation. Reconfigured spaces intended for occupancy and spaces converted to habitable or occupiable space ~~in any work area~~ shall be provided with *ventilation* in accordance with Section R325.

BO105.8.5 Stairway illumination. *Stairways* ~~within the work area~~undergoing alterations shall be provided with illumination in accordance with Section R325.7.

Reason: This proposal cleans up Appendix BO Existing Buildings by eliminating duplicated text, incorrect terminology and an unused definition from the text. It is generally editorial in nature.

- Section BO102.2 Identification of work is stricken because documenting the scope of work on applications and permits is adequately covered in Chapter 1 of the IRC. It need not to be duplicated here.
- Section BO102.3 Structural is modified to remove language about not allowing work that causes the structure to be less compliant with code. This language is already found in 102.1 and does not need to be repeated here.
- The term "work area" is removed from sections BO105.5.3 Additional electrical requirements, BO 105.5.1 Materials and methods, BO 105.6 Ventilation, and BO105.8.5 Stairway illumination and replaced by the phrase, "area of alterations". "Work area" is specific to a particular method of compliance allowed within the IEBC and not a concept used in the IRC. It is replaced by the phrase "area of alterations" to clearly identify the area of work within the context of the IRC.
- The definition of DANGEROUS is removed from Appendix BO. The term is not used within the Appendix and is also not defined in the body of the code. It is not needed in Appendix BO and was simply mistakenly carried over from the 2021 IRC Appendix J Existing Buildings and Structures.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Eliminating a definition that isn't used in the appendix in question and eliminating a term that doesn't apply in an IRC context is completely editorial in nature. There is no cost impact.

RB295-25

RB296-25

IRC: BO102.3

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

Revise as follows:

BO102.3 Structural. Structural elements and systems that are altered, repaired or replaced shall comply with Section R102.6.1 and the structural provisions of this appendix. ~~The work performed shall not cause the structure to become less compliant with this code than it was before the work was undertaken.~~
<u>Where new structural elements rely on existing structural elements for resistance to gravity or environmental loads, the supporting existing structural elements down to the foundation shall comply with or be altered to comply with this appendix. All other existing structural elements outside of the work performed shall not become less compliant with this code than before the work was undertaken.</u>

Reason: This proposal adds language to ensure a continuous load path is maintained, where alterations and additions are made to existing structures. This section was added to Appendix BO (formerly AJ) with multi-party collaboration in the 2024 code cycle. While providing input to ICC on the 2024 edition commentary for this section, this clarification was identified as a necessary revision. Without this added language, alterations and additions that comply with this Appendix could be rendered significantly more vulnerable to environmental loads, than the structure was prior to alteration or addition. The addition of load path provisions is consistent with ASCE 7 Section 12.1.3 “Continuous Load Path and Interconnection.” This section combined with the balance of the ASCE 7 seismic provisions, are based on the published NEHRP Provisions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal will not increase or decrease the cost of construction because IRC Section 301.1 already requires construction in accordance with the provisions of the IRC to provide a complete load path from the point of the load to the foundation. This code change proposal is only intended to clarify existing IRC provisions.

RB296-25

RB297-25

IRC: BO102.3.1

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

Revise as follows:

BO102.3.1 Design loads. The minimum design loads for the existing structure shall be the loads applicable at the time the *building* was constructed. The minimum design loads for new structural components shall comply with this code. Structural elements that are uncovered during the course of the *alteration* and that are found to be unsafe shall be repaired or replaced in accordance with Section R102.6.1.

Reason: This proposal recognizes that at times it may be necessary to replace structural elements rather than simply repairing them. This follows similar language that is in International Existing Building Code (IEBC) Sections 405.2.1.1, 502.3, 503.3, 706.2, 805.2 and 1103.1, where it notes when structural members may need to be “replaced or altered”.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposal is entirely clarification and editorial to maintain past practice, with no substantive effect.

RB297-25

RB298-25

IRC: BO102.3.1, BO105.2, BO105.4.1, BO105.4.2, BO105.4.2.1, BO106.2

Proponents: Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com); Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

Revise as follows:

BO102.3.1 Design loads. The minimum design loads for the existing structure shall be the loads applicable at the time the *building* was constructed. The minimum design loads for new structural elements ~~components~~ shall comply with this code. Structural elements that are uncovered during the course of the *alteration* and that are found to be unsafe shall be repaired in accordance with Section R102.6.1.

BO105.2 Newly constructed elements. Newly constructed elements~~, components~~ and systems shall comply with the requirements of this code.

Exceptions:

1. Added openable windows are not required to comply with the light and *ventilation* requirements of Section R325.
2. Newly installed electrical equipment shall comply with the requirements of Section BO105.5.

BO105.4.1 Decreased structural capacity. Where an *alteration* causes a decrease in capacity in any structural element ~~component~~, that structural element ~~component~~ shall be shown to comply or shall be altered to comply with the applicable provisions of Chapters 3, 4, 5, 6 and 8.

BO105.4.2 Increased design loads. Where an *alteration* causes an increase in loads as described in this section, the existing structural elements ~~components~~ that support the increased load, including the foundation, shall be shown to comply or shall be altered to comply with the applicable provisions of Chapters 3, 4, 5, 6 and 8. Existing structural components that do not provide support for the increased loads shall not be required to comply with this section.

BO105.4.2.1 Dead load increase. *Dead load* shall be considered to be increased for purposes of this section when the weight of materials used for the *alteration* exceeds the weight of the materials replaced, or when new materials or elements are added over existing materials or elements.

Exceptions:

1. *Buildings* in which the increase in *dead load* is due entirely to the *addition* of a second layer of *roof covering* weighing 3 pounds per square foot (psf) (0.1437 kN/m^2) or less over an existing single layer of *roof covering*.
2. Installation of rooftop-mounted photovoltaic (*PV*) panel systems weighing 4 psf (0.1915 kN/m^2) or less over an existing single layer of *roof covering*.

These exceptions shall not be applied simultaneously.

BO106.2 Structure for horizontal additions. Where an *addition* involves new construction attached to an existing building, the new construction shall meet all of the structural requirements of this code for new construction. *Alterations* to the existing building shall comply with the requirements governing *alterations* within this code. In wood light-frame *additions*, connection of the structural elements ~~components~~ shall be permitted to be provided using wall top plates and *addition* studs that abut the existing building. Wall top plates shall be lapped and spliced in accordance with Section R602.3.2. Abutting studs shall be fastened in accordance with Table R602.3(1).

Exception: The *addition* structure shall be permitted to be connected to the existing building in accordance with accepted engineering practice.

Reason: This section was added through multi-party collaboration in the 2024 cycle. We have since determined that an editorial correction is needed so that consistent terminology is used. As currently written, the appendix uses structural “elements” and structural “components” interchangeably. This code change proposes to consistently use the term structural elements throughout the appendix. The terminology being proposed is consistent with a broad range of publications developed and published by FEMA including the 2020 NEHRP Provisions. There are no technical changes in this proposal.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal will not increase or decrease the cost of construction because the proposal is only intended to clarify the current code requirements. See reason statement.

RB298-25

RB299-25

IRC: BO102.10 (New)

Proponents: Jay Crandell, P.E., ABTG / ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council (jcrandell@aresconsulting.biz)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

Add new text as follows:

BO102.10 Energy conservation. Alterations or additions to existing buildings or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the International Energy Conservation Code or Chapter 11 of this code. The alterations and additions shall conform to the energy requirements of Chapter 5 of the International Energy Conservation Code or Section N1109 of Chapter 11 of this code.

Reason: Appendix BO addresses primarily structural and safety related matters with work on existing buildings. However, its reference to energy efficiency requirements is very incomplete and inconsistent with requirements for existing building energy efficiency in the main body of the code. Section N1109 of Chapter 11 addresses many important requirements for energy efficiency related to alterations and additions to existing buildings, including replacement of windows. This proposal properly coordinates Appendix BO with requirements for existing building energy efficiency in the code.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal properly coordinates energy efficiency requirements in the code with those in Appendix BO since the two must be compatible as they are both adopted. This proposal, therefore, does not change requirements where the IRC code and Appendix BO are both adopted. Thus, in this context, there is no cost impact.

RB299-25

RB300-25

IRC: BO104.1, BO104.2.1, BO105.2, BO105.3, BO106.2

Proponents: Jenifer Gilliland, representing Seattle Department of Construction & Inspections (jenifer.gilliland@seattle.gov); Ardel Jala, representing Seattle Department of Construction & Inspections (ardel.jala@seattle.gov)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

SECTION BO104
REPAIRS

Revise as follows:

BO104.1 General. *Repairs* shall comply with the applicable provisions of this code for new construction or as permitted by this appendix. Work on undamaged components necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to requirements for *alterations*.

BO104.2 Materials. Materials used during *repairs* shall comply with this section.

BO104.2.1 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by this code for new construction shall be used. Like materials shall be permitted for *repairs* ~~and *alterations*,~~ provided that unsafe conditions are not created. Hazardous materials shall not be used where this code would not permit their use in *buildings* of similar occupancy, purpose and location.

SECTION BO105
ALTERATIONS

BO105.2 Newly constructed elements. Newly constructed elements~~, components~~ and systems shall comply with the requirements of this code.

Exceptions:

1. Added openable windows are not required to comply with the light and *ventilation* requirements of Section R325.
2. Newly installed electrical equipment shall comply with the requirements of Section BO105.5.

~~**BO105.3 Nonconformities.** The work shall not increase the extent of noncompliance or create nonconformity to those requirements that did not previously exist.~~

SECTION BO106
ADDITION

BO106.2 Structure for horizontal additions. Where an *addition* involves new construction attached to an existing building, the new construction shall meet all of the structural requirements of this code for new construction. *Alterations* to the existing building shall comply with the requirements governing *alterations* within this code except where modified by this appendix. In wood light-frame *additions*, connection of the structural ~~components~~ elements shall be permitted to be provided using wall top plates and *addition* studs that abut the existing building. Wall top plates shall be lapped and spliced in accordance with Section R602.3.2. Abutting studs shall be fastened in accordance with Table R602.3(1).

Exception: The *addition* structure shall be permitted to be connected to the existing building in accordance with accepted engineering practice.

Reason: This proposal corrects unanticipated errors and omissions created when Appendix BO Existing Buildings and Structures was approved for inclusion in the 2024 International Residential Code. We propose four edits to improve the appendix:

1. Add language to address work on undamaged components when damaged components are being repaired. Language from the 2024 IEBC Section 401.2 is added to clarify requirements for alterations do not apply.

2. Using "like" materials in repairs is approved but not when the work being performed is an alteration (See BO 104.2.1). According to the commentary for the 2021 IRC, appendix J, Section AJ107.1, "it is acceptable to use materials consistent with those that are already present. This allowance follows the general concept that the repair work is making the building no more unsafe or hazardous than it was prior to the work being done." The same cannot be said for alterations where use of like materials from one area of a building to other portions of a building where the material was not used would increase the nonconformity of the existing building. Alterations are considered new work throughout the code. The use of like materials should not be encouraged in alterations unless the materials comply with current codes.

3. Replace the term "structural components" with "structural elements". The term "elements" is used in various codes to describe major structural and other systems in the building, e.g. Table 601 of the IBC. A component is generally considered to be a part or portion of one of these systems. There are a few parts of the appendix that utilize the term "component" when it should be "element". These have been fixed in this proposal.

4. Relocate Section BO105.3 Nonconformities into its own section. Eliminate the second sentence of BO102.3 Structural concerning work making the building no less compliant than it was before the work was undertaken. This requirement does not need to be in three different places in the appendix. Creating section BO102.10 means the requirements about not creating a nonconformity or increasing one apply to all types of work covered by the appendix.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This code change proposal clarifies requirements within the appendix. There is no cost or possibly a decrease in cost depending on how these items are currently being interpreted. For instance, clarifying that work on undamaged components needed for repair of damaged components doesn't need to meet alteration requirements would reduce the work needed on undamaged components. Changing "structural **components"** to "structural **elements"** would limit the review to "structural elements" rather than "structural components".

The other code changes eliminate a duplicative requirement, BO105.3 Nonconformities, because identical language will be in BO102.10, as well as clarify that alterations have to comply with the IRC, as modified by Appendix BO. Neither of these items would impact cost.

RB300-25

RB301-25

IRC: BO107.1, BO107.1.1 (New), BO107.2 (New), BO107.2.1 (New), BO107.3 (New), BO107.4 (New)

Proponents: Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

Delete and substitute as follows:

~~**BO107.1 General.** Residential buildings or structures moved into or within the *jurisdiction* are not required to comply with the requirements for new construction under this code, provided they comply with all of the following conditions:~~

1. ~~The *building* shall be safe for human occupancy as determined by the International Fire Code and the International Property Maintenance Code.~~
2. ~~Any *repair*, *alteration* or change of use undertaken within the relocated structure shall comply with the requirements of this code applicable to the work being performed.~~
3. ~~Any field fabricated elements shall comply with the applicable requirements of this code.~~

BO107.1 General. These provisions apply to residential buildings or structures within the scope of the *International Residential Code* that meet all the following conditions:

1. The building is relocated from the original property to a new property or to a new location on the same property.
2. The relocated building was originally designed and constructed to remain on the original site of construction.
3. The relocated *building* remains safe for human occupancy as determined by the *International Existing Building Code*, *International Fire Code* and the *International Property Maintenance Code*

Add new text as follows:

BO107.1.1 Relocatable Buildings. Buildings and structures originally designed and constructed to be relocatable to new sites are outside the scope of this appendix.

BO107.2 Conformance. Any *repair*, *alteration* or *change of occupancy* undertaken within the relocated building shall comply with the applicable provisions of this code for new construction and this appendix. New constructed elements shall comply with the requirements of this code for new construction. Existing elements that are not *repaired*, *replaced*, or *altered* are not required to comply with the requirements of this code for new construction.

BO107.2.1 Unsafe Conditions. Elements that are uncovered during the course of the relocation and that are found to be *unsafe* shall be repaired or replaced in accordance with Section R102.6.1.

BO107.3 Design criteria. Where climatic and geographic design criteria at the proposed new site of a relocated building is higher than at the original site, the relocated building shall be shown to comply with the structural requirements of this code or shall be altered as needed to comply. Climatic and geographic design criteria for both sites shall be determined in accordance with Section R301.2.

BO107.4 **Foundations.** The foundation and connection of the relocated building to the foundation shall comply with this code for new construction.

Reason: This proposal provides direction on what is required for a relocated existing residential building. Although other sections may be inferred as applicable, this section clearly identifies provisions to be considered as well as allowing for future provisions to address unique conditions for relocated buildings.

Cost Impact: Increase

Estimated Immediate Cost Impact:

Relocation of a building to a location with different climatic and geographic design criteria, as per Section BO107.3, will at a minimum require determination of whether the criteria are more restrictive. This can be done with the assistance of the building official and should have negligible cost. Where the relocation results in higher loads such as snow, wind, or seismic, upgrades to the existing floors, walls and foundations may be necessary and can have widely varying scope and cost. For purposes of this proposal we estimate a lower-bound cost of $2000 and a median cost of $34,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

The $2,000 lower bound cost is estimated for evaluation of the existing framing, bracing and foundation to determine if strengthening is needed. The $34,000 median cost assumes that strengthening of the wall bracing and load path connections is needed throughout the home. This will often involve opening of wall finish materials to access sheathing and framing. It is an approximate number based on a 2023 NAHB median home cost of 425,000, and an estimated cost of strengthening of approximately 8% of the home cost based on judgment.

RB301-25

RB302-25

IRC: BO108 (New), BO108.1 (New), BO108.2 (New), BO108.3 (New)

Proponents: Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

Add new text as follows:

SECTION BO108
CHANGE OF OCCUPANCY

BO108.1 General. Existing residential buildings and structures with a change of occupancy or use shall comply with the this code, except as modified by this appendix. Where a change of occupancy with the work performed is not within the scope of this code, the provisions of the *International Existing Building Code* shall apply.

BO108.2 Change of occupancy or use. Where the live load for the proposed new occupancy or use is higher than the live load for the current occupancy or use in accordance with Table R301.5, existing framing and foundations shall be shown to comply or altered to comply with Chapters 4 through 6 of this code.

BO108.3 Live/work units. Portions of a dwelling unit converted to a *live/work* unit shall be shown to comply with or altered to comply with Section R322.2 and Section 508.5 of the *International Building Code.*

Reason: This proposal provides direction on what is required for a change of occupancy or use within an existing residential building. Although other sections may be inferred as applicable, this section clearly identifies provisions to be considered as well as allowing for future provisions to address new and creative uses of spaces to accommodate the lack of affordable housing.

Cost Impact: Increase

Estimated Immediate Cost Impact:

A change of occupancy that results in higher live loads, as per Section BO108.2, would result in increased cost to evaluate and upgrade existing foundations and framing. This should not apply for change from occupancies such as office or commercial to residential, because live loads are generally reduced rather than increased. Increased live loads do commonly occur when changing uninhabitable attics to habitable attics or areas other than sleeping and turning roofs into roof decks. In each of these instances, costs will be incurred to evaluate the existing framing and foundation, and to upgrade them as required to conform; this generally occurs as part of a renovation project that includes a range of other work and costs. The scope and cost of work can vary widely. For purposes of this proposal we estimate a lower-bound cost of $2000 and a median cost of $20,000.

Estimated Immediate Cost Impact Justification (methodology and variables):

The $2,000 lower bound cost is estimated for evaluation of the existing framing and foundation to determine if strengthening is needed. The $20,000 median cost assumes that strengthening of the floor and supporting wall framing is needed in one portion of the home. It is an approximate cost based on a 2023 NAHB median home cost of 425,000, and an estimated cost of strengthening of approximately 5% of the home cost based on judgment. This cost addresses structural strengthening only, not additional work that might be associated with the change in occupancy.

RB303-25

IRC: BO109 (New), BO109.1 (New)

Proponents: Julie Furr, Smith Seckman Reid, Inc, representing Julie Furr, PE (jcfurr@ssr-inc.com); Kelly Cobeen, Wiss Janney Elstner Associates, representing Self (kcobeen@wje.com)

2024 International Residential Code

APPENDIX BO
EXISTING BUILDINGS AND STRUCTURES

Add new text as follows:

SECTION BO109
HISTORIC BUILDINGS

BO109.1 General. Work performed to *historic buildings* that are within the scope of the *International Residential Code* shall comply with the this code, except as modified by this appendix. Where a *historic building* with the work performed is not within the scope of this code, the provisions of the *International Existing Building Code* shall apply.

Reason: This proposal provides direction on what is required for historic existing residential structures. Although other sections may be inferred as applicable, this section clearly identifies provisions to be considered as well as allowing for future provisions to address new and creative uses of spaces to preserve heritage buildings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Historic buildings are already allowed under the IRC or IEBC. This proposal just creates a dedicated section and fits within the bigger framework of improving the residential provisions in the IRC to allow the IRC to be standalone.

RB303-25

RB304-25

IRC: APPENDIX BP (New), SECTION BP101 (New), BP101.1 (New), BP101.2 (New), SECTION BP102 (New), BP102.1 (New), BP102.1.1 (New), BP102.1.2 (New), BP102.1.3 (New), BP102.1.4 (New), BP102.1.5 (New), SECTION BP103 (New), BP103.1 (New), BP103.1.1 (New), BP103.1.2 (New), BP103.1.3 (New), SECTION BP104 (New), BP104.1 (New), BP104.1.1 (New), BP104.1.2 (New), BP104.1.3 (New), BP104.1.4 (New), SECTION BP105 (New), BP105.1 (New), TABLE BP105.1 (New)

Proponents: Eirene Knott, representing BRR Architecture (eirene.knott@brrarch.com)

2024 International Residential Code

Add new text as follows:

APPENDIX BP
PHYSICAL SECURITY

SECTION BP101
GENERAL

BP101.1 Purpose. The purpose of this appendix is to establish minimum standards that incorporate physical security to make dwelling units resistant to unlawful entry.

BP101.2 Application. The provisions of this appendix shall apply to all new structures and to additions and alterations made to existing buildings as provided for in R102.6.1.

SECTION BP102
DOORS

BP102.1 Doors. All exterior doors and doors leading from the garage area into the dwelling unit, shall comply with Sections BP102.1.1 through BP102.1.5 based on the type of door installed.

Exceptions:

1. Vehicle access doors
2. Storm or screen doors

BP102.1.1 Wood doors. Wood doors shall be of solid core construction such as high-density particleboard, solid wood, or wood block core with a minimum thickness of 1-3/4 inches (45 mm) when measured at the locking device or hinge.

BP102.1.2 Steel doors. Steel doors shall be a minimum skin thickness of 24 gauge and have reinforcement material at the location of the deadbolt.

BP102.1.3 Fiberglass doors. Fiberglass doors shall have a minimum skin thickness of one-sixteenth inch and have reinforcement material at the location of the deadbolt.

BP102.1.4 Double doors. The inactive leaf of an exterior double door shall be provided with flush bolts having an engagement of not less than 1-inch (25.4 mm) into the head and threshold of the door frame, or by other approved methods.

BP102.1.5 Sliding doors. Sliding doors shall be installed to prevent the removal of the panels from the exterior.

SECTION BP103
DOOR FRAMES

BP103.1 Door frames. The exterior door frames shall be installed prior to the rough-in inspection. Two-inch nominal wood blocking shall be placed horizontally between studs at the door lock height for at least one stud space on each side of the door opening. Door frames shall comply with ATSM F476 Grade 40 for the bolt and hinge impact. Door frames shall comply with Sections BP103.1.1 through BP103.1.3 based on the type of door installed.

BP103.1.1 Wood frames. Wood frame doors shall be set in frame openings constructed of double studding or equivalent construction. Door frames, including those with sidelites, shall be reinforced.

BP103.1.2 Steel frames. Steel door frames shall be constructed of 18 gauge or heavier steel. Doors shall be anchored to the wall in accordance with the manufacturer's instructions.

BP103.1.3 Sidelight entry. Sidelite door units shall have framing of double stud construction or equivalent construction. Double stud construction or equivalent construction shall exist between the glazing unit of the sidelite and the wall structure of the dwelling.

SECTION BP104
DOOR HARDWARE

BP104.1 Door hardware. Exterior door hardware shall comply with Sections BP104.1.1 through BP104.1.4.

BP104.1.1 Hinges. Hinges for exterior swinging doors shall comply with the following:

1. At least two screws, 3 inches (76 mm) in length, penetrating at least 1-inch (25.4 mm) into the wall structure. Solid wood fillers or shims shall be used to eliminate any space between the wall structure and the door frame behind each hinge.
2. Hinges for out-swinging doors shall be equipped with mechanical interlock to prevent removal of the door from the exterior.

Exception: Sidelite doors complying with ASTM F476 for the bolt and hinge impact test.

BP104.1.2 Escutcheon plates. All exterior doors shall have escutcheon plates protecting the door's edge at the location of the deadbolt. Exception: Doors provided with a multi-point lock.

BP104.1.3 Locks. Exterior doors shall be provided with a deadbolt with a minimum grade B as determined by ANSI/BHMA A156.40.

BP104.1.4 Entry vision and glazing. Front entry doors to dwelling units shall be arranged so that the occupant has a 180 degree view of the area immediately outside the door without opening the door.

SECTION BP105
REFERENCED STANDARDS

BP105.1 General.. See Table BP105.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, the standard title, and the section or sections of this appendix that references the standard.

TABLE BP105.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED

ASTM F476-2014	Standard Test Methods for Security of Swinging Door Assemblies	BP103.1, BP104.1.1
ANSI/BMHA A156.40-2020	Standard for Residential Deadbolts	BP104.3

Reason: In the summer of 1996, Overland Park, Kansas, experienced a series of home invasions resulting in the sexual assault of several women. For the victims of a home invasion, it's more than a property crime; it scares the victim into thinking that the criminal will return only to commit a more violent or heinous crime. To have an emotional investment in their residence is priceless. As a result of these home invasions, the City's Police Department conducted hundreds of surveys of residents in an effort to develop a solution to the home invasions. The results of the surveys lead the City to develop a building code that makes home more safe and secure. You may ask, why secure the front door? What about installing an alarm? Communities across the country continue to report a growing increase in false alarms. In an effort to provide physical security to the homeowner, there needs to be a more reliable option available.

The longer a criminal spends trying to gain access to a home, the greater the risk of detection. In addition, most home invaders will not attempt to break a window, as that makes noise that neighbors could potentially hear. Rather than face these risks, the invader is more likely to try to kick in an exterior door, where they can easily gain access without being detected.

This code change will provide for minimal provisions to be made to a new home under construction that will give the homeowner safety and peace of mind, while delaying and frustrating the criminal. Since this proposal is not dependent on electrical power, these provisions will always be available to the homeowner and will require no further action after installation. There is no on-going cost to the homeowner and these provisions will not affect the overall aesthetics of the home.

Cost Impact: Increase

Estimated Immediate Cost Impact:

The cost to secure a single door ranges from $40-$60 for a single door unit and between $140 and $180 for a double sidelite unit.

Estimated Immediate Cost Impact Justification (methodology and variables):

The cost to secure a single door ranges from $40-$60 for a single door unit and between $140 and $180 for a double sidelite unit.

Staff Analysis: A review of the following standards proposed for inclusion in the code regarding some of the key ICC criteria for referenced standards (Section 4.6 of CP#28) will be posted on the ICC website on or before April 1, 2025.
ASTM F476-2014 Standard Test Methods for Security of Swinging Door Assemblies
ANSI/BMHA A156.40-2020 Standard for Residential Deadbolts

RB304-25

ISPSC Code Change Proposals

The following code change proposal is labeled as a SP code change proposal because it is a proposal for changes to sections in chapters of the International Swimming Pool and Spa Code that are designated as the responsibility of the ISPSC Code Development Committee (see page viii of the Introductory pages of this monograph), which met in the Group A cycle in 2024. However, the changes included in this Group B code development cycle are to sections of the code that have been prefaced with a [S] and meaning that they are the responsibility of a different IBC Code Development Committee— the IBC-Structural [S] Committees.

The committee assigned for each code change proposal is indicated in a banner statement near the beginning of the proposal. See the IBC-Structural hearing orders.

SP1-25

ISPSC: [BS] 304.2, [BS] 304.2.1, [BS] 304.2.2, [BS] 304.3, [BS] 304.4, 304.5

Proponents: Rebecca Quinn, RCQuinn Consulting, representing Association of State Floodplain Managers (rebecca@rcquinnconsulting.com); Chad Berginnis, representing Association of State Floodplain Managers (cberginnis@floods.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2024 International Swimming Pool and Spa Code

Add new definition as follows:

BASE FLOOD ELEVATION. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the Flood Insurance Rate Map (FIRM).

304.1 General. The provisions of Section 304 shall control the design and construction of pools and spas installed in *flood hazard areas.*

Revise as follows:

[BS] 304.2 Determination of compliance ~~impacts~~ based on location. Pools and spas located in *flood hazard areas* indicated within the *International Building Code* or the *International Residential Code* shall comply with Section 304.2.1, ~~or~~ 304.2.2 or 304.2.3.

~~Exception~~ Exceptions:

1. Pools and spas located in riverine flood hazard areas that are outside of designated floodways. ~~and pools and spas located in *flood hazard areas* where the source of flooding is tides, storm surges or coastal storms.~~
2. Pools and spas located inland of coastal high hazard areas or inland of Coastal A Zones where the source of flooding is tides, storm surges, or coastal storms.

[BS] 304.2.1 Pools and spas located in designated floodways. Where pools and spas are located in designated floodways, documentation shall be submitted to the *code official* that demonstrates that the construction of the pools and spas will not increase the base ~~design~~ flood elevation at any point within the jurisdiction.

[BS] 304.2.2 Pools and spas located in riverine flood hazard areas where floodways have not been designated. Where pools and spas are located where base~~design~~ flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed pool or spa and any associated grading and filling, will not increase the base ~~design~~ flood elevation more than 1 foot (305 mm) at any point within the jurisdiction.

[BS] 304.2.3 ~~304.3~~ Pools and spas in coastal high-hazard areas and coastal A zones. Pools and spas installed in coastal high-hazard areas and coastal A zones shall be designed and constructed in accordance with ASCE 24.

[BS] 304.3 ~~304.4~~ Protection of equipment. Equipment shall be elevated to or above the base~~design~~ flood elevation.

Exception: Equipment for pools, spas and water features shall be permitted below the required elevation provided that the equipment is elevated to the highest extent practical, is anchored to prevent flotation and resist flood forces, and is protected to prevent water from entering or accumulating within the components during conditions of flooding.

304.4 ~~304.5~~ GFCI protection. Electrical equipment installed below the base ~~design~~ flood elevation shall be supplied by branch circuits that have ground-fault circuit interrupter protection for personnel.

Reason:
This proposal does three things.

1. Modifies the exception to Sec. 304.1 to use defined terms (Coastal A Zone and Coastal High Hazard Areas), rather than broad descriptions of coastal areas.
2. Renumbers sections to group the three scenarios where compliance based on location must be determined.
3. Replaces “design flood elevation” with “base flood elevation.” The floodway is a base flood concept, as defined by the NFIP regulations and modeled by FEMA to delineate floodways on Flood Insurance Rate Maps. Referring to the base flood elevation achieves a reasonable level of protection against flood damage. Pool equipment does not need to be elevated or protected to the same elevation as equipment that serves buildings.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is primarily editorial to use defined terms and regroup existing provisions. There is one change to the technical content of the provisions that changes the flood protection elevation for pool equipment from design flood elevation to base flood elevation. In some communities that adopt flood maps in addition to the FEMA maps, base flood elevation is lower than design flood elevation so in theory, costs may be slightly lower. By making editorial changes and replacing “design flood elevation” with “base flood elevation” there will be no cost impact when approving this proposal.

SP1-25

2025 GROUP B – PROPOSED CHANGES TO THE INTERNATIONAL PROPERTY MAINTENANCE / ZONING CODE

PROPERTY MAINTENANCE / ZONING CODE COMMITTEE

Erik Karl Fritzberg, RA, CBO, CPHC, CFM-*Chair*
Professional Architect III
J. S. Held, LLC
Pittsburgh, PA

James Allen-*Vice Chair*
Fire Marshal/Code Enforcement Officer
City of Prestonsburg
Prestonsburg, KY

Rudolph (Rudy) Beuc, RA, CBO, NCARB, AIA
Architect
R. Beuc Architects
Webster Groves, MO

Kevin Gore, CFM
Chief Building Official
City of Perry
Kathleen, GA

William Hyde, EFO, CFO
Fire Chief
Rogers Fire Department (AR)
Rogers, AR

Tina Mathew, RA, LEED AP, CFM
Code Development Architect
New York City Department of Buildings
New York, NJ

William (Glen) Merchant
Building Official
City of Mountain Brook
Mountain Brook, AL

Lucas Pump, MCP
Building Inspector
City of Cedar Rapids
Cedar Rapids, IA

Dawn Purushothaman, CFPS
Fire and Life Safety Engineer
Jacobs
Abu Dhabi United Arab Emirates

Erik S. Waddell
Rep: Code Official Association of Alabama
Chief Building Inspector
City of Athens, Alabama
Tuscumbia, AL

Staff Secretariat:
LaToya Carraway, Ph.D
Technical Staff
International Code Council
Central Region Office

TENTATIVE ORDER OF DISCUSSION
2025 PROPOSED CHANGES TO THE
INTERNATIONAL ZONING CODE

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some Z code change proposals may not be included on this list, as they are being heard by another committee.

    G1-25 Part III
    G17-25 Part II
Z1-25
Z2-25
Z3-25

Z1-25

IZC: SECTION 202, SECTION 202 (New), 601.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org); Andrew Bevis, Chair, representing Plumbing, Mechanical and Fuel Gas Code Action Committee (pmgcac@iccsafe.org)

2024 International Zoning Code

Delete without substitution:

~~**POOLS (SWIMMING), HOT TUBS AND SPAS**~~.

~~**Above-ground/on-ground pool.**~~ ~~See "*Private swimming pool*."~~

~~**Barrier.**~~ ~~A fence, a wall, a *building* wall, the wall of an above-ground swimming pool or a combination thereof, which completely surrounds the swimming pool and obstructs access to the swimming pool.~~

~~**Hot tub**~~. ~~See "*Private swimming pool*."~~

~~**In-ground pool.**~~ ~~See "*Private swimming pool*."~~

~~**Power safety cover**~~. ~~A pool cover that is placed over the water area, and is opened and closed with a motorized mechanism activated by a control switch.~~

~~**Private swimming pool.**~~ ~~Any *structure* that contains water over 24 inches (610 mm) in depth and that is used, or intended to be used, for swimming or recreational bathing in connection with an occupancy in *Use* Group R-3 and that is available only to the family and guests of the householder. This includes in-ground, above-ground, and on-ground swimming pools, hot tubs and spas.~~

~~**Private swimming pool, indoor**~~. ~~Any private *swimming pool* that is totally contained within a private *structure* and surrounded on all four sides by walls of said *structure*.~~

~~**Private swimming pool, outdoor**~~. ~~Any private swimming pool that is not an indoor pool.~~

~~**Public swimming pool**~~. ~~Any swimming pool other than a private swimming pool.~~

~~**Spa**~~. ~~See "*Private swimming pool*."~~

Add new definition as follows:

<u>**SWIMMING POOL.**</u> <u>Any structure or product intended for swimming, bathing or wading; designed and manufactured to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each.</u>

601.1 Commercial and commercial/residential zones. Allowable commercial (C) zone and commercial/residential (CR) zone *uses* shall be:

C Zone

Division 1. The following *uses* are permitted in a C, Division 1 zone:

Minor automotive repair, automotive motor fuel dispensing facilities, *automotive self-service motor fuel dispensing facilities*, *business or financial services*, convenience and *neighborhood commercial centers* (excluding wholesale sales), family and *group day care* facilities, libraries, *mortuary* and funeral homes, public and governmental services, police and fire department stations, places of religious worship, *public utility stations*, and *restaurants*.

Division 2. The following *uses* are permitted in a C, Division 2 zone:

Any *uses* permitted in C, Division 1 zones, and *light commercial* (excluding wholesale sales), *group care facilities*, physical fitness centers, *religious*, cultural and fraternal activities, *rehabilitation centers*, and schools and colleges operated for profit (including commercial, vocational and trade schools).

Division 3. The following *uses* are permitted in a C, Division 3 zone:

Any *uses* permitted in C, Division 2 zones, and *amusement centers* (including bowling alleys, golf driving ranges, miniature golf courses, ice rinks, swimming pool and billiard halls, and similar recreational uses), automotive sales, building material supply sales (wholesale and retail), cultural institutions (such as museums and art galleries), *community commercial centers* (including wholesale and retail sales), health and medical institutions (such as *hospitals*), *hotels* and *motels* (excluding other residential occupancies), commercial printing and publishing, taverns and cocktail lounges, indoor *theaters*, and self-*storage warehouses*.

Division 4. The following *uses* are permitted in a C, Division 4 zone:

Any *uses* permitted in C, Division 3 zones, and *major automotive repair*, commercial bakeries, *regional commercial centers* (including wholesale and retail sales), plastic products design, molding and assembly, small metal products design, casting, fabricating, and processing, manufacture and finishing, storage yards, and wood products manufacture and finishing.

CR Zone Permitted (commercial/residential) (CR) zone *uses* shall be:

Division 1. The following *uses* are permitted in a CR, Division 1 zone:

Any *use* permitted in a C, Division 1 zone, and residential *use* permitted, except in the *story* or *basement* abutting *street grade*.

Division 2. The following *uses* are permitted in a CR, Division 2 zone:

Any *use* permitted in a C, Division 2 zone, and residential *use* permitted, except in the *story* or *basement* abutting *street grade*.

Reason: IZC uses the term 'swimming pool' in 501.1 and 601.1. It does not used the other terms currently defined under the current definition.

The term proposed would be consistent with ISPSC.

This proposal is submitted by the ICC Building Code Action Committee (BCAC)and ICC Plumbing Mechanical Gas Code Action Committee (PMGCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

PMGCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned

International Codes or portions thereof. In 2023 and 2-24 PMGCAC has held several virtual meetings open to any interested party. In addition, there were several virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the PMGCAC website at PMGCAC.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is a coordination of defined terms. There is no change to requirements.

Staff Analysis: This proposal is simply duplicating a definition from the IBC and IPC. The definition cannot be revised in this proposal as it is scoped to another committee.

Z1-25

Z2-25

IZC: 801.2, 801.2.4, 801.3, 801.3.1, 801.3.1.1 (New), 801.3.1.2 (New), 801.3.2, 801.3.2.1 (New)

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Zoning Code

801.2 Parking space requirements. *Parking spaces* shall be in accordance with Sections 801.2.1 through 801.2.4.

Revise as follows:

801.2.4 Accessible spaces. Accessible *parking spaces* and passenger loading zones shall be provided in accordance with the building code. ~~Passenger loading zones shall be designed and constructed in accordance with ICC A117.1.~~

801.3 Parking stall dimension. Parking stall dimensions shall be in accordance with Sections 801.3.1 and 801.3.2.

801.3.1 Width. A minimum width of 9 feet (2743 mm) shall be provided for each parking stall.

Exceptions:

1. Compact parking stalls shall be not less than 8 feet (2438 mm) wide.
2. Parallel parking stalls shall be not less than 8 feet (2438 mm) wide
3. ~~The width of a parking stall shall be increased 10 inches (254 mm) for obstructions located on either side of the stall within 14 feet (4267 mm) of the access aisle.~~
4. ~~Accessible *parking spaces* shall be designed in accordance with ICC A117.1.~~

Add new text as follows:

<u>**801.3.1.1 Adjacent obstructions.** The width of a parking stall shall be increased 10 inches (254 mm) for obstructions located on either side of the stall within 14 feet (4267 mm) of the parking stall.</u>

<u>**801.3.1.2 Accessible parking spaces.** The width of accessible parking spaces and access aisles shall comply with ICC A117.1.</u>

Revise as follows:

801.3.2 Length. A minimum length of 20 feet (6096 mm) shall be provided for each parking stall.

Exception~~s~~:

1 Compact parking stalls shall be not less than 18 feet (5486 mm) in length.

~~2.~~. ~~Parallel parking stalls shall be not less than 22 feet (6706 mm) in length.~~

Add new text as follows:

<u>**801.3.2.1 Parallel parking.** Parallel parking stalls shall be not less than 22 feet (6706 mm) in length.</u>

Reason:

The purpose of this change is to correct technical inconsistencies.

Section 801.2.4 talks about parking and passenger loading zones, but then only sends you to ICC A117.1 for passenger loading zones. The reference is not needed because the reference the building code will get a reference to ICC A117.1 for both parking and passenger loading zones in Section 1101.2.

801.3.1 is only for the width of the parking spaces. Exceptions 3 and 4 are more restrictive requirements than the main text. An exception is a choice, so these need to be stated as requirements.

801.3.1.1 Regular parking stalls do not have access aisles, that is a term used for accessible parking spaces.

801.3.1.2 This section is for width, which for accessible parking spaces would include the access aisle.

801.3.2 is only for the length of the parking spaces. Exception 2 is more restrictive requirements than the main text. An exception is a choice, so these need to be stated as requirements.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).
BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an editorial clarification of parking stall requirements.

Z2-25

Z3-25

IZC: 104.5.1.1 (New), SECTION 202 (New), SECTION 809 (New), 809.1 (New), 809.2 (New), 809.3 (New), 809.4 (New), 809.5 (New), 809.6 (New), 809.6.1 (New), 809.6.2 (New), TABLE 809.6.2 (New), 809.6.3 (New), 809.6.4 (New), 809.6.5 (New), 809.6.6 (New), 809.6.7 (New), 809.6.8 (New), 809.6.8.1 (New), TABLE 809.6.8.1 (New), 809.6.8.2 (New), 809.6.9 (New), 809.6.9.1 (New), 809.6.9.2 (New), 809.6.10 (New), ICC Chapter 14 (New), IES (New)

Proponents: Rick Utting, representing Dark Sky

2024 International Zoning Code

Add new text as follows:

104.5.1.1 Permit required. Permits are required for adding artificial light into the outdoor environment. Permit shall include outdoor lighting plans that include both of the following:

1. *Luminaire* identification (i.e., manufacturer, model number, type), luminaire quantities, installation locations, mounting heights, targeted directions, buildings, and other physical objects within the site that could affect the lighting outcome.
2. Site plan and *Illuminance* calculation plots, for non-Residential Use applications including buildings and other physical objects within the site that could affect the *illuminance* outcome, demonstrating conformance with this ordinance, including the sports lighting luminous-intensity l*ight trespass* limit.

Add new definition as follows:

ARTIFICIAL LIGHT AT NIGHT (ALAN). Light that is created from human technology, rather than a naturally occurring process. Also known as anthropogenic lighting.
CANDELA (CD). The unit of measure for luminous intensity.
CORRELATED COLOR TEMPERATURE (CCT). The measured color appearance of light emitted by a light source described using a nominal value stated in kelvins (K).
FULLY SHIELDED. A *Luminaire* designed or shielded in such a manner that no light is emitted, either directly or indirectly, at or above a horizontal plane running through the lowest light-emitting part of the luminaire.
ILLUMINANCE. Measured in *Lux* or footcandles, the total luminous flux incident at a point on a surface.
LIGHT LEVEL. The maintained *luminance* or *Illuminance* value.
LIGHT TRESPASS. *ALAN* illuminating past property lines without permission.
LIGHTING ZONES. A system describing the luminous environment and related lighting conditions based on land uses and expected tasks. These range from natural and intrinsically dark zones to very bright zones.
LUMEN (lm). A unit of measure of the *luminous flux* of a light source.
LUMINAIRE. A complete lighting unit, including the light source, housing, optics, electronics, and other necessary components for the purpose of providing outdoor illumination.
LUMINANCE. The intensity of light emitted from a surface per unit area in a given direction.
LUX(lx). The SI metric system unit of measure for *Illuminance*.
NADIR. A downward vertical vector directly beneath a *luminaire*, opposite to zenith.
NIGHTTIME HOURS. The time between 10 PM and sunrise, or 7 AM (whichever comes earlier). For businesses and events with operating hours later than 10 PM, nighttime hours will begin one hour after closing.
NON-ESSENTIAL. Lighting that is not directly associated with the physical safety of motor vehicle and pedestrian threats, including but not limited to: landscape lighting, illuminated signage or advertising after business hours, façade lighting, vacant sports fields, and seasonal lighting.
RESIDENTIAL USE. Municipal zoning districts dedicated exclusively to places of low-rise (i.e., 3 stories or less) human residence and dwelling. Examples include single family, duplex, dual family, multi-family, apartment, townhouse, and mobile home. This does not include mixed-use or commercial districts with combined dwellings.
SEASONAL LIGHTING. Outdoor or site lighting that is portable, temporary, decorative, and used in connection with holidays and traditions. This includes but is not limited to string lighting, icicle lighting, and lighted inflatables, none of which are intended for general

illumination.
SECURITY LIGHTING. Illumination used specifically to protect people, property, and infrastructure from criminal threat.

Add new text as follows:

SECTION 809
EXTERIOR LIGHTING

809.1 General. This section shall apply to the installation, alteration or replacement of outdoor lighting within the jurisdiction.This section applies to all sources of outdoor lighting installed, new, altered, or replaced within the *jurisdiction*.

Exceptions:

1. Lighting requirements mandated by a broader authority than the *jurisdiction*, including but not limited to:
    1.1. Navigational lighting systems regulated by the Federal Aviation Administration and the US Coast Guard.
    1.2. Conflicting illumination requirements in the *International Building Code* or *International Residential Code*, as applicable.
    1.3. Conflicting Department of Transportation illumination requirements
    1.4. Lighting for worker safety as mandated by the Occupational Safety and Health Administration.
2. *Luminaires* installed for the benefit of public safety, including but not limited to:
    2.1. *Security lighting* as required by the code official.
    2.2. Temporary lighting required by emergency responders to facilitate emergency operations.
3. *Luminaires* replicating historical character and lighting effect that are protected by historical registration, or as permitted by the *jurisdiction*.
4. Temporary and semi-permanent lighting approved for special events, festivals, and community benefit, provided the lighting complies with *light trespass* requirements and shall not add further disruption to ecological migration or habitat.
5. *Seasonal Lighting*, where approved.

809.2 Intent. This section is intended to protect the health and welfare of residents living in the *jurisdiction*, enhance its character and quality of life, prevent inappropriate and poorly installed outdoor lighting, reduce lighting conflicts between property owners, prevent the increase of potentially harmful sky glow, and preserve the naturally dark sky for the benefit of residents, visitors, wildlife, and the environment.

809.3 Existing Installations. Existing outdoor lighting lawfully installed prior to adoption of this code shall be considered legal and repairable but non-conforming. Non-conforming *luminaires* shall be replaced where one of the following occurs:

1. The code official determines that an outdoor light source constitutes a hazard to public safety or constitutes a nuisance.
2. Where a property is re-zoned for a new land use.
3. The code official determines a date whereupon all lighting shall comply with this section.

809.4 Interference with motor vehicles. ALAN must not interfere with the safe movement of motor vehicles. Any lighting that distracts or disables the vision of a motor vehicle operator or contributes to traffic control confusion shall be prohibited.

1.

2. Beacons and searchlights, except for emergency use by authorized first responders.

809.5 Beacons and searchlights. Beacons and searchlights shall be prohibited, except for emergency use by emergency responders.

809.6 Outdoor lighting requirements. Outdoor *luminaires* and *luminaire* installations shall comply with federal and state law; county and local codes; the *International Energy Conservation Code*, the *International Building Code and* the *International Residential Code*, as applicable.

809.6.1 Lighting zones. The *jurisdiction* shall assign lighting zones to all property within the *jurisdiction i*n accordance with the lighting zones as defined in ANSI/IES RP43-25.

809.6.2 Light level. Unless otherwise specified in this section, lighting installed for an outdoor use shall not exceed 25% more than the *light level* in accordance *with* the applicable standard in Table 809.6.2.

TABLE 809.6.2 LIGHTING STANDARD SCOPE

Lighting Standard	Scope
ANSI/IES RP-2	Outdoor Retail Spaces
ANSI/IES RP-6	Outdoor Sports and Recreational Areas
ANSI/IES RP-7	Outdoor Industrial Areas
ANSI/IES RP-8	Roadway and Parking Facilities
ANSI/IES RP-40	Port Terminals
ANSI/IES RP-43	Outdoor Pedestrian Areas

809.6.3 Distribution. *Luminaires* emitting more than 1,000 *lumens* shall be *fully shielded* and shall emit no more than 5% of their total *lumen* output greater than 80 degrees from *nadir*.

Exceptions:

1. Festoon string lighting where individual lamps emits less than 50 *lumens*, and the *lumen* density of the string is not greater than 25 *lumens* per foot.
2. Directional *luminaires* used for façade illumination that are shielded and aimed to hit their target and such that the light is contained by architectural elements.
3. Sports lighting as approved.

809.6.4 Trespass. *Light trespass* limits shall be measured at any location along a property line both horizontally at the ground plane facing upward and vertically at 5 feet (1524 mm) above grade with the meter aimed toward the light source in question. Commercial properties shall comply with Section 809.6.9.2.
Light trespass complying with this section shall meet all of the following:

1. *Luminaire* light sources shall not be visible from federal or state designated wilderness, natural area, habitat, or reserves, and *light trespass* and shall measure no greater than 0.1 *lux.*
2. *Light trespass* onto Waters of the United States shall measure no greater than 1 *lux*.
3. *Light trespass* onto *residential use* property shall measure no greater than 1 *Lux*.

809.6.5 Curfew. *Non-essential* outdoor lighting, including but not limited to landscape and decorative lighting elements, shall be extinguished during *nighttime hours.* Where applicable, outdoor lighting shall dim or be extinguished during *nighttime hours* as required by the *International Energy Conservation Code.*

809.6.6 Controls. *Luminaires* activated by motion detection shall automatically turn off or return to their dimmed state not greater than 5 minutes after activity is no longer detected.

809.6.7 Spectrum. The maximum allowable correlated color temperature (*CCT*) for outdoor *luminaire*s is 3000 K.

Exceptions:

1. Where required for public safety the maximum outdoor CCT is not required .
2. Sports lighting shall comply with Section 809.6.10.1.

809.6.8 Residential Use. *Residential uses* shall also comply with Sections 809.6.8.1 and 809.6.8.2.

809.6.8.1 Lighting for residential use. Lighting for *residential use*, excluding roadway, parking, and public right-of-way, shall be exempt from the requirement in Section 809.6.2 provided no single *luminaire* exceeds 1,000 *lumens* and the total installed *lumens* per dwelling, prorated for multifamily, does not exceed light limitation in Table 809.6.8.1.

TABLE 809.6.8.1 RESIDENTIAL LUMEN ALLOWANCE PER DWELLING

Property Size (acre)	**Property Size (sf)**	**Lz0**	**Lz1**	**Lz2**
1.33	58,000+ sf	5,200	13,000	22800
1.00	43,000 sf	4,600	11,500	20200
0.75	32,000 sf	4,100	10,200	17900
0.50	21,000 sf	3,500	8,700	15300
0.33	14,000 sf	2,800	7,000	12300
0.25	10,800 sf	2,400	5,900	10400
0.20	8,700 sf	2,000	5,000	8800
0.13	5400 sf	1,500	3,600	6300
0.05	2,100 sf	850	1,700	3000
0.03	< 2,100 sfr	850	850	1500

809.6.8.2 Maximum light trespass. *Light trespass* leaving *residential use* property shall be no greater than 1 *lux.*

809.6.9 Commercial uses and retail uses.. Commercial uses shall also comply with Sections 809.6.9.1 and 809.6.9.2.

809.6.9.1 Lighting for commercial and retail uses. . Lighting for commercial and retail uses shall be exempt from the requirement in 809.6.2, provided there is no *luminaire* installed on the property capable of exceeding a total output greater than 3,000 *lumens*.

809.6.9.2 Commercial and retail light trespass. *Light trespass* from commercial and retail uses onto adjacent public right-of-way shall be no greater than 3 *lux* where measured 20 feet (6 meters) past the property line.

809.6.10 Sports and recreation areas. Lighting for sports and recreation areas shall comply with 809.6. through 809.6.7 and all of the following:

1. Eighty-five percent (85%) of the *lumen*s generated by sports lighting *luminaire*s shall be confined to within 10 meters (33 feet) or a distance of one pole height, whichever is greater, of the playing field or the spectator track or bleacher area, whichever is greater.
2. Lighting installations for aerial sports shall have a maximum of 8% of the total *lumen* output to be emitted above 80 degrees from *nadir*

3. The maximum *CCT* for outdoor sports lighting shall be the lowest possible for the sport, class of play, and viewing audience as required by ANSI/IES RP-6, or *approved* alternate, but shall not exceed 5700 K.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
200 Massachusetts Avenue, NW, Suite 250
Washington, DC 20001

IECC - 24	International Energy Conservation Code
IRC - 24	International Residential Code

IES

Illuminating Engineering Society
120 Wall Street, Floor 17
New York, NY *10005-4001*
United States

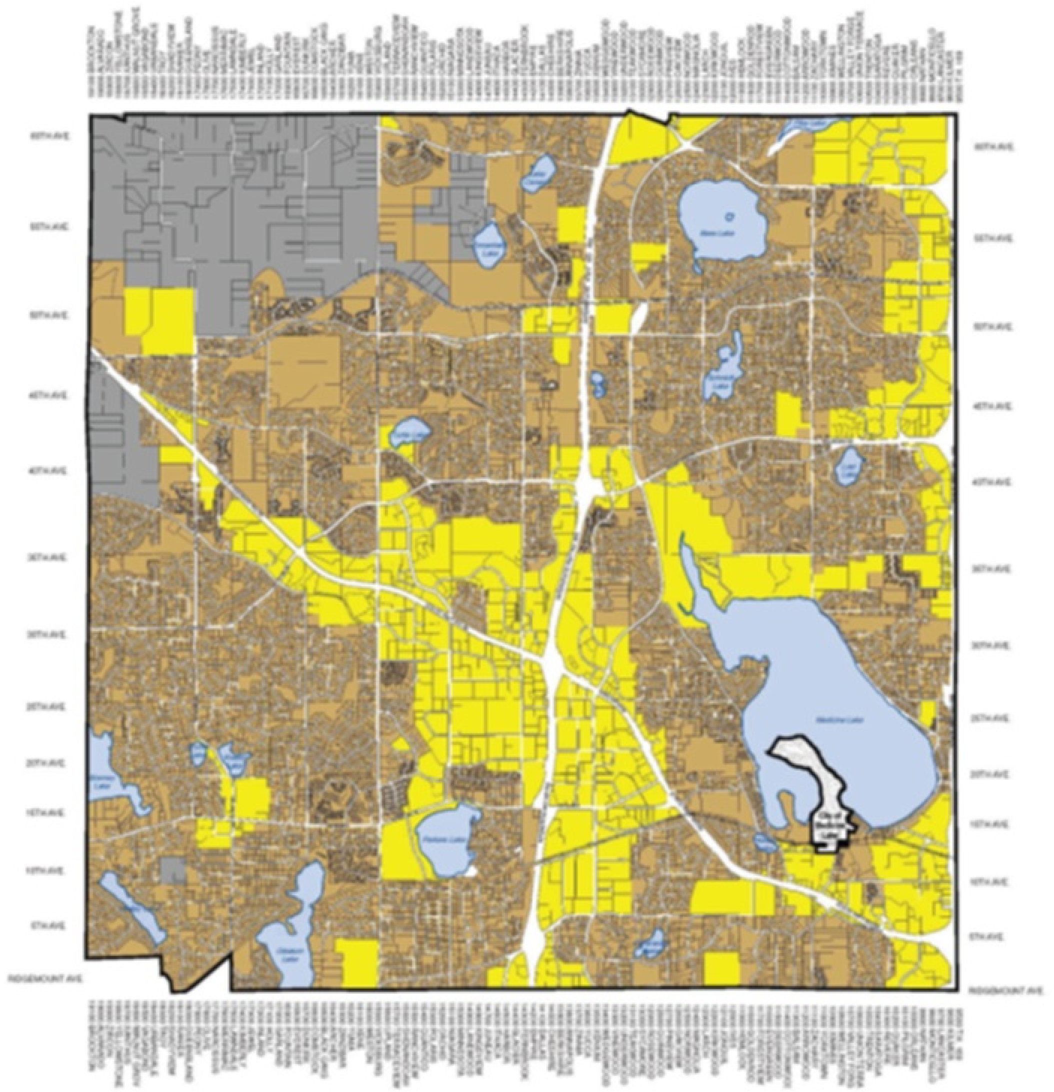
ANSI/IES RP-2-20	Lighting Retail Spaces
ANSI/IES RP-6-22	Lighting Sports and Recreational Area
ANSI/IES RP-7-21	Lighting Industrial Facilities
ANSI/IES RP-8-22	Lighting Roadway and Parking Facilities
ANSI/IES RP-40-19	Lighting Port Terminals
ANSI/IES RP-43-25	Lighting Design for Outdoor Pedestrian Applications

Reason: Light pollution is caused by poorly executed lighting designs that emit unnecessary light into the sky, beyond property boundaries, and cause unsafe glare conditions in outdoor nighttime environments. Nighttime light pollution is expanding at a rate which doubles every eight years, causing concern for astronomical observations and wildlife, pollinator, and human well-being. Simple steps can be taken to improve the visual quality of the outdoor nighttime environment, reduce energy consumption, and mitigate light pollution. Having these steps documented in the international zoning code would provide municipalities much needed guidance and offer a substantial improvement to current conditions.

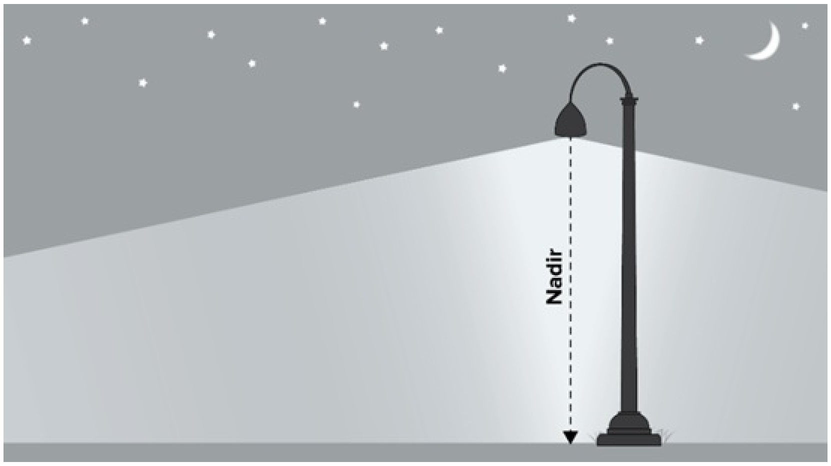
The increasing awareness sky glow and light pollution has resulted in many countries, states, and municipalities trying to address the problem, with mixed success. In the United States, twenty-two states have now enacted some level of outdoor lighting legislation citing energy conservation, dark sky protection, visual safety, astronomical research, or environmental health. At a more local level, outdoor lighting requirements are becoming more popular as standard language within municipal code as community residents and advocates highlight the degradation of their nighttime environment; the safety, ecological, and biological risks of light at night; and the wasted energy of light that has no useful purpose. Over the last decade, several concerns have emerged with these enacted requirements; these include the incorrect vocabulary and metrics being used, the lack of requirements with proven effectiveness, and the inconsistency from city to city.

DarkSky International (DarkSky), a nonprofit organization, appraises the latest scientific research to provide outdoor lighting leadership. Along with the Illuminating Engineering Society (IES), DarkSky authored the Five Principles for Responsible Outdoor Lighting. Based upon these, DarkSky has prepared a template for municipal code language that promotes improved human vision at night and reduces light waste and light pollution, resulting in safer working environments, improved aesthetics, and better nighttime environments for human and ecological conditions. The template includes technically correct definitions and includes easily implementable requirements that meet lighting standards while avoiding excessive light levels, light trespass, and light unnecessarily entering the sky.

Sample light zone map.



The defined term Nadir shown in a figure



Cost Impact: Decrease

Estimated Immediate Cost Impact:

$0.00. This will reduce the cost of lighting. For new construction, there are no known negative cost impacts.

Estimated Immediate Cost Impact Justification (methodology and variables):

Proper outdoor lighting installations could reduce global end-user energy costs by approximately $15-30 Billion per year.

Z3-25

CCCADM1-25

IFGC: SECTION 107 (IFGC), SECTION 108 (IFGC), SECTION 109 (IFGC), SECTION 110(IFGC), SECTION 1110(IFGC); IMC®: SECTION 107, SECTION 109, SECTION 110, SECTION 111; IPC: SECTION 107, SECTION 109, SECTION 110, SECTION 111; IPMC: SECTION 104, SECTION 105; IPSDC: SECTION 106, SECTION 107, SECTION 108, SECTION 109, SECTION 110, SECTION 111; ISPSC: SECTION 106, SECTION 107, SECTION 108, SECTION 109, SECTION 110, SECTION 111

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Fuel Gas Code

PART 1
SCOPE AND APPLICATION

SECTION 101 (IFGC)
SCOPE AND GENERAL REQUIREMENTS

SECTION 102 (IFGC)
APPLICABILITY

PART 2
ADMINISTRATION AND ENFORCEMENT

SECTION 103 (IFGC)
CODE COMPLIANCE AGENCY

SECTION 104 (IFGC)
DUTIES AND POWERS OF THE CODE OFFICIAL

SECTION 105 (IFGC)
PERMITS

SECTION 106 (IFGC)
CONSTRUCTION DOCUMENTS

Revise as follows:

SECTION ~~110~~ 107 (IFGC)
TEMPORARY USES, EQUIPMENT, AND SYSTEMS

SECTION 108 (IFGC)
FEES

SECTION ~~111~~ 109 (IFGC)

INSPECTIONS AND TESTING

SECTION ~~107~~ 110 (IFGC)
NOTICE OF APPROVAL

SECTION ~~109~~ 111 (IFGC)
SERVICE UTILITIES

SECTION 112 (IFGC)
MEANS OF APPEALS

SECTION 113 (IFGC)
VIOLATIONS

SECTION 114 (IFGC)
STOP WORK ORDER

2024 International Mechanical Code

PART 1
SCOPE AND APPLICATION

SECTION 101
SCOPE AND GENERAL REQUIREMENTS

SECTION 102
APPLICABILITY

PART 2
ADMINISTRATION AND ENFORCEMENT

SECTION 103
CODE COMPLIANCE AGENCY

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

SECTION 105
PERMITS

SECTION 106

CONSTRUCTION DOCUMENTS

Revise as follows:

SECTION ~~110~~ 107
TEMPORARY USES, EQUIPMENT AND SYSTEMS

SECTION 108
FEES

SECTION ~~111~~ 109
INSPECTIONS AND TESTING

SECTION ~~107~~ 110
NOTICE OF APPROVAL

SECTION ~~109~~ 111
SERVICE UTILITIES

SECTION 112
MEANS OF APPEALS

SECTION 113
BOARD OF APPEALS

SECTION 114
VIOLATIONS

SECTION 115
STOP WORK ORDER

2024 International Plumbing Code

CHAPTER 1
SCOPE AND ADMINISTRATION

PART 1
SCOPE AND APPLICATION

SECTION 101
SCOPE AND GENERAL REQUIREMENTS

SECTION 102
APPLICABILITY

PART 2
ADMINISTRATION AND ENFORCEMENT

SECTION 103
CODE COMPLIANCE AGENCY

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

SECTION 105
PERMITS

SECTION 106
CONSTRUCTION DOCUMENTS

Revise as follows:

SECTION ~~110~~ 107
TEMPORARY USES, EQUIPMENT AND SYSTEMS

SECTION 108
FEES

SECTION ~~111~~ 109
INSPECTIONS AND TESTING

SECTION ~~107~~ 110
NOTICE OF APPROVAL

SECTION ~~109~~ 111
SERVICE UTILITIES

SECTION 112
MEANS OF APPEALS

SECTION 113
BOARD OF APPEALS

SECTION 114
VIOLATIONS

SECTION 115
STOP WORK ORDER

2024 International Property Maintenance Code

PART 1
SCOPE AND APPLICATION

SECTION 101
SCOPE AND GENERAL REQUIREMENTS

SECTION 102
APPLICABILITY

PART 2
ADMINISTRATION AND ENFORCEMENT

SECTION 103
CODE COMPLIANCE AGENCY

Revise as follows:

SECTION ~~105~~104
DUTIES AND POWERS OF THE CODE OFFICIAL

SECTION ~~104~~ 105
FEES

106
MEANS OF APPEALS

107
VIOLATIONS

108
STOP WORK ORDER

109

UNSAFE STRUCTURES AND EQUIPMENT

110
EMERGENCY MEASURES

111
DEMOLITION

2024 International Private Sewage Disposal Code

PART 1
SCOPE AND APPLICATION

SECTION 101
SCOPE AND GENERAL REQUIREMENTS

SECTION 102
APPLICABILITY

PART 2
ADMINISTRATION AND ENFORCEMENT

SECTION 103
CODE COMPLIANCE AGENCY

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

SECTION 105
PERMITS

Revise as follows:

SECTION ~~107~~ 106
CONSTRUCTION DOCUMENTS

SECTION ~~109~~ 107
TEMPORARY USES, EQUIPMENT AND SYSTEMS

SECTION ~~106~~ 108
FEES

SECTION ~~111~~ 109
INSPECTIONS

SECTION ~~108~~ 110
NOTICE OF APPROVAL

SECTION ~~110~~ 111
SERVICE UTILITIES

SECTION 112
MEANS OF APPEALS

SECTION 113
VIOLATIONS

SECTION 114
STOP WORK ORDER

2024 International Swimming Pool and Spa Code

PART 1
SCOPE AND APPLICATION

SECTION 101
SCOPE AND GENERAL REQUIREMENTS

SECTION 102
APPLICABILITY

PART 2
ADMINISTRATION AND ENFORCEMENT

SECTION 103
CODE COMPLIANCE AGENCY

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

SECTION 105
PERMITS

Revise as follows:

SECTION ~~107~~ 106
CONSTRUCTION DOCUMENTS

SECTION ~~106~~ 107
TEMPORARY STRUCTURES, EQUIPMENT AND SYSTEMS

SECTION ~~109~~ 108
FEES

SECTION ~~111~~ 109
INSPECTIONS

SECTION ~~108~~ 110
NOTICE OF APPROVAL

SECTION ~~110~~ 111
SERVICE UTILITIES

SECTION 112
MEANS OF APPEALS

SECTION 113
VIOLATIONS

SECTION 114
STOP WORK ORDER

Reason:

In 2016 CCC approved a requested that the sections in Chapter 1 for all the codes were in the same relationship order so that comparison over time would be easier. The goal is to have Chapter 1's match as much as appropriate. The IBC order is as follows:

IBC
PART 1—SCOPE AND APPLICATION
101 Scope and General Requirements
102 Applicability
PART 2—ADMINISTRATION AND ENFORCEMENT
103 Code Compliance Agency
104 Duties and Powers of Building Official
105 Permits
106 Floor and Roof Design Loads
107 Construction Documents
108 Temporary structures, equipment and systems
109 Fees
110 Inspections
111 Certificate of Occupancy
112 Service Utilities
113 Means of Appeals
114 Violations
115 Stop Work Order
116 Unsafe Structures and Equipment

The related section changes are requested for the following codes –
IPC, IMC, IFGC, IPSDC, IPMC

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is an organizational matter with no changes for construction.

CCCADM1-25

CCCADM2-25

IBC: APPENDIX A, SECTION A101, [A] A101.1, [A] A101.2, [A] A101.3, [A] A101.4

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov)

2024 International Building Code

APPENDIX A
EMPLOYEE QUALIFICATIONS

Revise as follows:

SECTION A101
~~BUILDING OFFICIAL QUALIFICATIONS~~ GENERAL

[A] A101.1 Building official. The *building official* shall have not fewer than 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been supervisory experience. The *building official* should be certified as a *building official* through a recognized certification program. The *building official* shall be appointed or hired by the applicable governing authority.

[A] A101.2 Chief inspector. The *building official* can designate supervisors to administer the provisions of this code and the *International Mechanical Code*, *International Plumbing Code* and International Fuel Gas Code. Each supervisor shall have not fewer than 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been in a supervisory capacity. They shall be certified through a recognized certification program for the appropriate trade.

[A] A101.3 Inspector and plans examiner. The *building official* shall appoint or hire such number of officers, inspectors, assistants and other employees as shall be authorized by the *jurisdiction*. A *person* who has fewer than 5 years of experience as a contractor, engineer, architect, or as a superintendent, foreman or competent mechanic in charge of construction shall not be appointed or hired as inspector of construction or plans examiner. The inspector or plans examiner shall be certified through a recognized certification program for the appropriate trade.

[A] A101.4 Termination of employment. Employees in the position of *building official*, chief inspector or inspector shall not be removed from office except for cause after full opportunity has been given to be heard on specific charges before such applicable governing authority.

Reason: The intent of this change is limited to an editorial clarification of the implied scope.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

There are no impacts other than readability and implied intent.

CCCADM2-25

CCCIBC1-25

IBC: SECTION 202, 602.4.4, 2303.1, 2303.1.3, TABLE 2304.11, 2304.11.3.2, 2308.8.3, 2308.10.5.2, 2308.11.8

Proponents: Stephen Kerr, representing Self (skerr@jwa-se.com)

2024 International Building Code

Revise as follows:

[BS] NOMINAL SIZE (LUMBER). The commercial size designation of width and depth, in standard sawn lumber and glued-laminated lumber *grades*; somewhat larger than the standard net size of dressed lumber, in accordance with DOCPS 20 for sawn lumber and with the ANSI/AWC NDS for glued -laminated lumber.
[BS] STRUCTURAL GLUED-LAMINATED TIMBER. An engineered, stress-rated product of a timber laminating plant, composed of assemblies of specially selected and prepared wood laminations in which the grain of all laminations is approximately parallel longitudinally and the laminations are bonded with adhesives.

602.4.4 Type IV-HT. Type IV-HT (Heavy Timber) construction is that type of construction in which the *exterior walls* are of noncombustible materials and the interior *building elements* are of solid wood, laminated heavy timber or *structural composite lumber* (SCL), without concealed spaces or with concealed spaces complying with Section 602.4.4.3. The minimum dimensions for permitted materials including solid timber, glued-laminated timber, SCL and *cross-laminated timber* (*CLT*) and the details of Type IV construction shall comply with the provisions of this section and Section 2304.11. *Exterior walls* complying with Section 602.4.4.1 or 602.4.4.2 shall be permitted. Interior walls and partitions not less than 1-hour fire-resistance rated or heavy timber conforming with Section 2304.11.2.2 shall be permitted.

2303.1 General. Structural sawn lumber; end-jointed lumber; *prefabricated wood I-joists*; *structural glued-laminated timber*; *cross-laminated timber*; *wood structural panels*; *fiberboard* sheathing (where used structurally); *hardboard* siding (where used structurally); *particleboard*; *preservative-treated wood*; structural log members; *structural composite lumber*; round timber poles and piles; *fire-retardant-treated wood*; hardwood *plywood*; wood trusses; joist hangers; nails; and staples shall conform to the applicable provisions of this section.

2303.1.3 Structural glued -laminated timber. Glued -laminated timbers shall be manufactured and identified as required in ANSI/APA 190.1 and ASTM D3737.

TABLE 2304.11 MINIMUM DIMENSIONS OF HEAVY TIMBER STRUCTURAL MEMBERS

		MINIMUM NOMINAL SOLID SAWN SIZE		MINIMUM GLUED-LAMINATED NET SIZE		MINIMUM STRUCTURAL COMPOSITE LUMBER NET SIZE	
SUPPORTING	HEAVY TIMBER STRUCTURAL ELEMENTS	Width, inch	Depth, inch	Width, inch	Depth, inch	Width, inch	Depth, inch
Floor loads only or combined floor and roof loads	Columns; Framed sawn or glued-laminated timber arches that spring from the floor line; Framed timber trusses	8	8	$6\frac{3}{4}$	$8\frac{1}{4}$	7	$7\frac{1}{2}$
	Wood beams and girders	6	10	5	$10\frac{1}{2}$	$5\frac{1}{4}$	$9\frac{1}{2}$
Roof loads only	Columns (roof and ceiling loads); Lower half of: wood-frame or glued -laminated arches that spring from the floor line or from grade	6	8	5	$8\frac{1}{4}$	$5\frac{1}{4}$	$7\frac{1}{2}$
	Upper half of: wood-frame or glued-laminated arches that spring from the floor line or from grade	6	6	5	6	$5\frac{1}{4}$	$5\frac{1}{2}$
	Framed timber trusses and other roof framing;[a] Framed or glued-laminated arches that spring from the top of walls or wall abutments	4[b]	6	3[b]	$6\frac{7}{8}$	$3\frac{1}{2}$[b]	$5\frac{1}{2}$

For SI: 1 inch = 25.4 mm.

a. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches nominal in thickness.

b. Where protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches nominal in width.

2304.11.3.2 Sawn or glued-laminated plank floors. Sawn or glued-laminated plank floors shall be one of the following:

1. Sawn or glued-laminated planks, splined or tongue-and-groove, of not less than 3 inches (76 mm) nominal in thickness covered with 1-inch (25 mm) nominal dimension tongue-and-groove flooring, laid crosswise or diagonally, $^{15}/_{32}$-inch (12 mm) *wood structural panel* or $^{1}/_{2}$-inch (12.7 mm) *particleboard*.
2. Planks not less than 4 inches (102 mm) nominal in width set on edge close together and well spiked and covered with 1-inch (25 mm) nominal dimension flooring or $^{15}/_{32}$-inch (12 mm) *wood structural panel* or $^{1}/_{2}$-inch (12.7 mm) *particleboard*.

The lumber shall be laid so that continuous lines of joints will occur only at points of support. Floors shall not extend closer than $^{1}/_{2}$ inch (12.7 mm) to walls. Such $^{1}/_{2}$-inch (12.7 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbelling of masonry walls under the floor shall be permitted to be used in place of molding.

2308.8.3 Engineered wood products. Engineered wood products shall be installed in accordance with manufacturer's recommendations. Cuts, notches and holes bored in trusses, *structural composite lumber*, structural glued-laminated members or I-joists are not permitted except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.

2308.10.5.2 Portal frame with hold-downs (PFH). A PFH shall be constructed in accordance with this section and Figure 2308.10.5.2. The adjacent door or window opening shall have a full-length header.

In one-story *buildings*, each panel shall have a length of not less than 16 inches (406 mm) and a height of not more than 10 feet (3048 mm). Each panel shall be sheathed on one face with a single layer of $^{3}/_{8}$-inch (9.5 mm) minimum-thickness *wood structural panel* sheathing nailed with 8d common or galvanized box nails in accordance with Figure 2308.10.5.2. The *wood structural panel* sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure 2308.10.5.2. A built-up header consisting of not fewer than two 2-inch by 12-inch (51 mm by 305 mm) boards, fastened in accordance with Item 24 of Table 2304.10.2 shall be permitted to be used. A spacer, if used, shall be placed on the side of the built-up beam opposite the *wood structural panel* sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. The clear span of the header between the inner studs of each panel shall be not less than 6 feet (1829 mm) and not more than 18 feet (5486 mm) in length. A strap with an uplift capacity of not less than 1,000 pounds (4,400 N) shall fasten the header to the inner studs opposite the sheathing. One anchor bolt not less than $^{5}/_{8}$ inch (15.9 mm) diameter and installed in accordance with Section 2308.7.1 shall be provided in the center of each sill plate. The studs at each end of the panel shall have a *hold-down* device fastened to the foundation with an uplift capacity of not less than 3,500 pounds (15 570 N).

Where a panel is located on one side of the opening, the header shall extend between the inside face of the first full-length stud of the panel and the bearing studs at the other end of the opening. A strap with an uplift capacity of not less than 1,000 pounds (4400 N) shall fasten the header to the bearing studs. The bearing studs shall have a *hold-down* device fastened to the foundation with an uplift capacity of not less than 1,000 pounds (4400 N). The *hold-down* devices shall be an embedded strap type, installed in accordance with the manufacturer's recommendations. The PFH panels shall be supported directly on a foundation that is continuous across the entire length of the *braced wall line*. This foundation shall be reinforced with not less than one No. 4 bar top and bottom. Where the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned-down slab edge is permitted at door openings in the *braced wall line*. This continuous footing or turned-down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped not less than 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the *braced wall line*.

Where a PFH is installed at the first *story* of two-story *buildings*, each panel shall have a length of not less than 24 inches (610 mm).

2308.11.8 Engineered wood products. *Prefabricated wood I-joists*, *structural glued-laminated timber* and *structural composite lumber* shall not be notched or drilled except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.

Reason: The purpose of this proposal is to update the terminology for Glued Laminated Timber. For consistency the terminology should reflect the language used by the American Institute of Timber Construction (AITC), the leader in the glulam industry. Both the National Design Specification (NDS) and ANSI/APA A190.1-2017 use the term “glued laminated” and not the hyphenated version “glue-laminated”. Throughout the IBC both are used, but for consistency it is desirable to use consistent terms.

Sections currently using terminology “glued laminated”: 1604.3 footnote d, 2304.11.4.2 item 1, Table 2306.1 (7 locations) and chapter 34 (9 locations)

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial only, the cost of construction will not change.

CCCIBC1-25

CCCIBC2-25

IBC: SECTION 1609

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Building Code

Revise as follows:

SECTION 1609
WIND <u>AND TORNADO</u> LOADS

Reason: ASCE 7-22 introduced Chapter 32 Tornado Loads and related provisions in Chapter 1 General, Chapter 2 Combination of Loads, and Chapter 26 Wind Loads: General Requirements. While IBC 2024 generally adopted the new ASCE 7-22 provisions, the title of Section 1609 did not include the term “tornado”. The proposed change includes Tornado in the title of Section 1609.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Proposed IBC code change is editorial and improves the thoroughness of IBC for alignment to the introduction of tornado loads in ASCE 7-22 and IBC 2024.

CCCIBC2-25

CCCIBC4-25

IBC: APPENDIX H, SECTION H112, H112.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Building Code

APPENDIX H
SIGNS

SECTION H112
PROJECTING SIGNS

Revise as follows:

H112.1 General. *Projecting signs* shall be constructed entirely of metal or other noncombustible material and securely attached to a *building* or *structure* by metal supports such as bolts, anchors, supports, chains, guys or steel rods. Staples or nails shall not be used to secure any *projecting sign* to any *building* or *structure*. The *dead load* of *projecting signs* not parallel to the *building* or *structure* and the *load* due to wind pressure shall be supported with chains, guys or steel rods having net cross-sectional dimension of not less than $^3/_8$ inch (9.5 mm) diameter. Such supports shall be erected or maintained at an angle of not less than 45 degrees ~~percent~~ (0.78 rad) with the horizontal to resist the *dead load* and at angle of 45 degrees ~~percent~~ (0.78 rad) or more with the face of the *sign* to resist the specified wind pressure. If such *projecting sign* exceeds 30 square feet (2.8 m^2) in one facial area, there shall be provided not fewer than two such supports on each side not more than 8 feet (2438 mm) apart to resist the wind pressure.

Reason: 45 degrees matches the conversion to radians, matches the commentary, and makes more sense from an engineering requirement. The incorrect conversion has been included since the earliest version of the IBC.

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost – the proposal is editorial and clarifies an inconsistency in the code.

CCCIBC4-25

CCCIPMC1-25

IPMC: 111.4

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Revise as follows:

111.4 Salvage materials. Where any *structure* has been ordered demolished and removed, the governing body or other designated officer under said contract or arrangement aforesaid shall have the right to sell the salvage and valuable materials. The net proceeds of such sale, after deducting the expenses of such demolition and removal, shall be promptly remitted with a report of such sale or transaction, including the items of expense and the amounts deducted, to ~~for~~ the *person* who is entitled thereto, subject to any order of a court. If such a surplus does not remain to be turned over, the report shall so state.

Reason: This is clearly just an editorial change. The proceeds of a sale are remitted TO a person not FOR a person.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is just a minor grammatical / editorial change. There is no cost impact associated with correcting this poor grammar.

CCCIPMC1-25

CCCIPMC3-25

IPMC: 605.4

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

605.4 Wiring. Flexible cords shall not be used for permanent wiring~~, or for~~ and shall not be run~~ning~~ through doors, windows~~,~~ or cabinets, or concealed within walls, floors~~,~~ or ceilings.

Reason: Corrected grammar making this section easier to interpret and removed oxford commas.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The editorial changes are not intended to change enforcement of this provision.

CCCIPMC3-25

CCCIPMC4-25

IPMC: 605.3

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

605.3 Luminaires. ~~Every public~~ Public ~~hall~~halls, interior ~~stairway~~ stairways, *toilet* ~~*room*~~ *rooms*, ~~kitchen~~ kitchens, ~~*bathroom*~~ *bathrooms*, laundry ~~room~~ rooms, boiler ~~room~~ rooms and furnace ~~room~~ rooms shall contain not less than one electric luminaire. Pool and spa luminaires over 15 V shall have ground fault circuit interrupter protection.

Reason: Changed language to be consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The editorial changes do not change the intent of the provision.

CCCIPMC4-25

CCCIPMC8-25

IPMC: 404.2

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

404.2 Minimum room widths. ~~A habitable room~~*Habitable rooms*, other than ~~a~~ kitchens, shall be not less than 7 feet (2134 mm) in any plan dimension. Kitchens shall have a minimum clear passageway of 3 feet (914 mm) between counterfronts and appliances or counterfronts and walls.

Reason: Changed the language to be consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The editorial changes will not affect enforcement of the provision.

CCCIPMC8-25

CCCIPMC9-25

IPMC: 505.1

Proponents: Shane Hoeper, representing City of Dubuque, Iowa (shoeper@cityofdubuque.org)

2024 International Property Maintenance Code

Revise as follows:

505.1 General. ~~Every sink~~ Sinks, ~~lavatory~~ lavatories, ~~bathtub~~ bathtubs, ~~or~~ ~~shower~~ showers, drinking fountains, water ~~closet~~ closets ~~or~~ and other plumbing fixtures shall be properly connected to either a public water system or ~~to~~ an *approved* private water system. Kitchen sinks, lavatories, laundry facilities, bathtubs and showers shall be supplied with hot or tempered and cold running water in accordance with the *International Plumbing Code*.

Reason: Changed language to be consistent throughout the book.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

The proposed changes do not affect the enforcement of this provision.

CCCIPMC9-25

CCCIPMC10-25

IPMC: 102.6

Proponents: Gwenyth Searer, Wiss, Janney, Elstner Associates, Inc., representing myself (gsearer@wje.com); Phillip Elgin, Wiss, Janney, Elstner Associates, Inc., representing Self (pelgin@wje.com)

2024 International Property Maintenance Code

Revise as follows:

102.6 Structural analysis. Where structural analysis is used to assess a potentially ~~unsafe structural~~ dangerous condition, the analysis shall be permitted to use nominal strengths, nominal loads, load effects, required strengths and limit states in accordance with the requirements under which the *structure* was constructed or in accordance with any subsequent requirement.

Reason: In the last code cycle, the word "dangerous" was added to the IPMC to match that in the IEBC. The term "dangerous" covers structural conditions that are not acceptable from a life-safety enforcement perspective. Quite simply, "dangerous" conditions are those unsafe conditions that are structural in nature. Thus, a "dangerous condition" is a better and more appropriate term than the undefined "unsafe structural condition". The intent is the same, but this change brings this provision into alignment with, and uses, defined words, and it matches how the IEBC deals with structural conditions that are not acceptable: they are deemed dangerous.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal simply substitutes the already-defined term "dangerous" for the undefined term "unsafe structural". Since the definition of "dangerous" that was added to the IPMC last cycle defines structural conditions that are unsafe, this is clearly an editorial change and will not have any cost impact.

CCCIPMC10-25

CCCIPMC11-25

IBC: [BE] 408.4.1

Proponents: Jeanne Rice, representing NYSDOS (jeanne.rice@dos.ny.gov); Daniel Carroll, New York State Department of State, representing Division of Building Standards and Codes (daniel.carroll@dos.ny.gov); Christopher Jensen, representing NYS DOS - Division of Building Standards and Codes (christopher.jensen@dos.ny.gov); Kevin Duerr-Clark, representing NYSDOS (kevin.duerr-clark@dos.ny.gov); Stephen Van Hoose, representing NYS DOS (stephen.vanhoose@dos.ny.gov); China Clarke, representing New York State Dept of State (china.clarke@dos.ny.gov); Brian Tollisen, representing NYS Department of State, Division of Building Standards and Codes (brian.tollisen@dos.ny.gov); Chad Sievers, NYS, representing NYS Dept of State (chad.sievers@dos.ny.gov); Larissa DeLango, representing NYSDOS (larissa.delango@dos.ny.gov)

2024 International Building Code

Revise as follows:

[BE] 408.4.1 Remote release. Remote release of locks on doors in a *means of egress* shall be provided with reliable means of operation, remote from the resident living areas, to release locks on all required doors. In Occupancy Condition 3 or 4, the arrangement, access ~~accessibility~~ and security of the release mechanisms required for egress shall be such that with the minimum available staff at any time, the lock mechanisms are capable of being released within 2 minutes.

> **Exception:** Provisions for remote locking and unlocking of occupied rooms in Occupancy Condition 4 are not required provided that not more than 10 locks are necessary to be unlocked in order to move occupants from one *smoke compartment* to a refuge area within 3 minutes. The opening of necessary locks shall be accomplished with not more than two separate keys.

Reason: The term "accessibility" is generally used to refer to provisions which allow people with physical disabilities to access buildings and building elements. The sections included in this proposal do not include provisions regarding access for people with physical disabilities - instead the term "accessibility" is used to refer to the ability of anyone to access the building element. To avoid confusion, this proposal changes the word "accessibility" to "access" to provide clarity as to the content of the section, and includes some slight necessary revisions to correct grammar inconsistencies arising from this change.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial - it simply changes a term to provide clarity when reading the section. See reason statement for added justification.

CCCIPMC11-25

CCCIRC1-25

IRC: R606.12.2.2, R606.12.2.3

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

Revise as follows:

R606.12.2.2 Design of elements not part of the lateral force-resisting system. The design of elements not part of the lateral force-resisting system shall comply with this section.

R606.12.2.3 Design of elements part of the lateral force-resisting system. The design of elements part of the lateral force-resisting system shall comply with this section.

Reason: Sections without text is not constant with the code format. This proposal adds 2 charging statement to 2 sections for clarification.

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impact, editorial clarification

CCCIRC1-25

CCCIRC2-25

IRC: SECTION R610, R610.5.3, FIGURE R610.8

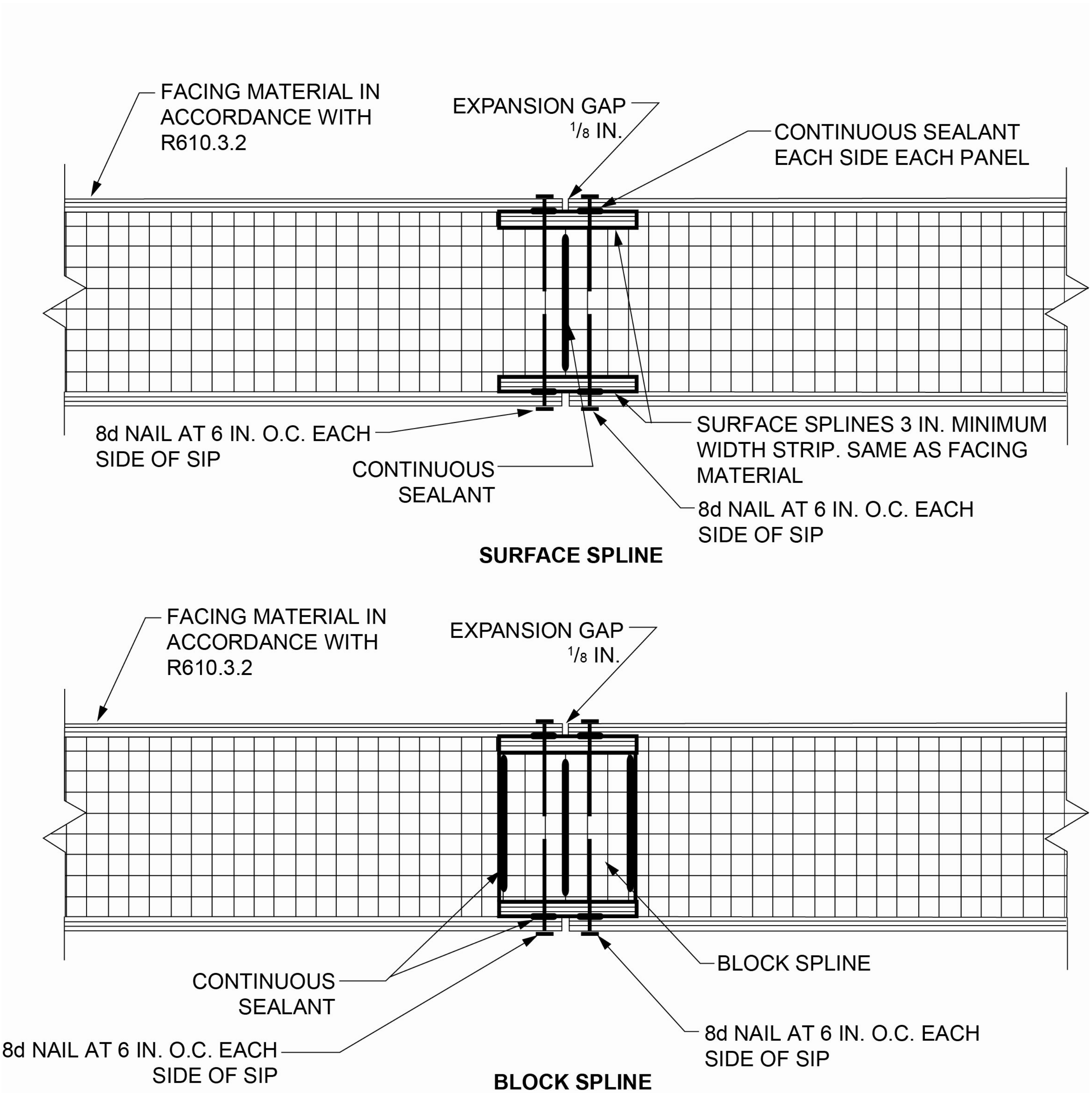
Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

SECTION R610
STRUCTURAL INSULATED PANEL WALL CONSTRUCTION

Revise as follows:

R610.5.3 Panel-to-panel connection. SIPs shall be connected at vertical in-plane joints in accordance with Figure R610.5.3 ~~R610.8~~ or by other *approved* methods.



For SI: 1 inch = 25.4 mm.

FIGURE ~~R610.8~~ R610.5.3 TYPICAL SIP WALL PANEL-TO-PANEL CONNECTION DETAILS

Reason: For the 2018 IBC, code change proposal RB217-16 added new text as follows: "R610.5.3 Panel-to-panel connection. SIPs shall be connected at vertical in-plane joints in accordance with Figure R610.8 or by other approved methods." The original proposal did not renumber "Figure R610.8" to "Figure R610.5.3". Section R610.8 does not reference current Figure R610.8, thus Figure R610.8 should be renumbered R610.5.3 to correlate with Section R610.5.3. The original 2016 Group B Report of the Committee Action Hearings and IRC Public Comment Agenda are located:

https://media.iccsafe.org/codes/2015-2017/GroupB/PCH/IRC-B.pdf

https://media.iccsafe.org/codes/2015-2017/GroupB/CAH/2016-Report-CAH.pdf

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Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

No cost impact, the change is a clarification

CCCIRC2-25

CCCIRC3-25

IRC: R905.1.1

Proponents: Aaron Phillips, representing Asphalt Roofing Manufacturers Association (aphillips@asphaltroofing.org)

2024 International Residential Code

Revise as follows:

R905.1.1 Underlayment. *Underlayment* in accordance with this section is required for asphalt shingles, clay and concrete tile, *metal roof shingles*, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes, *metal roof panels* and building-integrated photovoltaic (BIPV) roof coverings<u>. *Underlayment*</u> shall conform to the applicable standards listed in this chapter. *Underlayment* materials required to comply with ASTM D226; D1970; D2626; D4869; D6380, Class M; D6757; or D8257 shall bear a *label* indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1(1). *Underlayment* shall be applied in accordance with Table R905.1.1(2). *Underlayment* shall be fastened in accordance with Table R905.1.1(3).

Exception: Structural metal panels that do not require a substrate or underlayment.

Reason: This proposal corrects grammar in the first sentence of this section by transforming a run-on sentence into two separate sentences. The proposed correction aligns the language with parallel IBC Section 1507.1.1.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is an editorial correction to improve clarity and has no effect on cost of construction.

CCCIRC3-25

CCCIRC5-25

IRC: TABLE R702.4.2

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

2024 International Residential Code

Revise as follows:

TABLE R702.4.2 BACKER BOARD MATERIALS

MATERIAL	STANDARD
Glass mat gypsum backing panel	ASTM C1178
Fiber-reinforced gypsum panels	ASTM C1278
~~Nonasbestos fiber~~ Fiber-cement backer board	ASTM C1288 or ISO 8336 , Category C
~~Nonasbestos fiber~~ Fiber mat-reinforced cementitious backer units	ASTM C1325

Reason: By definition (ASTM C1154), fiber-cement and fiber-mat reinforced products complying with the standards referenced within this code (ASTM C1288 and ASTM C1325) use non-asbestos fibers. Inclusion of this term here is redundant and obsolete.

> fiber-cement products, n
>
> **Definition:** manufactured thin section composites of hydraulic cementitious matrices and discrete non-asbestos fibers.
>
> **Standard:** C1154 • **Subcommittee:** C17.03 • **Main Committee:** C17 on Fiber-Reinforced Cement Products
>
> fiber-mat reinforced products, n
>
> **Definition:** manufactured thin section composites of hydraulic cementitious matrices and non-asbestos fibers in two-dimensional scrim(s).
>
> **Standard:** C1154 • **Subcommittee:** C17.03 • **Main Committee:** C17 on Fiber-Reinforced Cement Products

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This is editorial in nature, updating terminology within a table to correspond to titles of and definitions within referenced standards within this code.

CCCIRC5-25

CCCIRC6-25

IRC: TABLE R703.3(1), R703.10, R703.10.1, R703.10.2

Proponents: Alexander Haldeman, representing James Hardie Building Products (alex.haldeman@jameshardie.com)

2024 International Residential Code

Revise as follows:

TABLE R703.3(1) SIDING MINIMUM ATTACHMENT AND MINIMUM THICKNESS

SIDING MATERIAL		NOMINAL THICKNESS (inches)	JOINT TREATMENT	TYPE OF SUPPORTS FOR THE SIDING MATERIAL AND FASTENERS					
				Wood or wood structural panel sheathing into stud	Fiberboard sheathing into stud	Gypsum sheathing into stud	Foam plastic sheathing into stud[l]	Direct to studs	Number or spacing of fasteners
Anchored veneer: brick, concrete, masonry or stone (see Section R703.8)		2	Section R703.8	Section R703.8					
Adhered veneer: concrete, stone or masonry (see Section R703.12)		—	Section R703.12	Section R703.12					
Fiber-cement	Panel siding (see Section R703.10.1)	$^{5}/_{16}$	Section R703.10.1	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	4d common (1$^{1}/_{2}$″ × 0.099″)	6″ panel edges 12″ inter. sup.
~~Fiber-cement~~ siding	Lap siding (see Section R703.10.2)	$^{5}/_{16}$	Section R703.10.2	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″)	6d common (2″ × 0.113″) or 0.120″ dia. (11 gage) roofing nail	Note f
Hardboard panel siding (see Section R703.5)		$^{7}/_{16}$	—	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	0.120″ nail (shank) with 0.225″ head	6″ panel edges 12″ inter. sup.[d]
Hardboard lap siding (see Section R703.5)		$^{7}/_{16}$	Note e	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	0.099″ nail (shank) with 0.240″ head	Same as stud spacing 2 per bearing
Horizontal aluminum[a]	Without insulation	0.019[b]	Lap	Siding nail 1$^{1}/_{2}$″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail[h] 1$^{1}/_{2}$″ × 0.120″	Not allowed	Same as stud spacing
		0.024	Lap	Siding nail 1$^{1}/_{2}$″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail 2″ × 0.120″	Siding nail[h] 1$^{1}/_{2}$″ × 0.120″	Not allowed	
	With insulation	0.019	Lap	Siding nail 1$^{1}/_{2}$″ × 0.120″	Siding nail 2$^{1}/_{2}$″ × 0.120″	Siding nail 2$^{1}/_{2}$″ × 0.120″	Siding nail[h] 1$^{1}/_{2}$″ × 0.120″	Siding nail 1$^{1}/_{2}$″ × 0.120″	
Insulated vinyl siding[j]		0.035 (vinyl siding layer only)	Lap	0.120″ nail (shank) with a 0.313″ head or 16-gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown[h, i]	0.120" nail (shank) with a 0.313″ head or 16-gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown[h]	0.120" nail (shank) with a 0.313″ head or 16-gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown[h]	0.120" nail (shank) with a 0.313" head Section R703.11.2	Not allowed	16 inches on center or specified by manufacturer instructions, test report or other sections of this code
Particleboard panels		$^{3}/_{8}$	—	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	Not allowed	6″ panel edges 12″ inter. sup.
		$^{1}/_{2}$	—	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	
		$^{5}/_{8}$	—	6d box nail (2″ × 0.099″)	8d box nail (2$^{1}/_{2}$″ × 0.113″)	8d box nail (2$^{1}/_{2}$″ × 0.113″)	6d box nail (2″ × 0.099″)	6d box nail (2″ × 0.099″)	
Polypropylene siding[k]		Not applicable	Lap	Section R703.14.1	Section R703.14.1	Section R703.14.1	Section R703.14.1	Not allowed	As specified by the manufacturer instructions, test report or other sections of this code
Steel[c]		29 ga.	Lap	Siding nail (1$^{3}/_{4}$″ × 0.113″) Staple–1$^{3}/_{4}$	Siding nail (2$^{3}/_{4}$″ × 0.113″) Staple–2$^{1}/_{2}$	Siding nail (2$^{1}/_{2}$″ × 0.113″) Staple–2$^{1}/_{4}$	Siding nail (1$^{3}/_{4}$″ × 0.113″) Staple–1$^{3}/_{4}$	Not allowed	Same as stud spacing
Vinyl siding (see Section R703.11)		0.035	Lap	0.120″ nail (shank) with a 0.313″ head or 16-gage staple with $^{3}/_{8}$- to $^{1}/_{2}$-inch crown[h, i]	0.120″ nail (shank) with a 0.313″ head or 16-gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown[h]	0.120″ nail (shank) with a 0.313″ head or 16- gage staple with $^{3}/_{8}$″ to $^{1}/_{2}$″ crown[h]	0.120″ nail (shank) with a 0.313" head Section R703.11.2	Not allowed	16 inches on center or as specified by the manufacturer instructions or test report
Wood siding (see Section R703.5)	Wood rustic, drop	$^{3}/_{8}$ min.	Lap	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ ×0.099″)	6d box or siding nail (2″ × 0.099″)	6d box or siding nail (2″ × 0.099″)	8d box or siding nail (2$^{1}/_{2}$″ × 0.113″) Staple–2″	Face nailing up to 6″ widths, 1 nail per bearing; 8″ width sand over, 2 nails per bearing
	Shiplap	$^{19}/_{32}$ average	Lap						
	Bevel	$^{7}/_{16}$							
	Butt tip	$^{3}/_{16}$	Lap						
Wood structural panel ANSI/APA PRP-210 siding (exterior grade) (see Section R703.5)		$^{3}/_{8}$ – $^{1}/_{2}$	Note e	2″ × 0.099″ siding nail	2$^{1}/_{2}$″ × 0.113″ siding nail	2$^{1}/_{2}$″ × 0.113″ siding nail	2$^{1}/_{2}$″ × 0.113″ siding nail	2″ × 0.099″ siding nail	6″ panel edges 12″ inter. sup.
Wood structural panel lap siding (see Section R703.5)		$^{3}/_{8}$ – $^{1}/_{2}$	Note e Note g	2″ × 0.099″ siding nail	2$^{1}/_{2}$″ × 0.113″ siding nail	2$^{1}/_{2}$″ × 0.113″ siding nail	2$^{1}/_{2}$″ × 0.113″ siding nail	2″ × 0.099″ siding nail	8″ along bottom edge

For SI: 1 inch = 25.4 mm.

a. Aluminum nails shall be used to attach aluminum siding.

b. Aluminum (0.019 inch) shall be unbacked only where the maximum panel width is 10 inches and the maximum flat area is 8 inches. The tolerance for aluminum siding shall be +0.002 inch of the nominal dimension.

c. Shall be of approved type.

d. Where used to resist shear forces, the spacing must be 4 inches at panel edges and 8 inches on interior supports.

e. Vertical end joints shall occur at studs and shall be covered with a joint cover or shall be caulked.

f. Face nailing: one 6d common nail through the overlapping planks at each stud. Concealed nailing: one 0.120-inch diameter (11-gage) $1^1/_2$-inch-long galvanized roofing nail through the top edge of each plank at each stud in accordance with the manufacturer's installation instructions.

g. Vertical joints, if staggered, shall be permitted to be away from studs if applied over wood structural panel sheathing.

h. Minimum fastener length must be sufficient to penetrate sheathing other nailable substrate and framing a total of a minimum of $1^1/_4$ inches or in accordance with the manufacturer's installation instructions.

i. Where specified by the manufacturer's instructions and supported by a test report, fasteners are permitted to penetrate into or fully through nailable sheathing or other nailable substrate of minimum thickness specified by the instructions or test report, without penetrating into framing.

j. Insulated vinyl siding shall comply with ASTM D7793.

k. Polypropylene siding shall comply with ASTM D7254.

l. Cladding attachment over foam sheathing shall comply with the additional requirements and limitations of Sections R703.15, R703.16 and R703.17.

R703.10 <u>Fiber-cement</u> ~~Fiber cement~~ siding.

R703.10.1 Panel siding. *Fiber-cement* panels shall comply with the requirements of ASTM C1186, Type A, minimum Grade II or ISO 8336, Category A, minimum Class 2. Panels shall be installed with the long dimension either parallel or perpendicular to framing. Vertical and horizontal joints shall occur over framing members and shall be protected with caulking, or with battens or flashing, or be vertical or horizontal shiplap, or otherwise designed to comply with Section R703.1. Panel siding shall be installed with fasteners in accordance with Table R703.3(1) or the *approved* manufacturer's instructions.

R703.10.2 Lap siding. *Fiber-cement* lap siding having a maximum width of 12 inches (305 mm) shall comply with the requirements of ASTM C1186, Type A, minimum Grade II or ISO 8336, Category A, minimum Class 2. Lap siding shall be lapped a minimum of $1^1/_4$ inches (32 mm) and lap siding not having tongue-and-groove end joints shall have the ends protected with caulking, covered with an H-section joint cover, located over a strip of flashing, or shall be designed to comply with Section R703.1. Lap siding courses shall be installed with the fastener heads exposed or concealed, in accordance with Table R703.3(1) or *approved* manufacturer's instructions.

Reason: Addition of a hyphen to the phrase "fiber-cement" is editorial in nature, and harmonizes the term in this table and heading with the rest of the term's use in this code, and harmonizes with terminology of other codes using this term.

SIDING MATERIAL	
Anchored veneer: brick, concrete, masonry or stone (see Section R703.8)	
Adhered veneer: concrete, stone o masonry (see Section R703.12)	
Fiber cement siding	Panel siding (see Section R703.10.1)
	Lap siding (see Section R703.10.2)

R703.10 Fiber cement siding.

R703.10.1 Panel siding.

Fiber-cement panels shall comply with the requirements of ASTM C1186, shall be installed with the long dimension either parallel or perpendicular and shall be protected with caulking, or with battens or flashing, or be ver R703.1. Panel siding shall be installed with fasteners in accordance with

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

editorial in nature, just harmonizing terminology

CCCIRC6-25

CCCIRC7-25

IRC: R302.10.1, R302.11.1

Proponents: Glenn Mathewson, BuildingCodeCollege.com, representing Self (glenn@glennmathewson.com)

2024 International Residential Code

SECTION R302
FIRE-RESISTANT CONSTRUCTION

Revise as follows:

R302.10.1 Insulation. Insulating materials installed within floor-ceiling assemblies, roof-ceiling assemblies, wall assemblies, *crawl spaces* and *attics* shall comply with the requirements of this section. They shall exhibit a *flame spread index* not to exceed 25 and a *smoke-developed index* not to exceed 450 where tested in accordance with ASTM E84 or UL 723. Insulating materials, where tested in accordance with the requirements of this section, shall include *facings*, where used, such as vapor retarders, *vapor permeable* membranes and similar coverings.

Exceptions:

1. Where such materials are installed in concealed spaces, the *flame spread index* and *smoke-developed index* limitations do not apply to the *facings*, provided that the *facing* is installed in substantial contact with the unexposed surface of the ceiling, floor or wall finish.
2. ~~Cellulose~~ Cellulosic fiber loose-fill insulation that is not spray applied and that complies with the requirements of Section R302.10.3 shall not be required to meet the *flame spread index* requirements but shall be required to meet a *smoke-developed index* of not more than 450 where tested in accordance with CAN/ULC S102.2.
3. *Foam plastic insulation* shall comply with Section R303.

R302.11.1 Fireblocking materials. Except as provided in Section R302.11, Item 4, *fireblocking* shall consist of the following materials.

1. Two-inch (51 mm) nominal lumber.
2. Two thicknesses of 1-inch (25.4 mm) nominal lumber with broken lap joints.
3. One thickness of $^{23}/_{32}$-inch (18.3 mm) *wood structural panels* with joints backed by $^{23}/_{32}$-inch (18.3 mm) *wood structural panels*.
4. One thickness of $^{3}/_{4}$-inch (19.1 mm) particleboard with joints backed by $^{3}/_{4}$-inch (19.1 mm) particleboard.
5. One-half-inch (12.7 mm) *gypsum board*.
6. One-quarter-inch (6.4 mm) cement-based millboard.
7. Batts or blankets of mineral wool or glass fiber or other *approved* materials installed in such a manner as to be securely retained in place.
8. ~~Cellulose~~ Cellulosic fiber insulation installed as tested in accordance with ASTM E119 or UL 263, for the specific application.

Reason: The goal of this proposal is to reduce confusion in understanding and interpreting the IRC by using consistent language and terms. When different terms are used, it implies there is a difference. I do not believe there is an intended difference in the IRC by the use of the two different terms "cellulose" and "cellulostic fiber"
Proposal RB 92-13 for the creation of the 2015 IRC changed the term "cellulose" to "cellulostic fiber", but did not change section R302.11.1. This appears to be an oversight being proposed for correction herein. Section R302.10.1 was proposed for change, but is not published as changed. It may be errata and has been submitted to ICC Errata at the time of submitting this proposal.

Here is the reason statement in RB 92-15
Reason: The purpose of this code change proposal is to clarify the requirements for cellulose insulation by substituting the industry terms for the two types of cellulose insulation commonly used: cellulosic fiber loose-fill insulation and self-supported spray applied cellulosic insulation. These two terms are taken from ASTM C 739, Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation and ASTM C 1149, Standard Specification for Self-Supported Spray Applied Cellulosic Thermal Insulation, respectively. The application of the Exception to Section R302.10.2 is also simplified and made more user friendly by including the smoke-developed index requirement and deleting the reference to Section R302.10.1 where that requirement is specified by the Exceptions to those sections. This saves the code user a step in the process of applying Section R302.10.2 and avoids potential misapplications and misinterpretations that often occur when dealing with multiple Exceptions.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is only to make the current application and intent of the IRC more consistently interpreted.

CCCIRC7-25

CCCIRC8-25

IRC: R306.3.3, R306.3.4

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

SECTION R306
FLOOD-RESISTANT CONSTRUCTION

Revise as follows:

R306.3.3 Foundations. *Buildings* and structures erected in coastal high-hazard areas and Coastal A Zones shall be supported on piles ~~pilings~~ or columns and shall be adequately anchored to such pilings or columns and shall comply with the following:

1. The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of Section R306.3.5.
2. Piles ~~Pilings~~ shall be designed in accordance with ASCE 24 to have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift) and pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the pile ~~piling~~.
3. Columns and their supporting foundations shall be designed in accordance with ASCE 24 to resist combined wave and wind loads, lateral and uplift, and shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the columns. Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with Section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24.
4. Flood and wave loads shall be determined in accordance with ASCE 7 and shall include loads associated with the design flood. Wind loads shall be those required by this code.
5. Foundation designs and *construction documents* shall be prepared and sealed in accordance with Section R306.3.9.

Exception: In Coastal A Zones, stem wall foundations supporting a floor system above and backfilled with soil or gravel to the underside of the floor system shall be permitted provided that the foundations are designed to account for wave action, debris impact, erosion and local scour. Where soils are susceptible to erosion and local scour, stem wall foundations shall have deep footings to account for the loss of soil.

R306.3.4 Concrete slabs. Concrete slabs used for parking, floors of enclosures, landings, decks, walkways, patios and similar uses that are located beneath structures, or slabs that are located such that if undermined or displaced during base flood conditions could cause structural damage to the *building* foundation, shall be designed and constructed in accordance with one of the following:

1. To be structurally independent of the foundation system of the structure, to not transfer flood loads to the main structure, and to be frangible and break away under flood conditions prior to base flood conditions. Slabs shall be a maximum of 4 inches (102 mm) thick, shall not have turned-down edges, shall not contain reinforcing, shall have isolation joints at piles ~~pilings~~ and columns, and shall have control or construction joints in both directions spaced not more than 4 feet (1219 mm) apart.
2. To be self-supporting, structural slabs capable of remaining intact and functional under base flood conditions, including erosion and local scour, and the main structure shall be capable of resisting any added flood loads and effects of local scour caused by the presence of the slabs.

Reason: This proposal intends to create consistency in the use of the word “pile(s)” and “piling(s)” by using the word pile(s) when referring to an individual element like a single timber pile and reserves the use of piling(s) for when referring to an entire system of piles. This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial and provides consistent use of the terms pile(s) and piling(s) and will not increase or decrease the costs of construction.

CCCIRC8-25

CCCIRC11-25

IRC: R324.6.1

Proponents: Jeff Grove, Chair, representing BCAC (bcac@iccsafe.org)

2024 International Residential Code

SECTION R324
GLAZING

R324.6 Skylights and sloped glazing. *Skylights and sloped glazing* shall comply with the following sections.

Delete without substitution:

~~**R324.6.1 Definitions.** The following terms are defined in Chapter 2:~~

~~**SKYLIGHT, UNIT.**~~

~~**SKYLIGHTS AND SLOPED GLAZING.**~~

~~**TUBULAR DAYLIGHTING DEVICE (TDD).**~~

Reason: This proposal is editorial. This proposal removes the list of definitions for this section. All definitions are in Chapter 2 other than energy and electrical. This pointer is not needed for skylights.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2023 and 2024 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at BCAC webpage.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

This proposal is editorial. This proposal removes the list of definitions for this section without affecting the cost of construction.

CCCIRC11-25

CCCIRC12-25

IRC: SECTION 202

Proponents: Jennifer Goupil, American Society of Civil Engineers and Structural Engineering Institute, representing American Society of Civil Engineers (jgoupil@asce.org)

2024 International Residential Code

Revise as follows:

[RB] HANDRAIL. A horizontal or sloping rail ~~intended for grasping~~grasped by the hand for guidance or support.

Reason: This proposal is a coordination proposal to bring the 2027 IRC up to date with the provisions of the 2022 edition of ASCE/SEI 7 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE/SEI 7-22). Additionally, this proposal coordinates the 2027 IRC with the 2027 IBC and IFC due to action taken in Group A on G10-24 Part 1. As no comment was submitted for the Committee Action Hearing #2, G10-24 Part 1 will appear on the consent agenda at the Public Comment Hearing.

The use of the ASCE 7-22 text "grasped" is preferred over "intended for grasping" because stating an items intended use is not necessary. Many definitions describe what an item is used for, however it is not necessary to explicitly call out the use as the object’s purpose or intention. It is simpler, and clearer to just state the use. Removing the phrase “intended for” also removes unnecessary words.

Cost Impact: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

Justification for no cost impact:

Improving coordination of a definition between I-Codes and with ASCE 7 is not expected to affect the cost of construction.

CCCIRC12-25